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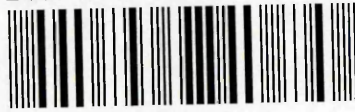
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**Development of an intervention to improve
contraceptive use amongst adolescents**

Katherine Elizabeth Brown

**A thesis submitted in partial fulfilment of the
requirements of
Sheffield Hallam University
for the degree of Doctor of Philosophy**

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Abstract

The main aim of this thesis was to identify key psychological variables associated with effective contraceptive use to target within an intervention aimed at improving contraceptive use amongst adolescents, since rates of pregnancy amongst UK adolescents remain the highest in Western Europe (Summerfield & Babb, 2004). A further aim was to implement and evaluate such an intervention.

A qualitative interview study was conducted with 18 adolescents in order to inform the development of measures for a longitudinal questionnaire study. The questionnaire study was conducted with 291 adolescents to assess which of 17 predictor variables were best at discriminating between less effective and more effective contraceptive users. Analysis identified three variables, from the original 17 predictors, to target within an intervention, namely self-efficacy, control beliefs and anticipated regret.

Materials for four intervention conditions were developed. One condition focused on manipulating the similar constructs of self-efficacy and control beliefs, a second focused on anticipated regret, a third combined the materials from the first two conditions, and a fourth acted as an information-only control. Baseline measures of control beliefs, self-efficacy and anticipated regret were taken from 414 adolescents, alongside measures of stages of change (SOC from the transtheoretical model; TTM; Prochaska & DiClemente, 1983), the other constructs from the theory of planned behaviour (TPB, Ajzen, 1988), and a self-report measure of behaviour. One week later, the intervention was implemented and immediate post-intervention measures of the psychological variables taken. Four to five weeks post intervention follow-up measures of the psychological constructs, SOC and behaviour were taken. Analysis of the data showed that levels of five psychological constructs, including self-efficacy, anticipated regret and intention to use contraception had significantly increased over the course of the intervention. Self-reported contraceptive behaviour also showed significant increases amongst a sub-sample of sexually active participants who had relatively low intentions to use contraception at the outset of the intervention. This increases occurred however, regardless of the condition of the intervention.

These findings represent an extremely positive outcome for behavioural change research and have important wider implications. Since it seems likely that the questionnaires rather than intervention materials were responsible for observed changes, the findings demonstrate the difficulty in differentiating between the impact of actual intervention material and the questionnaires used to measure their effectiveness. There is also evidence that it may be advantageous to tailor future interventions to specific sub-groups of populations. Suggestions for future research are provided and the implications of the findings for pregnancy prevention within the UK are also addressed.

Synopsis

Rates of pregnancy amongst UK adolescents were the highest in Western Europe six years ago, and despite some evidence of a decline, the UK rates remain the highest, with the latest figures suggesting there has been a slight increase in the numbers of teenagers becoming pregnant (Summerfield & Babb, 2004).

This thesis argues that one reason why the Government's approach to reducing teenage pregnancy has not been more successful is because its intervention has not been theory-driven or based on factors, other than knowledge, that are amenable to change. Research consistently shows that knowledge is a necessary but not sufficient factor to ensure health behaviour change (e.g. Richard & van der Pligt, 1991). It is therefore argued that research should focus on identifying variables, such as attitudes, which are amenable to change, and which have been shown to be related to behaviour, including health behaviours (e.g. Ajzen, 1991).

Within health psychology, a great deal of research has focussed on social cognitive constructs to predict and understand a diverse range of health behaviours (e.g. Ajzen, 1991; Armitage & Conner, 2001; Grimley, Prochaska & Prochaska, 1997; Harrison, Mullen & Green, 1992). Research in the area of sexual health has however tended to focus solely on condom use and the prevention of HIV and other sexually transmitted infections (e.g. Albarracín, Johnson et al., 2001), and there has been a paucity of research applying findings to the development, implementation and evaluation of interventions (see Rutter & Quine, 2002). The aim of this thesis was therefore to identify key variables associated with effective contraceptive use that could

be targeted within an intervention aimed at improving contraceptive use, and to implement and evaluate such an intervention.

Interviews with 18 teenagers were conducted to develop a greater understanding of the ways teenagers think and feel about contraceptive use. Findings from this research, as well as a review of relevant literature, informed the development of a questionnaire that measured 17 potential predictors of contraceptive use. The predictors included variables from two key theories that have been used to study condom use, the theory of planned behaviour (TPB) and the transtheoretical model (TTM).

A longitudinal questionnaire study was conducted with 291 adolescents to assess which of the 17 predictor variables were best at discriminating between the stages of change (SOC) for contraceptive use. Findings suggested that six of the variables were important for differentiating between the five SOC. However, issues associated with using the SOC as an outcome measure were identified, culminating in the decision to develop a one-size-fits-all intervention. Further analysis identified three variables, from the original 17 predictors, to target within an intervention, namely self-efficacy (from the TTM), control beliefs (from the TPB) and anticipated regret.

Materials for four intervention conditions were developed based around evidence from the Elaboration Likelihood Model literature (ELM; Petty & Cacioppo, 1986) and taking into consideration recommendations and examples in the literature (e.g. Bandura, 1997; Quine, Rutter & Arnold, 2001). One condition focussed on manipulating the similar constructs of self-efficacy and control beliefs, a second focussed on anticipated regret, a third combined the materials from the first two conditions, and a fourth acted as an information-only control. Baseline measures of control beliefs, self-efficacy and anticipated regret were taken from 414 adolescents, alongside measures of the other constructs from the TPB, SOC and a self-report measure of behaviour. One week later, the intervention was implemented and immediate post-intervention measures of the psychological variables taken. Four to

five weeks post intervention follow-up measures of the psychological constructs, SOC and behaviour were taken. Analysis of the data showed that levels of five psychological constructs, including self-efficacy, anticipated regret and intention to use contraception had significantly increased over the course of the intervention, but that this occurred regardless of the condition of the intervention.

These findings suggest that the questionnaires themselves were responsible for the significant increases that were observed, and that the condition manipulations did not have the impact that was expected. The possibilities that either a Hawthorne or developmental effect were responsible are discussed, and evidence in support of questionnaires themselves acting as an intervention within the existing literature is presented in support of this explanation (e.g. Judd & Brauer, 1995; Richard et al., 1996; 1998). The wider implications of this research for theory-driven intervention design are discussed, since they demonstrate the difficulty in differentiating between the impact of actual intervention material and the questionnaires used to measure their effectiveness, such that researchers can feel confident their interventions would work in isolation. Suggestions for future research are provided and the implications of the findings for pregnancy prevention within the UK are also addressed.

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List of abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ANCOVA	Analysis of Covariance
AR	Anticipated Regret
COS	Change of Stage
EC	Emergency Contraception/Contraceptive
HAPA	Health Action Process Approach
HBM	Health Belief Model
HIV	Human Immunodeficiency Virus
IOC	Information Only Control
MANOVA	Multivariate Analysis of Variance
MVA	Missing Value Analysis
OC	Oral Contraception/Contraceptive
P/W	Prototype/Willingness (as in model of)
PBC	Perceived Behavioural Control
PCB	Perceived Control over Behaviour
SCT	Social Cognitive Theory
SE	Self-Efficacy
SEU	Subjective Expected Utility
SOC	Stage(s) of Change
STI	Sexually Transmitted Infection
T1	Time One
T2	Time Two
T3	Time Three
TC	True Control
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
TTM	Transtheoretical Model

Chapter 1

Literature Review

1.1. Introduction

There are currently high rates of adolescent pregnancy within the UK (see section 1.2 on page 2, below). This chapter begins by discussing these high rates, and explains the British Government's approach to tackling this issue in recent years. A critique of the Government's approach provides a rationale for the need to incorporate theory-driven research in any approach aimed at reducing numbers of teenage pregnancies.

The review then focuses on the psychological and sociological literature that has examined adolescent pregnancy (or in terms of the older literature, 'pregnancy before marriage'), and contraceptive use, and attempted to explain or predict non-use or misuse of contraception. Evidence that some psychological, sociological, socio-economic and demographic variables are generally unamenable to change is provided within this section and thus a rationale for a focus on *other* psychological variables is provided.

Following this, the chapter introduces the predictors of contraceptive use which are more amenable to change, and that have received attention in the psychological literature. Models of health behaviour (e.g. the Health Belief Model; HBM; Rosenstock, 1966; 1974) that have been developed to explain the interaction of such variables and their impact on general health-related behaviours, are evaluated, before models that have attempted to explain contraceptive use specifically are introduced.

Models that have been used to explain contraceptive use are discussed, ranging from those designed specifically for contraceptive behaviour to those developed in the more general context of health behaviour and other psychological research. This provides evidence for the selection of potentially important variables on which to focus research aiming to improve adolescent contraceptive use. Intervention research that has focussed on improving contraceptive use is then presented, emphasising the largely atheoretical nature of such work before focussing on research that has incorporated some of the theoretical constructs identified as potentially important for the current thesis.

1.2. Background

In 2001 ninety-six thousand teenagers conceived in England & Wales (Summerfield & Babb, 2004). Of the 96 000 conceptions, 8 000 were to girls under the age of 16, and 400 were to girls under the age of 14 years. Over 57 000 of these conceptions led to births (Summerfield & Babb, 2004). These rates of teenage pregnancy, despite some evidence of decline over recent years (Summerfield & Babb, 2004), remain the highest in Western Europe, and the latest available figures suggest rates actually increased again in the following year (Quarterly conceptions for women aged under 18, 2004). Canada, New Zealand and the United States are the only countries in the developed world that have higher live-birth rates among 15 to 19 year-old women, and teenage birth rates within the United Kingdom are twice as high as in Germany, three times as high as in France and six times as high as in the Netherlands (see Social Exclusion Unit [SEU] report, 1999).

The impact of such high numbers of teenage pregnancy is far reaching. There are approximately 38 500 teenage women opting for abortions each year in England and Wales (Summerfield & Babb, 2004). Those that *do* carry their pregnancies to term,

and keep their babies, are more likely to drop out of education, become socially isolated, and live in poverty, than their non-pregnant counterparts (SEU report, 1999). The daughters of teenage mothers are more likely to become teenage mothers themselves, and the high risk of poverty, social exclusion and deprivation is argued to be passed on to the next generation (SEU report, 1999).

The Government, and local health authority agencies dealing with teenage pregnancy, seem keen to reinforce a link between teenage parenthood and low educational attainment, poverty, deprivation and low socio-economic status. This is illustrated by an extract from, *A teenage Pregnancy Strategy for Sheffield 2001-2011*;

There is ... a clear association between Townsend Deprivation Index and conception rate, with the four most deprived wards also having the highest conception rates. Similarly, four of the six most affluent wards are amongst the seven wards with the lowest conception rates (p10).

However, within Sheffield at least, the pattern of teenage conception rates is not as straightforward as the above quote suggests. One of the more affluent electoral wards has a conception rate above that of the Sheffield average of 52.4 per 1000 of the population, and one of the more deprived wards has a lower than average teenage conception rate, for Sheffield. There is also evidence that the difference between lower and higher socio-economic groups, in teenage parenthood rates, is not due to a difference in conception rates in every case, but a difference in abortion rates. For example, in 1998 the affluent electoral ward of Hallam in Sheffield saw, amongst those aged under 18, 33.4 per 1000 of the population, conceive. However, no under 19 births are recorded. This provides support for the notion that young people from higher socio-economic groups may feel they have more to lose by continuing with a

pregnancy, and so, more frequently opt for abortion (A teenage pregnancy strategy for Sheffield, 2001-2011, p10).

Since the publication of the Social Exclusion Unit's report in 1999, the British Government has implemented a national strategy that aims to halve the number of conceptions amongst those aged 18 years of age and younger, by 2010. Local Health Authorities throughout the United Kingdom have been charged with implementing this strategy within their areas. In Sheffield¹, the Teenage Pregnancy Joint Planning Group, part of the Strategic Health Planning Partnership, has set up two groups to address the problems associated with teenage pregnancy.

One group addresses sex and relationships education in schools, and leads on support for teenage parents, including reintegration into education. The other group is responsible for developing sexual health services, including contraception and advice.

(A Teenage Pregnancy Strategy for Sheffield 2001-2011, p4).

In Coventry², the local health authority has also established a dedicated team, or Partnership Board, to produce and implement a 10-year teenage pregnancy strategy. Rates of teen pregnancy in Coventry are even higher than in Sheffield, at 59.1 per 1000 of the population (Office for National Statistics), and the aim locally is to reduce the rates by 55%, by the year 2010 (Coventry Health Authority, 2001).

The National Strategy to reduce teenage conceptions in the United Kingdom sets out clear descriptions of the perceived causes of high pregnancy rates. These are: *low expectancies, ignorance and mixed messages* (SEU report, 1999). However, no

¹ & ² Sheffield and Coventry were the two locations for data collection within this thesis.

information is provided on how these conclusions have been drawn. For example, to illustrate the cause of teenage pregnancy as being attributable to *low expectancies*, the report states;

One reason why the UK has such high teenage pregnancy rates is that there are more young people who see no prospect of a job and fear they will end up on benefit one way or another. Put simply, they see no reason not to get pregnant.

(SEU report, 1999, p7).

The report includes no empirical evidence to support this claim. In fact, in the section following this statement, the report shows clearly its use of anecdotal evidence. To explain *mixed messages* as a cause of teenage pregnancy the report states;

As one teenager put it to the Unit, it sometimes seems as if sex is compulsory but contraception is illegal. One part of the adult world bombards teenagers with sexually explicit messages and an implicit message that sexual activity is the norm. Another part, including many parents and most public institutions, is at best embarrassed and at worst silent...

(SEU report, 1999, p7).

Taken at face value, these causal explanations of unintended teenage conception appear valid, and are potentially part of a causal model of unintended teenage pregnancies. However, again, the report lacks evidence to support its assertions. Critically, despite local strategies detailing plans that will be undertaken to reduce teenage pregnancy, there is insufficient information regarding how changes to the factors influencing rates of pregnancy will *actually affect* the behaviour of young

people, in terms of increased uptake of efficient contraceptive use and decreased pregnancy rates.

To further illustrate this point, the strategy's third statement regarding cause is *ignorance*;

Young people lack accurate knowledge about contraception, STIs³, what to expect in relationships, and what it means to be a parent.

(SEU report, 1999, p7).

To address this issue, the strategy insists that young people need to be provided with good sex education in schools and other places where they can be reached. While accurate knowledge and skills about contraception and sex are undoubtedly needed, research has consistently shown that improving people's knowledge about the risks involved in unsafe sexual behaviour does not significantly affect their subsequent intention to use condoms (e.g. Abraham, Sheeran, Spears & Abrams, 1992; Richard & van der Pligt, 1991). Sundby, Svanemyr and Maerhe (1999) also found that, despite contraceptive awareness being very good amongst participants, their consistency of use of contraceptives varied, and even some consistent users became pregnant.

In order to address the issues surrounding unintended teenage pregnancy further, it is argued within this thesis that it is essential to carry out theory-driven research.

Understanding the reasons why different methods of contraception are not used, or used ineffectively or inconsistently, can be achieved by identifying underlying causal factors. This will assist in the design of intervention(s) rooted in theory, which arguably will be, *a priori*, capable of providing effective changes in contraceptive behaviour.

1.3. The focus of research

This review has detailed the current issue of high rates of teenage pregnancy within the UK. Whilst a proportion of these pregnancies may be planned, a greater proportion appear to be unintended and therefore the direct result of either misuse or non-use, of contraceptives. An introduction to the political reaction to this issue, including some critique of the approach taken to reduce teen pregnancies, has provided a clear rationale for the need for theory-driven research within this area.

1.3.1. The complexity of contraceptive use

Contraceptive use is a highly complex behaviour. It is inextricably linked to the social and cultural environment within which a person lives (Romo, Berenson & Segars, 2004), and the complexities of an intimate relationship with a sexual partner (Bennett & Bozionelos, 2000). During the adolescent years these complexities are likely to be exacerbated as 'protracted struggles concerning a multiplicity of questions about their development as sexual beings,' are engaged in (Shoveller, Johnson, Langille & Mitchell, 2004, p473). In addition, contraceptives are available in many forms, each requiring a different set of behaviours and human interactions.

1.3.2. Developmental, sociological and socio-political approaches

The majority of research focussing on contraceptive use, particularly adolescent contraceptive use, has attempted to explain its non-use and misuse through an exploration of an extensive selection of variables (e.g. DeLamater & MacCorquodale, 1979; Morrison, 1985; Whitbeck, Conger & Kao, 1993). Within developmental social psychology, for example, variables explored have tended to represent a particularly negative and problematic view of adolescent sexuality and contraceptive use (e.g. Ehrhardt, 1996). Most prominent within developmental research are attempts to

³ STI meaning sexually transmitted infection.

explain teenage pregnancy in terms of variables such as female promiscuity and its relationship with absent fathers (e.g. Whitbeck et al., 1993). It is arguably the case that the utility of such research is limited in that it removes responsibility for conception from adolescent males, for example, and promotes a negative view of single-parent families. As such, the correlates and antecedents of adolescent pregnancy require exploration beyond issues that are perceived to have a negative impact on sexual development.

Research that has come from a more sociological and socio-political arena has tended to focus on variables such as age and socio-economic status to explain teenage pregnancy (e.g. Kantner & Zelnik, 1972; Scott-Jones & Turner, 1990; Kaplan, Martin & Robbins, 1985; Zelnik & Kantner, 1977). Relationships have also been found between rates of teenage pregnancy and ethnic group (e.g. Bingham, Miller & Adams, 1990; Murry, 1992), with greater numbers of Black adolescents experiencing unintended pregnancy than White adolescents. There is however, evidence to suggest this ethnicity link relates back to socio-economic status, rather than being a function of race *per se* (e.g. Hogan & Kitagawa, 1985). Further research provides a convincing argument for the role that poverty plays in explaining adolescent unintended pregnancy amongst western cultures (e.g. see particularly Luker, 2000; but also Williams, 1991). These sources challenge the assumption that pregnancy as a teenager causes, or at least exacerbates poverty, and argue that most teenagers who conceive are economically disadvantaged to begin with and delaying childbirth until they are beyond twenty years old will not change that fact (Luker, 2000).

The sociological and socio-political correlates of teenage pregnancy outlined above are arguably part of a complex interplay of causal factors that impact upon individuals' cognitive processes, behaviours and experiences in relation to contraceptive use. Yet, the sociological constructs outlined do not represent variables that are easily amenable to change within health promotion and intervention settings. Therefore, where

sociological variables may be largely unresponsive, at the level of practically implemented and affordable interventions, psychological variables may offer parsimonious means of influencing behavioural change amongst populations by targeting appropriate variables known to have a degree of adaptability (e.g. behavioural intentions; Ajzen, 1991).

1.4. The focus of psychological research

1.4.1. Demographic factors

Some of the psychological research on adolescent contraceptive use and unplanned pregnancy has examined relationships with factors that have more often been the focus of the sociological literature. Variables such as age, gender, race, educational attainment, religiosity, and socio-economic status *have* been found to hold significant correlations with contraceptive use (e.g. DeLamater & MacCorquodale, 1979; Foreit & Foreit, 1978; Furstenburg, Shea, Allison, et al., 1983; Kantner & Zelnik, 1973).

However, Lowe and Radius (1987) found that background factors such as these accounted for only 2% of the variance in their measure of contraceptive use, and there is much evidence to support the notion that these variables are mediated by other variables such as attitudes about sex and contraception (e.g. DeLamater & MacCorquodale, 1979; Sheeran, Abraham, Abrams, et al., 1990; Zelnik & Kantner, 1977).

1.4.2. Personality variables

Further psychological research has focussed on the relationship between personality variables and contraceptive use. Self-esteem and locus of control are two examples of such variables that have received much attention in the literature (e.g. DeLamater & MacCorquodale, 1979; Morrison, 1985). Locus of control refers to a personality variable describing the extent to which a person believes given outcomes are due to their personal input (internal control) versus the impact of external factors, such as

other people or luck (external control; Rotter, 1990). Investigations of locus of control have generally found a lack of support for a significant relationship with contraceptive use (e.g. Gold & Berger, 1983). A possible reason for this, it has been argued, may be that locus of control as a general personality variable is not sufficiently related to performance of the behaviour in question and that, 'more sexually-specific measures of efficacy would correlate more highly with contraceptive use' (Sheeran White & Phillips, 1991, p263). Similarly, self-esteem has been found to have little, if any, relationship with contraceptive use (e.g. DeLamater & MacCorquodale, 1978; Garriss, Steckler & McIntire, 1976; Hornick, Doran & Crawford, 1979). Those studies which *have* found small but significant relationships with self-esteem have focused on female users and seem to suggest that the relationship may be limited to contraceptive methods that require a public acknowledgment of use, because of the need to attend a family planning clinic, for example (e.g. Herold, Goodwin & Lero, 1979; Lundy, 1972).

The tendency to engage in risk-taking behaviour is a further variable that has been investigated within the literature. Older literature suggests that there is no link between contraceptive use and general risk-taking behaviour (e.g. Rader, Bekker, Brown & Richardt, 1978). However, more recent research presents a slightly less conclusive assessment of the relationship between these two variables. For example, Donohew, Zimmerman, Cupp, et al. (2000) found strong correlations between sensation seeking, impulsive decision making and a number of sexual risk-taking behaviours, and Metzler, Noell and Biglan (1992) found significant relationships between high risk sexual behaviours and other adolescent problem behaviours. In contrast, there is evidence that contraceptive non-use does not co-vary with other risk behaviours in adolescence (Fisher & Chalton, 2001). It may be the case that contraceptive non-use did not co-vary with other risk behaviours in Fisher and Chalton's study because it represents a deliberate choice not to use contraception for some adolescents, or the fact that the teenager is not concerned about getting pregnant (or getting a girl pregnant), and is

therefore not really considered risky. It may also be the case that the difference between older and more recent research reflects differences amongst the samples of adolescents studied. It is possible that participants in the 1970s literature simply engaged in different kinds of risk-taking behaviour compared with their modern-day counterparts.

Further research that has focused on the relationship between contraceptive use and personality variables includes the investigation of sex guilt or sex anxiety and erotophobia and erotophilia (dispositions to respond in negative and positive ways respectively to sexual cues). Significant associations between these variables and contraceptive use versus non-use, and consistency of use have been found in the literature (e.g. Gerrard, 1982; Herold & McNamee, 1982). In addition, these variables have tended to be the focus of a sub-set of decision models of contraceptive use (e.g. Byrne, 1983; Reiss, Banwart & Foreman, 1975; further discussion of this is included in section 1.6 below). Other variables that have received attention include socialisation, low levels of which have been found to be related to use of an unreliable contraceptive method and inconsistent use of any method (e.g. Oskamp & Mindick, 1983). Measures of conservatism and sex-role traditionality have also been found to correlate negatively with contraceptive use (DeLamater & MacCorquodale, 1979; Geis & Gerrard, 1984). It is possible that the importance of these variables is linked to the ability to communicate with a partner about using contraception, (which is discussed in further detail in section 1.4.3.2 below), and feeling confident enough to purchase contraception or visit the family planning clinic or general practitioner (GP) to obtain it (refer to discussion of self-efficacy and perceived behavioural control in section 1.7 below, on page 42).

Variables that have been found to hold positive associations with contraceptive use include problem solving ability and future orientation (e.g. Harvey, 1976; Steinlauf, 1979), yet intelligence quotient (IQ) scores have not been evidenced as relating either

positively or negatively to contraceptive use (Oskamp, Mindick, Berger & Motta, 1978). There is however some evidence that state and trait anxiety, as well as specific measures of sex anxiety, are successful in predicting contraceptive behaviour (e.g. Brooks & Butcalis, 1976; Janda & O'Grady, 1980; Joesting & Joesting, 1974). It is arguably the case that whilst evidence exists of relationships between measurements of personality variables and contraceptive use, in a similar capacity to background factors, such relationships may not be directly impacting upon contraceptive behaviour, but are likely to be mediated by other variables, such as attitude towards contraceptive methods (see Gold & Berger, 1983; p115). With the possible exception of self-esteem, it is unlikely that personality variables, any more than demographic variables are amenable to change within health promotion and intervention settings. As this thesis aims to develop such an intervention, it is necessary to assess the predictability of psychological variables that may be more susceptible to change.

1.4.3. Non-cognitive factors amenable to change

Situational variables

Some situational factors have received attention with regard to contraceptive use. Hacker (1977) found that use of alcohol, drugs and the physical constraints of the location where sexual intercourse takes place can all negatively impact upon the use of an effective method of contraception. Drugs and alcohol can have a direct effect on behaviour in that they may reduce the ability to use contraception, and make the prospect of not using it seem less serious than it normally would (Hacker, 1977). Herold and McNamee (1982) found a correlation of .34 between substance use prior to intercourse and non-use of contraceptives. In addition, the physical constraints of the location where sex occurs may be important because contraception is not available (Hacker, 1977). Further research that has focused on location of sexual intercourse has revealed that living away from the parental home predicts better and more frequent use of contraception (e.g. Hill, Peplau & Rubin, 1983; Kantner & Zelnik, 1973). This

finding holds for both men and women, but is likely to be mediated by the fact that young people living away from the parental home may be engaging in more frequent sex, and have less fear of discovery than their 'at home' counterparts (Sheeran et al., 1991). These situational variables *are* amenable to change to a greater degree than most personality and demographic variables and could therefore be considered as possible targets for intervention.

Intrapersonal and Partner communication variables

Frequency of sexual intercourse is one of the most commonly reported variables in the earlier literature relating to intrapersonal variables and contraceptive use (e.g. DeLamater, 1983; DeLamater & MacCorquodale, 1978; Foreit & Foreit, 1978; Geis & Gerrard, 1984; Morrison, 1985). The greater the frequency of sexual intercourse between partners, the more likely contraception will be used consistently and effectively. However, it has been argued that such frequent occurrence of sexual intercourse is strongly associated with use of the contraceptive pill (Morrison, 1985). Women who are having frequent sex, or who expect to, are more likely to take oral contraceptives than women who do not expect to be having intercourse often (Morrison, 1985). Women frequently having sex therefore tend to be better protected from unplanned pregnancy compared to women having sex less often. These findings are also asserted in some of the early models of contraceptive use (see specifically Reiss, Banwart & Foreman, 1975; section 1.6 below, on page 34).

Other research has supported the notion that qualities of a sexual relationship help predict effective contraceptive use. For example, the length a relationship has lasted (e.g. Cvetkovich & Grote, 1981; Foreit & Foreit, 1981), the exclusivity of a relationship (e.g. DeLamater & MacCorquodale, 1978; Herold & McNamee, 1982) and levels of intimacy in a relationship (e.g. Furstenburg, et al., 1983) are all associated with consistent use. Additionally, a couple's ability to discuss contraception has been found

to be positively associated with contraceptive success (e.g. Herold & McNamee, 1982; Herold & Samson, 1980). The relationship between the ability to discuss contraception and contraceptive success may however be subsumed by power differentials within a relationship, where one partner has greater power and influence over the other (e.g. Cohen & Rose, 1984; Cvetkovich & Grote, 1983; Herold & McNamee, 1982; Whitley & Schofield, 1986).

The research involving intrapersonal and partner communication variables has oftentimes been inconclusive. For example, a positive correlation has been found between frequency of intercourse and contraceptive use (Geis & Gerrard, 1984; Herold & McNamee, 1982), and this relationship is mediated by partner influence to use contraception and guilt about intercourse. In addition, whilst some research concludes that effective contraceptive use increases with the seriousness of relationship (i.e. “casual” vs. “steady”⁴ vs. engaged; Sheeran et al., 1991), other findings suggest that the direction of the relationship depends on methodology and definitions incorporated within the study (e.g. Morrison, 1985).

Variables such as the ability to effectively communicate with a partner about contraception, are similar to some of the situational variables outlined, in that they may be responsive to change through some form of intervention, and may therefore be candidates for sexual health promotion. Despite this, this thesis argues that cognitive psychological variables may be more strongly associated with behaviour than situational and interpersonal factors, and in addition, more directly responsive to intervention. Further discussion of these cognitive factors therefore follows.

⁴ Meaning relatively long-term monogamous relationships

1.4.4. Knowledge, attitudes and beliefs; cognitive factors amenable to change

Knowledge, attitudes and beliefs are variables that are known to be amenable to change. They are learnt and therefore have the potential to be unlearnt, added to, or altered in some way. These variables have received attention in relation to their impact on contraceptive use in literature published over four decades (e.g. Furstenburg, Gordis, & Markowitz, 1969; Jaccard & Davidson, 1972; Lowe & Radius, 1987; Richard & van der Pligt, 1991).

Accurate knowledge about contraception is, under most circumstances, a necessary prerequisite of effective and consistent contraceptive use. Past research has considered lack of knowledge, and inaccurate knowledge amongst adolescents and young people in relation to contraception. For example, Cvetkovich and Grote (1983) reported that 10% of their participants did not know that pregnancy was as likely on the first occasion of intercourse as any other. They also reported that correctly identifying the period of greatest pregnancy risk during the menstrual cycle was achieved by less than half of the males and fewer than two thirds of the females (see also Lowe & Radius, 1987; Rothenberg, 1980; Schofield, 1965). This tendency to report percentages is reflected in much of the early research into the attitudes and beliefs of adolescents regarding contraception. Whilst such data is of interest, its use is limited in that it does little to help establish potential antecedents of behaviour that could be targeted in interventions. Furstenburg et al. (1969), for example, reported that almost 40% of their participants held negative or mixed beliefs about contraceptives, and Freeman, Rickels, Huggins et al. (1980) found that around two thirds of teenagers thought a girl would feel 'used' if her partner knew she took contraception. However, knowledge about contraception, no matter how accurate and plentiful, is widely accepted to be insufficient in ensuring that contraception is used when pregnancy is not desired (e.g. Abraham, Sheeran & Orbell, 1998; Richard & van der Pligt, 1991).

Further research has found evidence that beliefs about side effects, effects on morality and pleasure gained from sex, and the effectiveness and convenience of a method, were all significant in distinguishing between women who had positive attitudes towards oral contraceptives and those with negative attitudes (e.g. Jaccard & Davidson, 1972; Werner & Middlestadt, 1979). However, the dispute regarding the attitude-behaviour relationship within social psychology (see 1.5.1 below), affected the discussion over attitudes toward contraception and whether they could be considered causal factors of non-use or misuse of contraceptives (e.g. Bauman, 1970; Morrison, 1985), despite some evidence provided by correlational studies (e.g. Herold & McNamee, 1982).

The development of the literature aimed towards improving contraceptive use has therefore largely come from literature within social psychology and the emerging field of health psychology, and specifically social cognition models, where the dispute over the attitude-behaviour relationship has been addressed in relation to a variety of health-related behaviours.

1.5. Social cognition models and health psychology

1.5.1. Attitude-behaviour relationship and the principle of compatibility

Fishbein (e.g. 1967) began to address the issue of the seemingly poor predictive relationship between attitudes and behaviour. The research used Subjective Expected Utility theory (SEU theory⁵; Edwards, 1954) and expectancy-value theory⁶ (Peak, 1955), to explain the relationship between beliefs and attitudes. To explain this relationship further Fishbein added the variable intention, which was thought to mediate

⁵The SEU model (Edwards, 1954) is an early theory from which many later models of health behaviour were developed. It purports that people will always choose a course of action that they subjectively feel will bring them the greatest benefits and the least cost.

⁶ Expectancy-value theory follows much the same principles as SEU theory.

the relationship between attitudes and behaviour (Fishbein, 1967). This theorising later developed into what became known as the theory of reasoned action (TRA; Fishbein & Ajzen, 1975) and was later further developed into the theory of planned behaviour (TPB; Ajzen, 1988; see 1.5.4 below, on page 21). The attitude-behaviour discrepancy was further explained through what is now known as the principle of compatibility (Ajzen, 1988; Ajzen & Fishbein, 1977; Fishbein & Ajzen, 1975). This principle posits that when an attitude and behaviour are being researched, they should be measured at the same levels of time, context, action and target in order that the accordance between these factors is maximised. Adherence to this principle, along with the concurrent inclusion of a measure of intention has to some extent resolved major discrepancies in the ability of attitudes to predict behaviour (Ajzen, 1988). Some of the theories that have been developed from this work are examined and evaluated below.

1.5.2. Beliefs, attitudes and other social cognitive variables amenable to change

Beliefs, attitudes and knowledge have been central to much of the research using social cognition models to explain and predict health behaviours. According to social cognition theories, these variables broadly represent the social cognitive factors that pre-empt behaviour, are learned through socialisation, and have the ability to distinguish between similar individuals (e.g. see Conner & Norman, 2005). Most importantly, these variables are also responsive to change, and offer psychologists an avenue for intervening with, and having a positive impact on health behaviours (Conner & Norman, 2005). Models utilising these variables, which have been applied to a variety of health behaviours include the Health Belief Model (HBM; Rosenstock, 1966; 1974), the Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975), the Theory of Planned Behaviour (TPB; Ajzen, 1985; 1988; 1991) and the Transtheoretical model⁷

⁷ The TTM was developed within the field of clinical psychology, rather than social psychology.

(TTM; Prochaska & DiClemente; 1982; 1983). Each of these models is described and evaluated in relation to its application to health behaviours below.

1.5.3. The Health Belief Model (HBM; Rosenstock, 1966)

The HBM was developed in the United States in the 1950s by public health researchers looking for ways of identifying targets for health interventions (Abraham & Sheeran, 2005). They had evidence that demographic and socio-economic variables were predictive of health behaviour, but were aware that these variables were not amenable to change (Rosenstock, 1966; 1974). The model they developed purports that there are two key variables on which the motivation to carry out preventative health behaviours depend. These are the extent to which an action is believed to be beneficial in reducing a threat *and* being in a psychological state of readiness to act. Each of these variables in turn is dyadic in nature. Being in a psychological state of readiness to act is dependent on an individual's perceptions of vulnerability to a threat to their health and their perceptions of the severity of that threat in terms of its effect on their life. The extent to which an action is believed to be beneficial in reducing a given threat is dependent upon the perceived benefits gained by the action, weighed against the perceived costs or barriers involved in performing the action. In addition to these variables, Rosenstock (1966) believed that, in many cases, an additional variable is necessary to explain when action will take place. A cue to action, which in the case of contraceptive use might be a pregnancy scare or the start of a new sexual relationship, is needed in order to motivate the person who is psychologically ready to act. In later versions of the model (e.g. Becker, 1977) a sixth variable, health motivation, was also included, representing an individual's motivation to be concerned about health matters.

The HBM is arguably the social cognition model to have received the greatest attention within the health behaviour literature. The model and its constructs have been used to study behaviours as diverse as smoking and alcohol use (e.g. Stacy & Lloyd, 1990,

Werch, 1990) compliance with drug and treatment regimens (e.g. Abraham, Clift & Grabowski, 1999; Kirsht & Rosenstock, 1977; Hartman & Becker, 1978), breast self-examination (e.g. Champion, 1984; Millar, 1997), diet and exercise behaviours (e.g. Langlie, 1977), and dental health behaviours (e.g. Chen & Land, 1986). The HBM however, has been criticised for two main reasons. The first is that Rosenstock failed to specify how the variables of the model should be combined in order to influence behaviour, which has led to different studies using different combinations of variables making them difficult to compare (Quine, Rutter & Arnold, 2000). In addition, clear indications as to how the variables should reliably be measured were also neglected by the author (Champion, 1984). Despite these difficulties with operationalising the model, quantitative reviews of research applying the HBM to health behaviours have shown some support for the model's constructs, in particular the variables of perceived susceptibility, severity, benefits and barriers. For example, a review involving the calculation of significance ratios for HBM constructs found that these four constructs were significantly predictive of behaviour in between 65% and 89% of the studies examined (Janz & Becker, 1984). Barriers were the most reliable predictor of behaviour, followed by susceptibility and benefits, with severity still achieving significance in almost two thirds of cases (Janz & Becker, 1984). A meta-analytic review of these four constructs of the HBM also found that they significantly predicted behaviour in both cross-sectional and prospective studies (Harrison, Mullen & Green, 1992). In this case however, the more sophisticated statistical analyses revealed that the variance in behaviour explained was small, with on average an individual component accounting for only four percent of the variance in behaviour. Despite this, the literature that has applied the four main constructs of the HBM to health behaviour shows support for their predictive abilities.

In relation to the two further constructs of the HBM, cues to action and health motivation, empirical research has been somewhat limited. In the case of cues to

action, findings have varied dependent on research areas and the cues themselves (Sheeran & Abraham, 1996). For example, with regard to smoking cessation, it has been found that advice from doctors can be a successful cue to action (e.g. Stacy & Lloyd, 1990) whilst memory of a mass media campaign had no effect on behaviour (e.g. Mullen, Hersey & Iversen, 1987). In addition, knowing someone who has acquired immune deficiency syndrome (AIDS) or is human immunodeficiency virus (HIV) positive has not been a successful behavioural change cue for gay men (e.g. Wolcott, Sullivan & Klein, 1990), whilst knowing someone who has had a bad experience of an influenza vaccination is negatively associated with a person's own vaccination behaviour (e.g. Aho, 1979). Cues to action holding the strongest relationship with behaviour have tended to be measures of illness related symptoms such as pain (e.g. Kelly, Mamon & Scott, 1987).

Measures of health motivation have also had mixed findings in relation to their ability to predict health behaviour. There are multivariate studies that have found significant positive relationships (e.g. Portnoy, 1980) and there are others that have found no significant association (e.g. Wagner & Curran, 1984). Correlational studies have generally found statistically significant relationships, but they have tended to be small (e.g. Champion, 1984). Measures of this variable, as with the other HBM constructs have varied from study to study, and it is possible that more established constructs such as health locus of control (e.g. Strickland, 1978) may subsume a measure of health motivation. Overall, the HBM has provided a useful framework for attempting to explain and predict important health behaviours. Whilst there has been evidence that its constructs are predictive of health behaviour on the whole, the relationships have been small, and it seems likely that other variables may provide a more complete explanation, and therefore provide a better aid to intervention design than this model allows.

1.5.4. *The Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB)*

The Theory of Reasoned Action, proposed by Fishbein (1972) and Fishbein & Ajzen (1975) was designed to explain behaviours generally, and has been applied to health behaviour (e.g. Carter, 1990; Manstead, Proffitt & Smart, 1983; Morrison, Baker & Gilmore, 2000). It was unique in that it accounted specifically for social influence in the decision making process and the likelihood of a behaviour being carried out according to a measure of behavioural intention. In subsequent years the TRA received an additional variable, perceived behavioural control (PBC), and became the Theory of Planned Behaviour (TPB; Ajzen, 1988; 1991). The TPB proposes that behaviour is directly related to a person's intention to perform that behaviour. Intention to perform a behaviour, such as the intention to use the contraceptive pill or a condom, depends on a person's attitude toward that behaviour, subjective norms concerning that behaviour and perceived behavioural control over the behaviour. Perceived behavioural control is also proposed to have a direct impact on behaviour, when it accurately reflects actual control over behaviour. For example, an individual may perceive that they have little control over effective condom use if they do not have one available when sex is imminent, and think that all places where condoms may be obtained are closed. This perception may accurately reflect actual behavioural control if in fact all the places to obtain condoms *are* closed, and thus despite a desire or intention to use a condom, sex may occur without one. Attitude is explained as a function of a person's belief about the outcome of a behaviour, (e.g. "using a condom will stop me getting pregnant or taking the pill might make me put on weight"), and the evaluation they make of the outcomes they believe will arise due to that behaviour (e.g. "not getting pregnant is a good thing or putting on weight is bad"). Subjective norms are explained as a function of what a person perceives other people or social groups who are important to them believe about a behaviour, (e.g. "my best friend thinks taking the pill makes you look 'easy'") and a person's motivation to comply with the perceived beliefs of those

important to them (e.g. “I want to do what my best friend thinks is appropriate”).

Perceived behavioural control is described as a function of perceived likelihood of occurrence of a behaviour (e.g. “it is likely that tomorrow I will have sex and need to use contraception”) and perceived power to facilitate or inhibit a behaviour (e.g. “I am able to go and buy condoms today”). See Figure 1.1 below.

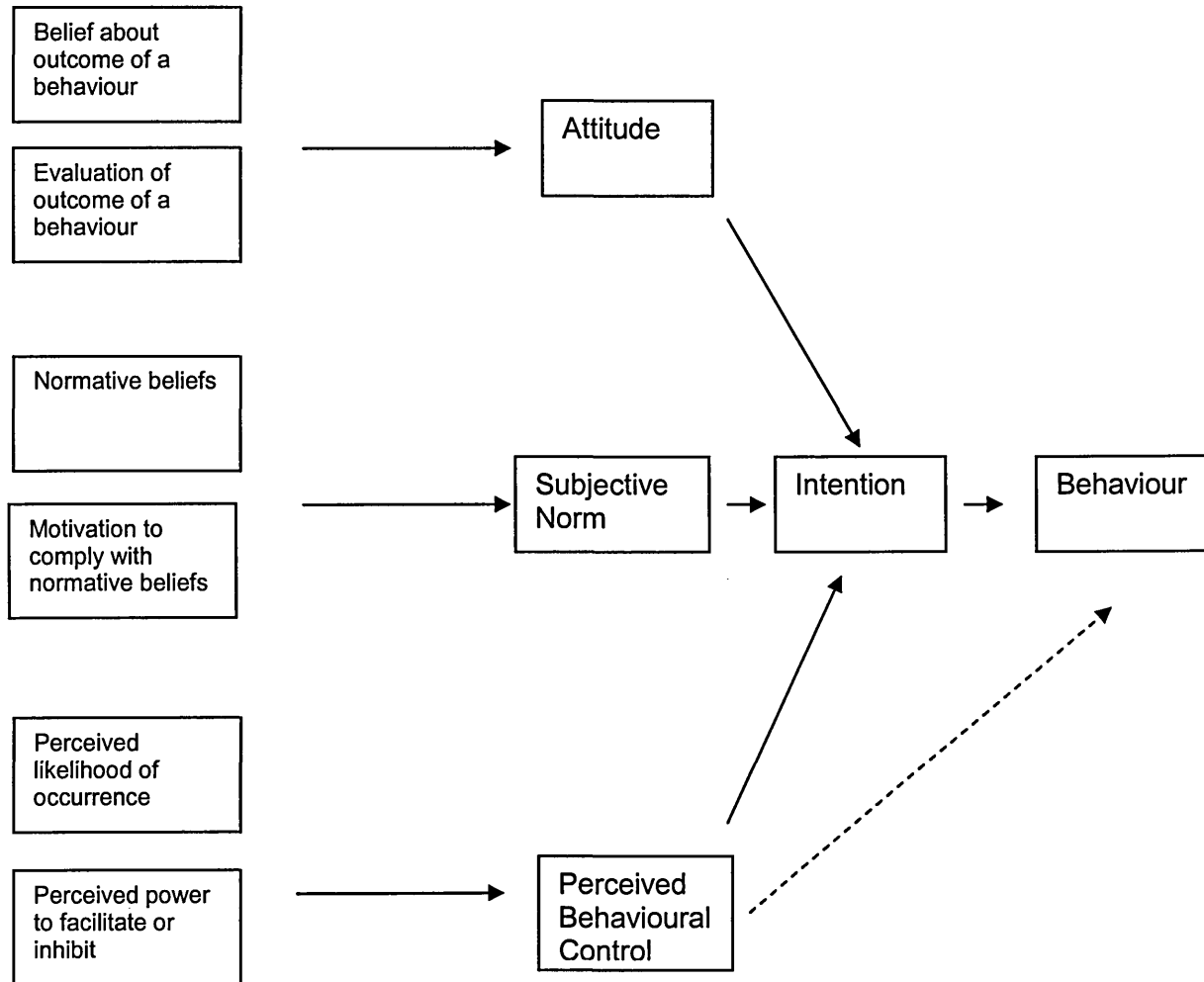


Figure 1.1 The Theory of Planned Behaviour (Ajzen, 1988)

The TPB, and the model that preceded it, the Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975), have received a great deal of attention from social psychologists interested in predicting and changing health behaviours. Support for the models has been widespread (e.g. Ajzen, 1991; Ajzen & Fishbein, 2000; Armitage &

Conner, 2000; Conner & Armitage, 1998; Conner & Sparks, 1996; Godin & Kok, 1996). When applied to a variety of health behaviours, Godin and Kok (1996) meta-analytic review showed that the TPB was found to explain 41 per cent of the variance, on average, for intention and 31 per cent of the variance in behaviour. More recently, Armitage and Conner (2001) in another meta-analytic review of the TPB found that the model could account for 39 per cent of the variance in intention related to health behaviours, and 27 per cent for the behaviours themselves. The individual constructs of attitude, subjective norm and PBC explained between 12 and 24% of the variance in intention, whilst intention alone explained 22% of the variance in behaviour. PBC explained on average, an extra 6% of the variance in behaviour over measures of intention, providing strong evidence that the constructs of the TPB are better predictors of health behaviour than the constructs of the HBM (see section 1.5.3 above, on page 18). Indeed, Armitage and Conner (2000) argue that the TPB provides a superior model of behavioural prediction compared with the HBM *and* two further theories, those being social cognitive theory (SCT; Bandura, 1986) and protection motivation theory (PMT; Rogers, 1983). In fact, each of these models (HBM, TPB, SCT & PMT) has its roots in the aforementioned SEU theory (Edwards, 1954; see 1.5.1 above, on page 16) and to a greater or lesser extent incorporates aspects of knowledge, beliefs and attitudes in the operationalisation of its variables (see 1.5.2 above, on page 17). For example, perceived susceptibility and perceived severity from the HBM clearly represent beliefs, and in the context of health behaviour research these are usually beliefs about the threat of ill health (e.g. Aho, 1979, caused by smoking, poor diet and lack of exercise; Stacy & Lloyd, 1990, caused by smoking). Furthermore, perceived benefits from the HBM represent beliefs about the positive consequences of a particular action, and as such are closely related to the attitude construct within the TPB. Perceived barriers also represent beliefs, this time about the ease of performing a behaviour, which is closely related to the PBC construct of the TPB. PMT and SCT also contain comparable elements, so there is considerable overlap between these

competing models (Armitage & Conner, 2000). This overlap, it has been argued, may explain the apparent superiority of the TPB, since it is possible that the constructs of the TPB are merely a better representation of the critical social cognitive constructs that underpin behaviour (Armitage & Conner, 2000).

A major criticism of the TPB relates to the underlying assumption that it is a 'sufficient' model of behaviour (Rutter & Quine, 2002, p13). That is, no variables external to the model should account for additional variance in intentions to perform a behaviour or in the behaviour itself. However, some researchers have been dissatisfied with the amount of unexplained variance in intention to perform a behaviour (e.g. Parker, Manstead & Stradling, 1995; Evans and Norman, 2002). For example, in the case of Godin and Kok's (1996) review, 59% of the variance in intention is not explained by the other constructs of the TPB, suggesting that there are likely to be other variables, not included in the model that could account for additional variance, over and above error-variance. Parker et al. (1995) found that the predictive value of the TPB could be increased significantly when applied to driving violations, by adding measures of anticipated regret and moral norm. They concluded that personal beliefs about morally right and wrong behaviours are important to the formation of intentions to perform antisocial or socially controversial behaviours. Similarly, Terry and O'Leary (1995) found support for the notion that a separate measure of self-efficacy as well as PBC, helps the TPB to explain more variance in intention to engage in regular exercise. Findings by Armitage and Conner (2001) however, suggest that this distinction ought to be made cautiously, and that self-efficacy has stronger predictive powers than PBC, so might be usefully used to replace it rather than be included alongside it.

Narrative and meta-analytic review evidence has also supported an extension of the TPB to include self-identity and moral norms. These variables were shown to predict independent variance in intention to perform a behaviour over and above the traditional

constructs of the TPB (Conner & Armitage, 1998). There is also meta-analytic evidence that self-predictions have a stronger relationship with behaviour than do intentions, since by their nature self-predictions incorporate a consideration of factors that will inhibit or facilitate behavioural action (Sheppard, Hartwick & Warshaw, 1988). Indeed, Conner and Sparks (2005) recommend that from a psychometric point of view, multiple items that include self-predictions and desire in their measures of intention are preferable since they are more highly reliable.

Abraham and Sheeran (2003) report three studies showing that anticipated regret not only predicted intention, as has been shown in other research (e.g., Richard, de Vries & van der Pligt, 1998), but also moderated the intention behaviour relationship such that behaviour was most likely when participants had high intentions and high levels of anticipated regret over failing to perform the behaviour. It would appear that there is a growing body of evidence supporting the addition of variables to the TPB. Whilst it is clear from literature detailed above that other variables may well be responsible for a proportion of the variance in behaviour over and above the standard TPB constructs, it seems likely that these variables will differ depending on the particular behaviour being studied. This is because some behaviours may naturally incorporate, for example, moral aspects, or the potential for regret, to a greater degree than others. It is therefore important that research is performed investigating the contribution of additional variables across a variety of behavioural domains of interest to health psychologists.

Further criticism of the TPB, and indeed other models rooted in SEU theory (see 1.5.1 above, on page 16), relates to the inability to explain *how* people *change* their behaviour (e.g., Grimley, Prochaska & Prochaska, 1997). The TPB, for example, states that certain variables, (e.g. attitudes) can be measured to form a prediction of a person's intention to perform a behaviour. However, the variance accounted for by the

TPB regarding intentions compared to behaviour has been shown to be discrepant. For example, Armitage & Conner (2001) found that 17% more variance in intention can be explained by attitude, subjective norm and PBC, than intention can explain variance in behaviour. Intention and PBC together explain a total of 27% of the variance in behaviour in their meta-analytic review, and similar findings have been reported elsewhere (e.g., Godin & Kok, 1996; Sheeran & Orbell, 1998). Clearly, the way in which cognitive decisions to act are actually translated into behaviour are not completely accounted for by models such as the TPB. Stage models of behaviour change, it is argued, have to some extent addressed this issue of *how* people change their behaviour.

1.5.5. The transtheoretical model (TTM; Prochaska & DiClemente, 1983)

The transtheoretical model of behaviour change (TTM; Prochaska & DiClemente, 1983) is a stage model that has received attention within the health behaviour change literature. It was originally designed in order to help explain and facilitate the process by which people achieved smoking cessation (Prochaska & DiClemente, 1982). As Figure 1.2 below illustrates, The TTM consists of five discrete stages of change (SOC). When people are not considering performing a given health behaviour, they are said to be in the precontemplation stage. Those who are considering the health behaviour are classified as being in the contemplation stage, and those who are preparing to change their behaviour are said to be in the preparation stage. People who have begun the behaviour, but for fewer than six months are classified as being in the action stage, and maintainers are those who have successfully maintained the behaviour change for six months or more. The TTM allows for people to relapse through stages, and start the process towards maintenance again at any time. In fact, the model allows for a limitless number of relapse occurrences before maintenance may be achieved (Velicer, Prochaska, Fava, et al., 1998).

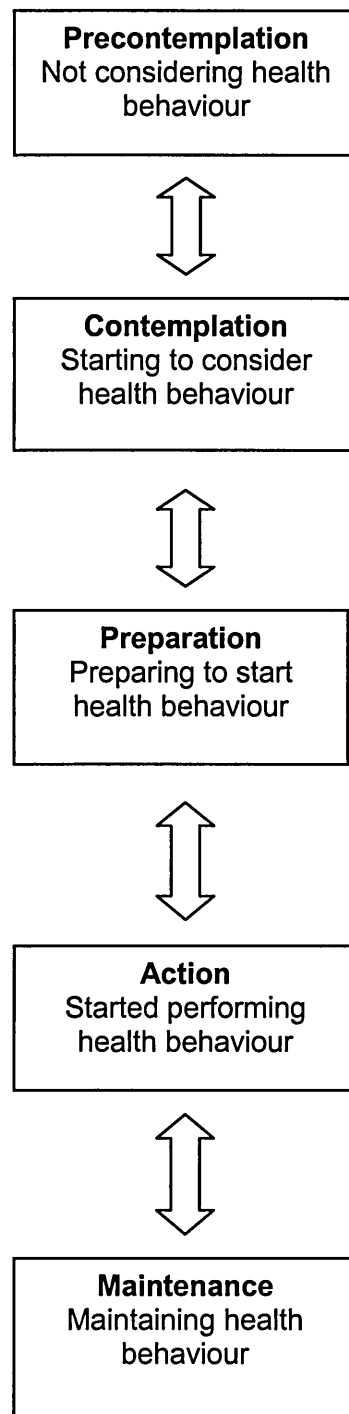


Figure 1.2 The Transtheoretical Model (TTM; Prochaska & DiClemente, 1983)

The TTM, in contrast to SEU-based models, is an explicitly temporal model that also includes a set of affective and cognitive constructs. Sutton (2000a) suggests it is useful to think of the

SOC, and transition between them, as dependent variables within the model, and the other constructs, variables assumed to influence the transitions, as independent variables. These independent variables include processes of change, decisional balance (pros and cons) and self-efficacy/temptation. The processes of change, of which 10 have been identified in relation to smoking cessation (Prochaska, Velicer, DiClemente & Fava, 1988) and applied in other settings (e.g., Rakowski, Ehrich, Goldstein et al., 1998; Sutton, 2001), have been divided into two classifications: experiential and behavioural. Experiential processes include: consciousness raising, which involves an individual becoming more aware of the need to begin performing a health behaviour; self re-evaluation, which involves an individual assessing how they feel about themselves in relation to not performing the health behaviour; dramatic relief, involving experiencing and expressing feelings associated with not performing the health behaviour; environmental re-evaluation, involving consideration of how not performing the health behaviour in question may affect the health and lives of others; and social liberation, noticing that social norms concerning health behaviour are changing or have changed. The five behavioural processes included are: self-liberation, where an individual chooses to begin performing the health behaviour, and believes in their ability to do so; counter conditioning, involving finding compromises and strategies for putting the behaviour into practice; stimulus control, where the individual may start behaving in ways that increase the likelihood of the health behaviour being performed; reinforcement management, involving an individual rewarding themselves or being rewarded for performing the health behaviour; and finally, helping relationships, where the individual has people to talk to and get feedback from regarding their feelings over beginning to perform the health behaviour. Overall, there is evidence that during precontemplation, fewer processes are used than in later stages of the model (e.g. Prochaska et al., 1988; Grimley et al., 1997), and that experiential processes are used more often in earlier stages whilst behavioural processes are used more frequently in the later stages (Velicer, Norman, Fava, & Prochaska, 1999).

Decisional balance is a measure of pros versus cons for performing a health behaviour. Prochaska, Velicer, Rossi, et al. (1994) examined the relationships between stages of change and decisional balance across 12 diverse problem behaviours. They found that across all 12 behaviours the pros of changing are higher in contemplation than precontemplation, and that the cons of changing are lower in action than in contemplation. This, they concluded, provides strong support for pros and cons as an independent construct of the TTM, as well as support for its generalisability across a wide variety of behaviours.

The construct of self-efficacy/temptations 'represents the situation specific confidence that people have that they can cope with high-risk situations without relapsing to their unhealthy or high-risk habit' (Velicer et al., 1998, p6). Both self-efficacy and temptation are reported by Velicer et al. (1998) to have the same structure, the one being the opposite of the other, and they state that the same set of items can be used to measure both. Research has shown that self-efficacy tends to be lowest in the precontemplation stage, and increases in a linear fashion across the stages towards maintenance (e.g. Velicer, DiClemente, Rossi & Prochaska, 1990; Galavotti, Cabral, Lansky, et al., 1995).

The TTM (and other stage models, e.g., Health Action Process Approach, HAPA; Schwarzer, 1992) differs from SEU-based theories such as the TPB and HBM, in that stage models attempt to describe the process by which change occurs. They categorise individuals into discrete stages of behavioural change, and attempt to isolate the particular cognitive variables that are important depending on stage. A central tenet of the TTM in particular is that it should provide a framework for intervention design since research utilising the model can potentially show which

cognitive variables are important in terms of shifting people from different stages closer to maintenance of the desired behaviour⁸.

The TTM has been applied to a number of health-related behaviours including exercise (e.g., Callaghan, Eves, Norman & Chang, 2002; Marcas, Rakowski & Rossi, 1992), weight control (O'Connell & Velicer, 1988), alcohol treatment (DiClemente & Hughes, 1990), drug rehabilitation (e.g., Abellanas & McLellan, 1993; Belding, Iguchi & Lamb, 1996) and smoking cessation (e.g., DiClemente, Prochaska, Fairhurst et al., 1991). The majority of such studies have employed cross-sectional designs and have tended to find that the constructs described above (see section 1.5.5 above, on page 26) as independent variables within the TTM (e.g., self-efficacy and processes of change) differ significantly between people in different SOC. Such evidence has traditionally been taken as support for the model. However, it would be equally valid to suggest that stage transition causes changes in levels of self-efficacy, for example, as it would be to argue that changes in self-efficacy cause change in stage.

Sutton (2001) suggests that longitudinal and experimental designs would be better placed to determine causality within research examining SOC. Another problem within the literature to date is that studies assessing changes in stage have tended to have long intervals between measurements (e.g. Aveyard, Cheng, Almond et al., 1999; Aveyard, Sherratt, Almond et al., 2001) thereby providing only incomplete representations within literature concerning stage transitions. Indeed, it is possible, with gaps of up to a year, that whole cycles of stage transition have been obscured (Weinstein, Rothman & Sutton, 1998).

⁸ Some TTM variables are very similar to SEU variables, for example, pros and cons represent behavioural beliefs about a given health behaviour (e.g. Armitage et al., 2004). This issue is discussed in section 1.7.5, on page 48 and in the Interim Summary of chapter 4 on page 162.

Longitudinal research comparing participants that move to the next stage in the sequence from precontemplation to maintenance has been sparse (Dijkstra, Tromp & Conijn, 2003; Sutton, 2001). The literature that does exist has mainly focussed on smoking cessation (e.g., De Vries & Mudde, 1998; Dijkstra et al., 2003; Herzog, Abrams, Emmons, et al., 1999; Prochaska, DiClemente, Velicer et al., 1985; Velicer et al., 1999), with the exception of a paper by Armitage, Sheeran, Conner and Arden (2004), that looked at dietary change. The findings from this research have been mixed. Only a few studies have used constructs from the TTM to predict stage transition, and the constructs used have varied between studies. For example, while Prochaska et al. (1985) used 14 TTM constructs including the 10 processes of change, Velicer et al. (1999) used only five: pros of smoking, cons of smoking, and three sub-scales of situational temptations. These papers have also been criticised for their use of different staging algorithms to measure stages of change (Sutton, 2000b; 2001).

Despite this, some conclusions can be drawn from the literature. Although De Vries and Mudde (1998) used the attitude-social influence-efficacy model as the framework for their study, they, like Prochaska et al. (1985) and Velicer et al. (1999), found that pros and cons of smoking predicted transition from precontemplation, and that pros, cons and self-efficacy (or temptation, depending on what was measured) predicted transition from contemplation and preparation. Prochaska et al. (1985) also found that two of the processes of change were predictive of stage transition from precontemplation and contemplation, self re-evaluation and self liberation; however, all three studies failed to find predictors associated with forward transition from action. A fourth study using 10 TTM constructs, failed to find *any* to be predictive of forward stage transition (Herzog et al., 1999). A more recent study by Dijkstra et al. (2003) found that pros are predictive of forward transition from precontemplation but that no variables predicted movement from contemplation. Self-efficacy predicted movement

from preparation to action and low pros of smoking and high levels of self-efficacy predicted movement from action to maintenance.

The relatively limited evidence that incorporates testing the TTM variables' ability to predict stage transitions prospectively suggests there may be some utility in stage-specific interventions, though this is yet to be evidenced across a broad range of behavioural domains. One study that has looked at predictors of stage transitions in the domain of dietary change, focussed on constructs from the TPB rather than the TTM, and found strong support for intention and PBC in particular, as predictive of both forward and backward stage transitions (Armitage et al., 2004).

The TTM has clear intuitive appeal and benefits from having roots in psychological practice since its authors developed the theory from observations made in their psychotherapy research (Prochaska & DiClemente, 1982; 1983; Prochaska, DiClemente & Norcross, 1992). However, it has been criticised for problematic categorisation of individuals into its SOC. For example, Sutton (2000b; 2001) points out that in an algorithm employed by DiClemente et al. (1991), and in many subsequent studies, 'the stages are defined in such a way that smokers⁹ trying to quit for the first time cannot pass through the preparation stage and some smokers cannot move directly to the next stage in the sequence' (p. 176). Furthermore, the model has been critiqued for its lack of detail in defining the role of social cognitive variables across the SOC, and how these variables differ from stage to stage (e.g., Armitage & Conner, 2000; Sutton, 2000a). Whilst the TTM adds a temporal dimension to explaining behaviour change it fails to express the specific cognitive constructs involved to the same degree as the TPB.

⁹ The article Sutton was writing focussed on smoking cessation research and the TTM.

Further recent criticism of the TTM has been that the stages themselves are arbitrary in their time-length cut-offs of 30 days and 6 months, and may in fact not be qualitatively different from one another at all, and thus may only represent 'pseudostages on a single continuum' (Sutton, 2000a, p210; see also Weinstein, et al., 1998). If a process of change, such as the development of assertiveness (a behavioural process), 'increases linearly across the stages...being the lowest in the precontemplation stage and the highest in the action or maintenance stage,' (Grimley et al., 1997 p66), then it could be argued that the TTM may only represent pseudo stage-like categories, created by sub-dividing a continuous scale into smaller sections. Sutton (2000a) argues that a variable needs to depart from linear increases across the stages if stage specific interventions are to be more effective than global interventions (see also Armitage & Arden, 2002; Kraft, Sutton & McCreath-Reynolds, 1999). There is no logical reason to expect different factors or interventions to influence different stage transitions if the stages are merely equally divided sections of a continuum. This thesis argues that research that aims to understand and change health behaviours needs not only to provide answers to questions concerning specific health behaviours, but also provide evidence to answer questions about the nature of models and theory within the literature.

1.5.6. Scope for research assessing the TPB and TTM further

Social cognition models, commonly used within health psychology to explain and predict health behaviours, have been shown to incorporate variables that are more amenable to change than those used to explain contraceptive use traditionally in sociological and other (non social-cognition) psychological literature (see section 1.3.2 above, on page 7 to the section on Intrapersonal and Partner communication variables on page 13). The TPB has been shown to be a better predictor of behaviour than models such as the HBM, perhaps because it better represents the critical social cognitive constructs that underpin behaviour (Armitage & Conner, 2000). Despite this,

the TPB has received criticism for failure to explain enough of the variance in behaviour, and some have suggested that other variables might be added to the model (see 1.5.4 above, on page 21). In addition, the TPB fails to explain how people change their behaviour over time. The TTM includes a temporal dimension that is missing from the TPB, but in contrast, is limited in terms of expressing the cognitive variables on which behaviour change depends. The TTM has also received criticism reflecting its validity as a true stage model (e.g., Sutton, 2001). Given this, there is arguably scope for research that assesses the ability of TPB constructs and other variables (including TTM variables) to predict behaviour, by using the SOC from the TTM as an outcome measure so that linearity of predictive variables can be assessed. However, before moving on to show how such an approach could usefully be applied to the domain of adolescent contraceptive use and pregnancy prevention, a review of the literature that has applied psychological models to contraceptive use is necessary.

1.6. Early models applied to contraceptive use

1.6.1. Models based on broader theories

Concurrent with the development of models such as the HBM and the TRA was the development of models designed specifically to explain contraceptive use, also based in SEU theory. One of the earliest of these was Luker's (1975) theory. It proposed that contraception could be viewed as having costs and benefits, both perceived and actual, and that pregnancy too was assessed in terms of a cost-benefit analysis. One empirical article has tested Luker's model showing little support for it (Foreit & Foreit, 1981). However, the way in which the study operationalised Luker's variables has received subsequent criticism (e.g. Sheeran et al., 1991). Despite this, it is likely, given the way in which the model is based on SEU theory, that it provides an incomplete explanation of contraceptive behaviour and it may exclude other variables relating to contraceptive use and pregnancy prevention.

Lowe and Radius (1987) used an extension of the HBM specifically to study contraceptive behaviour, including measures of perceived susceptibility to pregnancy and seriousness of pregnancy, as well as perceived benefits of contraceptive use and barriers to contraceptive use. The study also included a number of additional variables including past experiences, personality variables, peer norms, relationship status, and substance use prior to intercourse. The findings suggested that perceived barriers, relationship status, contraceptive use at first sex, and past pregnancies were the best predictors of effective contraceptive use, suggesting that variables outside of the HBM were important. However, some of these variables (e.g. past pregnancies and relationship status) might be considered cues to action, and therefore explain the findings within the context of the HBM. It is also arguably the case that the authors provided little in the way of rationale and theoretical reasoning for the inclusion of all the variables additional to the original structure of the HBM to begin with. Criticism has also been made of this study, given the failure of Lowe and Radius to define how they differentiated between effective and ineffective contraceptive use (Sheeran et al., 1991).

1.6.2. Models that include affective components

Further models designed to explain contraceptive use have developed SEU theory to include emotional responses to sex. Byrne (1983) proposed the sexual behaviour sequence. It illustrates the various and specific psychological variables involved in a decision about contraceptive use, and how they relate to and affect one another. The model included emotional responses, attitudes, informational responses, expectancies, imaginative responses, and physiological responses. The inclusion of the impact of emotional and physiological responses on contraceptive behaviour was an important development, and these aspects of the model received attention within the subsequent literature (e.g. Morrison, 1985; Sheeran et al., 1991). Byrne proposed that people who have a negative emotional response to external sexual stimulation (see Byrne, 1983),

termed erotophobes, are less likely than people with positive reactions to external stimuli (erotophiles) to use contraception. When contraception *is* used it is likely to be used less effectively by erotophobes than erotophiles. Other research has looked at this negative affective response to sex, or sex guilt and its relationship with contraceptive use, and strong support has been found for the hypothesis that infrequent, ineffective and non-use of contraception is more common in individuals with high levels of feelings of sex guilt (e.g. Gerrard, 1982, Geis & Gerrard, 1984) than in those with lower levels. Further research has also found strong correlations between these emotions and embarrassment about purchasing contraception (Herold & McNamee, 1982). However, it should be noted that the affective reactions to sex described within this model represent personality variables that have been discussed earlier in this Chapter in relation to contraceptive use (see 1.4.2 above, on page 9). Here it was argued that, though there is evidence that personality variables are related to contraceptive use, it is likely their relationship is mediated by other variables, such as attitudes, that may be more amenable to change within an intervention.

Despite this there are a further two theories found in the literature that include emotional components and are contemporary to Byrne's (1983) model. They further illustrate the popularity of the notion of sex guilt, fear of sex, and sexual morality as variables that could explain contraceptive use at the time. Reiss et al. (1975) proposed and tested a female model of contraceptive use, the central tenet of which was that the more a woman perceives herself to be a sexually active person the more likely she is to engage in use of effective contraceptive methods. They specified five important predictors of this perception and the adoption of a birth control method. They were: endorsement of sexual choice, self-assurance, early information about sex and contraception, congruity between premarital sexual standards and behaviour, and the extent of dyadic commitment. Reiss et al. (1975) found support for the first, second and

fifth predictors, in the above list. Similarly, DeLamater & MacCorquodale (1978) found limited support for the first of these predictors.

Herold and McNamee's (1982) model of contraceptive use received somewhat stronger empirical support, albeit based on findings from their own research. Path analysis performed on the eight variables they included in their model revealed significant paths between contraceptive use and having a lifetime partner, partner involvement, and influence, sex guilt and peer norms (Herold & McNamee, 1982). In addition to sex guilt, it can be seen that the importance of the partner in use of contraceptive methods had become a more prevalent inclusion in explanatory models. Indeed, it was being tested and shown to be a significant predictor in a growing body of research (e.g., Herold & McNamee, 1982; Reiss et al., 1975; Whitley, 1990).

1.6.3. Stage models of contraceptive use

As well as models based in SEU theory, other early models of contraceptive use were developed as stage models. Rains (1971) proposed a stage model where the central concept was moral ambivalence. It purported that a woman is morally ambivalent when she does not accept her sexuality and engagement in sexual intercourse, and as a result, she does not use, or is unlikely to use, an effective contraceptive method. Rains described a four-stage process to illustrate a sequence that led from virginity, through a stage of moral ambivalence, to the use of effective contraception. She claimed that when a woman falls in love, she begins dating one male exclusively, and she may then accept intercourse as an activity she *could* be involved in. Finally, she will be in a position where she considers herself likely to engage in sexual intercourse, and be most likely to adopt an effective contraceptive method. DeLamater & Maccorquodale (1978) showed some support for Rains' model, in that contraceptive use was related to sexual experience and moral ambivalence. However, this finding was true only for the female participants in their study. No such significant findings

were found to apply to the males who took part. Clearly, whilst a female oriented model of contraceptive use holds clear potential in relation to pregnancy prevention, there is a need to include an explanation of male contraceptive behaviour, and a model that can achieve both would be the ideal.

A further model (Lindemann, 1974; 1977) suggests three stages, where the woman's development moves from a 'natural' stage where sex is rare, and usually unplanned, and therefore unlikely to involve a contraceptive method, through a 'peer prescription' stage to an 'expert' one. In the second stage a woman seeks advice from peers on contraception, whilst becoming more sexually active, but still continues to be relatively ineffective at using contraceptive measures. As the woman reaches 'expert' level, she now views herself as sexually active and seeks professional advice in her plan to use contraception effectively. Again, this model is female oriented and fails to address male contraceptive behaviour or male influence on women's contraceptive behaviour.

1.6.4. DeLamater's combination model

DeLamater (1983) combined elements of SEU and stage theories in a further model attempting to explain contraceptive use. Again, it incorporated ideas of morality and guilt, termed 'premarital sexual standards' (DeLamater, 1983; p35) alongside relationship intimacy as predicting frequency of sexual intercourse. Frequency of sexual intercourse leads to an assessment of the probability of pregnancy and cost/benefit analysis, which in turn leads to a contraceptive decision. There is a developmental element to this model also, in that either a positive or negative experience of using contraceptives can feed back to affect the decision to use contraceptives and the frequency of intercourse. In this capacity the model represents contraceptive use as an ongoing and developing process.

1.6.5. Summary of contraceptive model variables

Table 1.1 below presents a summary of the main variables included in models designed specifically to explain contraceptive use. Many of the models and papers included within this section have focussed on sex guilt and feelings about sex before marriage being morally wrong as predictors of contraceptive use (e.g., Byrne, 1983;

Table 1.1 Summary of variables included in models of contraceptive use

Variable	Reference(s)
1. Costs of contraception/barriers to contraceptive use	Luker (1975); Lowe & Radius (1987); DeLamater (1983).
2. Benefits of contraceptive use	Luker (1975); Lowe & Radius (1987); DeLamater (1983).
3. Costs of pregnancy/perceived severity of pregnancy	Luker (1975); Lowe & Radius (1987).
4. Benefits of pregnancy	Luker (1975).
5. Perceived susceptibility to pregnancy	Lowe & Radius (1987).
6. Past experience of pregnancy/contraceptive use	Lowe & Radius (1987); DeLamater (1983).
7. Personality variables	Lowe & Radius (1987).
8. Peer norms/endorsement of sexual choice	Lowe & Radius (1987); Reis et al. (1975); DeLamater & MacCorquodale (1978); Herold & McNamee (1982).
9. Relationship status/level of dyadic commitment/partner influence/level of intimacy	Lowe & Radius (1987); Reiss et al. (1975); Herold & McNamee (1982); DeLamater (1983); Whitely (1990).
10. Attitudes	Byrne (1983).
11. Emotional responses/sex guilt/morality/accepting self as sexually active	Byrne (1983); Reis et al (1975); Gerrard (1982); Geis & Gerrard (1984); Rains (1971); DeLamater (1983); Lindeman (1974, 1977); Herold & McNamee (1982).
12. Self-assurance	Reiss et al. (1975).
13. Frequency of intercourse	DeLamater (1983).

Reis et al., 1975). The models have also focussed on this emotional response from the perspective of women as contraceptive users. Contraceptive use from a male perspective has often not been considered (e.g., Luker, 1975; Rains, 1971). It is arguably the case that such focuses within the literature reflect social and cultural norms at the time the research was conducted. Premarital sex was not widely accepted in the 1970s (e.g. Luker, 2000) and people's main concern about the consequences of unprotected sex was unintended pregnancy (often thought of as an exclusively female problem; see Luker, 2000). Male influence is alluded to quite frequently however, with the inclusion of variables that address the dyadic nature of the sexual relationship, such as level of intimacy between a couple and partner influence on contraceptive use (e.g., DeLamater, 1983; Lowe & Radius, 1987).

1.6.6. The shift from contraceptive models to broader social-cognitive models

More recent literature has tended not to focus on specific models of contraceptive use such as those outlined above (section 1.6 above, on page 34; see Albarracín, Johnson, Fishbein & Muellerleile, 2001; Godin & Kok, 1996), and the reason for this might be considered two-fold. Firstly, with the advent of AIDS and the HIV virus in the 1980s, the focus for contraceptive use research began to shift. Where it had endeavoured to explain and predict unplanned and premarital pregnancy and female based methods of contraceptive use, research now more frequently sought to predict condom use, aiming to help prevent the spread of HIV and other sexually transmitted infections (STI). In short, contraceptive use, or more specifically, condom use, was now viewed as a health behaviour that required urgent research.

Secondly, many of the variables identified within contraceptive models can be equally well explained, subsumed by, or possibly mediated by cognitive variables from generic models designed to explain and predict health behaviours. For example, variables one

to five in table 1.1 represent basic constructs from the HBM and the TTM, i.e. pros and cons from the TTM and perceived benefits/barriers, and perceived severity/susceptibility from the HBM. Furthermore, as has been argued earlier within this review, constructs of cost-benefit analysis may be better represented by variables from the TPB (see section 1.5.4 above, on page 21). The attitude construct from the TPB, and the beliefs that precede it, are arguably made up of positive and negative evaluations of the consequences of performing a given contraceptive behaviour (see Armitage et al., 2004). In a similar capacity, it could be argued that negative emotional responses to sex and sexual stimuli (variable 11 in table 1.1) might be subsumed by the attitudinal component of the TPB.

The sixth variable in table 1.1 is past experience of pregnancy and contraceptive use. The literature has continued to support past behaviour as predictive of future behaviour (e.g. Norman & Conner, 2005). However, as a variable it is not amenable to change, and it has been argued that it cannot be considered a causal factor of behaviour in the same way as cognitive variables as it has no independent, explanatory value (Ajzen, 1981). Personality variables (variable 7 in table 1.1) have been discussed earlier in this review (see section 1.4.2 above, on page 9) where it was argued that whilst *some* personality variables may have significant relationships with contraceptive behaviour, their lack of potential for change means they lack utility to the psychologist interested in changing behaviour. Similarly, frequency of sexual intercourse (variable 13 in table 1.1) is unsurprisingly related to contraceptive use. However, this is also a variable that psychologists cannot realistically expect to impact upon, and theoretically should be mediated by social cognitive variables in its ability to predict contraceptive use.

Variables eight, 10 and 12 from table 1.1 can be said to correspond with subjective norm, and self-efficacy from the TPB and TTM respectively, and the final variables (9 in table 1.1), relationship status/level of dyadic commitment/partner influence/level of

intimacy can also be considered part of the subjective norm component, specifically in relation to the beliefs of a sexual partner.

It has been shown that social cognitive variables, particularly those from the TPB and TTM, can in many cases be considered comparable to variables identified as important in predicting contraceptive use. In addition, it has been shown that the TPB and TTM have been largely successful in the prediction of other health behaviours despite some important criticisms (see sections 1.5.4 above, on page 21 and 1.5.5 above, on page 26). However, the application of these models to the prediction of contraceptive use has leant heavily on condom use, and some discrepancies in the findings do exist. In addition, some overlap between the constructs of the TPB and the TTM has been identified (e.g. Armitage et al., 2004). Discussion of these findings and a comparison of the models' constructs are therefore provided below.

1.7. Comparing the application of the TPB and TTM to contraceptive use

The use of specific social cognition models to explain and predict health-related behaviours in general has already received attention within this review (see sections 1.5.3 above, on page 18 to 1.5.5 above, on page 26). Research has been applied to behaviours such as: breast and testicular self-examination (e.g. Brubacker & Fowler, 1990; Ronis & Harel, 1989), alcohol use (e.g. Schlegel, D'Avernas, Zanna & DeCourville, 1992; Werch, 1990), smoking (e.g. Pallonen, 1998; Sutton, 1989), exercise (e.g. Norman & Smith, 1995) and diet (e.g. Povey, Conner, Sparks, et al., 2000). Research has also investigated sexual behaviour and contraceptive use (e.g. Morrison, 1985; Whitley, 1990), most particularly condom use, and the prevention of the spread of HIV and other STIs (e.g. Fisher & Fisher, 1992; Berridge & Strong, 1993; Gerrard & Warner, 1994; see also 1.6.6 above, on page 40).

1.7.1. *Attitude and subjective norm*

There has been a great deal of research that has investigated the constructs of the TPB and their ability to predict condom use. Many studies have supported the constructs of attitude towards condoms and subjective norms regarding condom use as significant predictors of intention to use condoms and subsequent condom use (e.g. Albarracín et al., 2001; Fazekas, Senn & Ledgerwood, 2001; Sheeran, Abraham & Orbell, 1999; Sutton, McVey & Glanz, 1999). However, whilst the evidence for the predictive value of attitude is typically undisputed, there is some discrepancy over the variance in intention and behaviour explained by subjective norm. For example, although Bennet and Bozionelos (2000) found that 14 out of the 18 studies they reviewed reported a positive association between subjective norm and intention to use condoms, the studies revealed discrepancy over the type of referents that were important in relation to condom use. In addition, Adler, Kegeles, Irwin, and Wibbelsman (1990) found that subjective norm was *not* a significant predictor of intentions to use condoms (see also Basen-Engquist & Parcel, 1992; Richard & van der Pligt, 1991). A possible explanation for such a discrepancy in the literature could be that the distinction made between subjective norm and attitude, as separate components of the TRA and TPB, is incorrect (Trafimow, 2000). Miniard and Cohen (1981), for example, argue that behavioural and normative beliefs (which are part of the multiplicative combination that form attitudes and subjective norms) are not qualitatively different from one another. For instance, the normative belief that, 'My best friend thinks I should use contraception every time I have sex,' is very similar to the behavioural belief, 'Having sex without contraception would make my best friend disapprove of me.' If behavioural and normative beliefs are not truly distinguishable from each other, then there is little justification for distinguishing between attitude and subjective norm. Further evidence of this comes from high levels of correlation between the two constructs (Trafimow, 2000) suggesting that they are essentially measures of the same thing. Evidence also shows that strengths of the relationships

between attitude, subjective norm and the variables that they are supposed to predict change according to the order in which they are measured (Budd, 1987).

Despite the discrepancies regarding subjective norm's ability to predict intentions to use condoms reported in some research, *and* the evidence to suggest that people may vary individually in the extent to which they are under attitudinal or normative control (e.g. Bandawe & Foster, 1996; Finlay, Trafimow & Jones, 1997), there is still extensive support for the ability of a combination of attitude *and* subjective norm to predict intention to use contraception (e.g. Albarracín et al., 2001; Godin & Kok, 1996). As such it is felt that there is a need to assess whether these variables are equally useful in research that looks at general contraceptive use, and whether they might be useful in distinguishing between SOC: specifically, whether they show departures from linearity across stages that might support the development of interventions tailored to specific stages.

1.7.2. Perceived behavioural control (PBC)

As with debate relating to subjective norm (see 1.7.1 above, on page 43), there is discrepancy over PBC as a reliable predictor of condom use. Evidence to support the construct has been found (e.g. Von Haeften & Kenski, 2001; Lugoe & Rise, 1999), but there is also evidence to suggest that PBC is not such a reliable predictor. For example Sutton et al. (1999) found that measures of perceived control and perceived ease (or difficulty) of condom use did not significantly improve predictions of intention to use condoms over and above attitudes and subjective norms. The reason for this finding may be partially explained by the fact that subsequent research has shown that asking people to rate condom use on scales of ease/difficulty can be considered a measure of attitude rather than (or in addition to) a measure of perceived control (Leach, Hennessy & Fishbein, 2001). This was true of the whole sample, but most particularly males rating condom use with their main sex partners. It led the authors to

suggest a cautious approach to the use of ease/difficulty items in the measurement of perceived control (Leach et al., 2001). Similarly, Bennett and Bozionelos (2000) reported that PBC was not found to be a significant predictor across the 18 studies they reviewed looking at the utility of the TPB in predicting condom use.

Some researchers have argued that PBC can be usefully divided into two further categories (e.g. Abraham, White & Scott, 2002; Armitage & Conner, 1999a; Armitage, Conner, Loach & Willetts, 1999). The first subdivision of the construct can be considered synonymous with Bandura's (1986) concept of self-efficacy that is regarded as a measure of a person's perceived confidence in their ability to carry out a behaviour (Armitage & Conner, 1999a; Armitage et al., 1999). This includes a feeling of having the necessary skills and ability to carry out an action such as using a condom (perceived internal facilitators or inhibitors of successful performance of a behaviour). The second subdivision has been labelled perceived control over behaviour (PCB) and relates to judgements of control over external facilitators or inhibitors of behaviour. Interestingly, whilst Bennett and Bozionelos (2000) did not find support for PBC in predicting intentions, they *did* report that a separate measure of self-efficacy for condom use predicted intentions to use condoms. This evidence that self-efficacy predicts intentions (but not necessarily behaviour), and that PBC does not predict intentions, is a critical finding in terms of supporting a dual perceived control construct, since PCB should have a direct influence on behaviour and override self-efficacy when perceptions of external inhibitors are representative of actual external inhibitors of behaviour.

It is the case that researchers in other areas of health behaviour have found that measures of self-efficacy predict intentions but not behaviours, while perceived control measures are predictive of behaviour and not intentions (e.g. Armitage & Conner, 1999a; Terry & O'Leary, 1995). Furthermore, within condom use research, other

authors have supported a distinction between PBC and self-efficacy (e.g. Godin, Gagnon, Lambert & Conner, 2005). It is therefore argued that research relating to general contraceptive use could usefully extend the literature by including both internal and external items in self-efficacy or PBC measures, and ascertaining whether there is evidence for two separate constructs in this behavioural domain.

1.7.3. Self-efficacy

A measure of self-efficacy has also been proposed as part of the transtheoretical model of behaviour change (Prochaska & DiClemente, 1983). Here however, the construct is proposed as an integration of self-efficacy (Bandura, 1986) and Shiffman's (1986) relapse and maintenance model of coping. It is operationalised within the TTM as a cyclical variable that is made up of confidence in performing a healthy behaviour (e.g. using a condom) and temptation to perform the relevant opposing unhealthy behaviour (e.g. not using a condom; Velicer et al., 1990). Confidence is proposed to be lower in precontemplation, and increase across the SOC, whilst temptation is proposed to be higher in precontemplation and decrease through to maintenance, where it is at its lowest. Temptation though, even in maintenance, represents the best predictor of relapse to an earlier stage (Redding & Rossi, 1999).

1.7.4. Comparing PBC and self-efficacy

Where the TTM has been applied to condom use, research has supported the construct of self-efficacy as a strong predictor of SOC (e.g. Galavotti, et al., 1995; Goldman & Harlow, 1993; Lauby, Semaan, Cohen, et al., 1998). However, there is a difference between the TPB construct of self-efficacy/PBC and the TTM's self-efficacy in terms of their measurement. Grimley et al., 1997; p69 state:

...when examining condom use adoption, the measure of self-efficacy assesses the degree of situational pull that might exist that could induce an individual to choose to have intercourse without the use of condoms. Some example items

include: "How confident are you that you would use a condom... When you have been using alcohol or other drugs? When you're already using another method of birth control?"

Contrastingly, with standardised formats for assessing control beliefs, the precursors of PBC include asking participants to assess how likely or unlikely a particular factor is to inhibit or facilitate a behaviour such as condom use (this could be an internal or external factor), and then how powerful the participant perceives the factor to be in inhibiting or facilitating the behaviour. Several paired items are combined multiplicatively to derive an overall score. Overall PBC can be measured with statements that enquire about things like how much control a person feels they have over performing a given behaviour, or how much they think there are factors that may inhibit performance of a behaviour (see Conner & Sparks, 2005).

Differences in measurement of the PBC and self-efficacy constructs would be acceptable if there was strong evidence that they were measuring very different cognitive variables, but available evidence would appear to suggest the opposite. In fact, Armitage et al. (2004) argue that PBC from the TPB, subsumes self-efficacy from the TTM, and Ajzen (1998) who added PBC to the TRA states that he did so, 'when the work of Bandura and his associates made it clear that this construct was needed to deal with determinants of human behaviour that are not under complete volitional control' (p.737). Ajzen clearly argues that PBC is synonymous with self-efficacy (see Ajzen, 1991). The current thesis argues that whilst there is evidence that PBC and self-efficacy are conceptually synonymous constructs, measurement of them within traditional TTM and TPB research has differed to such an extent that it would be useful to assess both forms of the construct separately, to ascertain the ability of both to distinguish between the SOC for contraceptive use.

1.7.5. Decisional balance

A second construct of the TTM is decisional balance (pros or advantages weighed against cons or disadvantages of a behaviour). As with the self-efficacy construct of the TTM, there has been support for the increasing of perceived pros from the precontemplation to maintenance stages, and the reverse effect for cons when applied to condom use (e.g. Galavotti et al., 1995; Grimley, Riley, Prochaska, et al., 1992; Prochaska, Harlow, Redding, et al., 1990). Grimley et al. (1997) assert that the pattern of pros and cons across the stages of change has immediate implications for intervention design. For example, they suggest that the large increase in pros from precontemplation to contemplation means that interventions designed to target precontemplators should focus on increasing the perceived pros or advantages of condom use. They then argue that to move contemplators into preparation, perceptions of cons need to be decreased. Such an assertion implies that perceived pros and cons can predict movement along the stages of change, yet the limited research that has used progressive methods to predict stage transitions suggests that this is not so (e.g. De Vries & Mudde, 1998; Herzog et al., 1999; Velicer et al., 1999). In some cases this has applied to self-efficacy as well. Armitage et al. (2004) suggest that a possible explanation for longitudinal analyses failing to support TTM variables as predictive of behaviour change may be that the model fails to account for other cognitive variables such as subjective norm that have been shown (in some cases) to account for variance in behaviour over and above attitude (Trafimow & Finlay, 1996). This is critical given that pros and cons or decisional balance can be re-conceptualised as a measure of attitude (Armitage et al., 2004). However, longitudinal analyses that have addressed the prediction of transition through the stages of change have only examined smoking (e.g. De Vries & Mudde, 1998), exercise (Courneya, Plotnikoff, Hotz & Birkett, 2001), and more recently, reducing fat intake (Armitage et al., 2004). This thesis argues for the application of longitudinal designs to the investigation of

contraceptive use and safer sex behaviours in order to assess how well the constructs of models such as the TPB and TTM can predict actual change in behaviour.

1.7.6. Processes of change

A final construct of the TTM is processes of change (of which 11 have been posited in relation to condom use; Grimley et al., 1997). They have received somewhat less attention in the literature than decisional balance and self-efficacy, particularly in relation to condom use. This is possibly because as a construct, the processes of change are unique to the TTM, and unlike decisional balance and self-efficacy, have less in common with constructs of other models of behaviour change that attract attention from researchers. Despite this, research that does exist supports the notion that experiential processes are characteristic of earlier stages of change whilst individuals in the later stages use more of the behavioural processes in order to maintain behaviour change. Overall, there is support for a linear increase in use of the processes across the stages (e.g. Bowen, Williams, McCoy & McCoy, 2001; Grimley et al., 1992; Grimley et al., 1997; Noar, Morokoff & Redding, 2001; Timpson, Pollak, Bowen et al., 2001) and specific support for processes of change as a predictor of condom use (Noar et al., 2001). Caution should be exercised in accepting the predictive nature of the processes though, since findings have come from cross-sectional studies, and further longitudinal analyses are required.

1.7.7. Intention

Intention is an explicit construct of the TPB that mediates attitude, subjective norm and perceived behavioural control in their impact on behaviour (Ajzen, 1991). It is also an implicit construct of the TTM represented by an individual's progression from precontemplation through contemplation to preparation (Bowen et al., 2001). As an explicit construct of the TPB however, measures of intention to perform a behaviour, such as condom use, have received extensive support as a significant predictor of

behaviour (e.g. Bennett & Bozionelos, 2000; Fazekas et al., 2001; Sheeran et al., 1999; Sutton et al., 1999). Despite this, there is concern amongst researchers for the apparent intention-behaviour gap (e.g. Bennet & Bozionelos, 2000) represented by the difference in variance percentage explained in intention compared with behaviour (e.g. see Armitage & Conner, 2001; Godin & Kok, 1996). Research has shown that personality variables do not appear to offer an explanation (Norman, Sheeran & Orbell, 2003) and standard TPB variables cannot reliably explain why some people act on their intentions whilst others do not (Fishbein, Hennessy, Yzer & Douglas, 2003). Clearly further examination of this issue is required across a variety of health behaviours if intervention design is to be as effective as possible. Developing an understanding of the intention-behaviour gap is likely to be particularly salient in relation to complex behaviours such as contraceptive use. In the current thesis, assessing whether intention can distinguish between the SOC will provide some evidence regarding the relationship between intentions and behaviours for general contraceptive use.

1.7.8. Variables that potentially increase predictive ability of the TPB

As discussed previously, the shortcomings of the TPB (in explaining the variance in behaviour accounted for by intention) have frequently been addressed by the investigation of the impact of other variables (see 1.5.4 above, on page 21). Several researchers have argued for the addition of moral norm as a variable (e.g. Abraham & Sheeran, 2003; Parker et al., 1995; Richard & van der Pligt, 1991). This refers to a person's perception of the moral correctness or incorrectness of performing a behaviour, and Beck and Ajzen (1991) have argued that behaviours that can be viewed as involving a moral or ethical aspect ought to be influenced by moral norm. Research has supported moral norm (sometimes called personal norm) as predictive of behaviours such as committing driving violations (e.g. Parker et al., 1995) and blood donation (e.g. Armitage & Conner, 2001), and there is also evidence to suggest that such findings extend to condom use. The research is still relatively limited, but

amongst a sample of drug users, van Empelen, Kok, Jansen and Hoebe (2001) found that a positive measure of moral norm added to the predictive value of TPB constructs for condom use with casual sex partners. Similarly Godin, Maticka-Tindale, Adrien, et al., (1996) suggested that the addition of moral norm in an application to condom use would maximise the predictive and explanatory value of the TPB. This finding was also supported in a meta-analytic review of the application of the TPB to condom use (Godin & Kok, 1996), and has been supported more recently in research looking at condom use amongst single heterosexual adults (Godin et al., 2005).

A further variable cited as useful in improving the predictive value of the TPB is anticipated regret (e.g. Abraham & Sheeran, 2003; Parker, Stradling & Manstead, 1996; Rapaport & Orbell, 2000; Sheeran & Orbell, 1999). Several studies report that anticipated regret is a significant, independent predictor of condom use (e.g. Buunk, Bakker, Siero, et al., 1998; Bakker, Bunk & Manstead, 1997; Richard et al., 1998). It has been suggested that the variance explained by anticipated regret could be accounted for by including it in a selection of outcome belief measures (e.g. 'If I don't use contraception every time I have sex I will regret it'). In such a case it would be considered to be subsumed by the attitude variable within the TPB (Norman & Conner, 1996a). Despite this, evidence suggesting that it contributes a significant proportion of variance in intention to use condoms over and above the core constructs of the TPB (e.g. Van Empelen et al., 2001) confirms that this construct is likely to be potentially important in relation to contraceptive use, whether it is included as a separate construct within research or incorporated within outcome belief measures.

One further addition to the TPB considered here is self-identity (e.g. Eagly & Chaiken, 1993). The idea here is that a person who perceives themselves to be an effective user of contraception is likely to use methods of contraception effectively and consistently. Recent research has found support for the predictive validity of self-

identity in food choice (e.g. Armitage & Conner, 1999a; 1999b), household recycling (e.g. Terry, Hogg & White, 1999) and cannabis use (e.g. Conner & McMillan, 1999). One study has suggested that self-identity does not predict intentions to use condoms, with the same study finding relating to moral norm as a predictor (Conner & Flesch, 2001). Conner and Flesch (2001) however, looked at the impact of the variables when alcohol consumption and lack of availability of condoms were an issue. It could be the case that self-identity becomes important when these factors are not an issue. Furthermore, research by Conner and Armitage (1998) found that self-identity added 1% of variance to intention. Though this is a small addition, it is argued here that further research is warranted into the relationship between moral norm, anticipated regret and self-identity with contraceptive use. If intervention designs based on social cognitive theories of behaviour change are to be successful, then they need to explore as many avenues for potentially achieving the greatest levels of behaviour change as possible.

1.7.9. Summary of social-cognitive variables identified

Table 1.2 below summarises variables amenable to change, taken from social cognition models and related research, which have been found to predict condom use. It is argued that discrepancies within the literature relating to these variables provide a strengthened rationale for including them in research aiming to identify the strongest predictors of general contraceptive use.

Research has examined the antecedents of condom use (e.g. Ajzen, 1991; Galavotti et al., 1995; Godin & Kok, 1996; Sheeran & Taylor, 1999), and enhancing the efficacy of condom use is likely to be beneficial to the prevention of unplanned pregnancy. However, other methods of contraception, such as the contraceptive pill, are more effective at preventing pregnancy than the condom. For example, failure rates for first

Table 1.2 Summary of variables identified as amenable to change and appropriate for inclusion within research aiming to find the strongest predictors of contraceptive use

Variable	Reference(s)
1. Intention/self predictions (TPB/extension of TPB)	Ajzen (1991); Sheppard et al. (1988); Conner & Sparks (1996).
2. Attitude (TPB)	Fazekas et al. (2001); Sheeran et al. (1999).
3. Subjective Norm (TPB)	Conner & Armitage (1998); Adler et al (1990).
4. Perceived behavioural control (PBC) (TPB)	Haeften & Kinski (2001); Lugoe & Rise (1999).
5. Pros (TTM)	Galavotti et al. (1995).
6. Cons (TTM)	Prochaska et al. (1990).
7. Processes of change (TTM)	Grimley et al. (1997).
8. Self-efficacy (TTM)	Lauby et al. (1998).
9. Moral norm (extension of TPB)	Van Empelen et al. (2001).
10. Self-identity (extension of TPB)	Conner & Flesch (2001); Armitage & Conner (1999a; 1999b).
11. Anticipated regret (extension of TPB)	Richard et al. (1998).

year pill use are between 0.1 and four percent compared to a two to 15 percent failure rate for the condom (Guillebaud, 1999). Despite these statistics, research has not focussed on pregnancy prevention and the effective and consistent use of *all* methods of contraception. This is arguably an area for research that now requires attention, given the issue of high teenage conception rates in the United Kingdom (e.g. Summerfield & Babb, 2004). Whilst this thesis does not focus on STI prevention *per se*, increasing condom use can only ever be viewed as a positive outcome, as condom use is, to some degree, effective in mitigating both the transmission of STIs and unplanned pregnancy (e.g. Guillebaud, 1999).

1.8. Health intervention research

1.8.1. Calls within the literature for theory-driven sexual health

interventions

Bowen (1996) reported that with regard to the spread of HIV, early educational and public health campaigns were only successful in reducing infection spread through shared needles. HIV continued to be spread through unsafe sex. In addition, Kelly and Murphy (1992) reported concern that intervention research aimed at increasing community-wide safer sex behaviours and decreasing rates of HIV infection was not grounded in psychological theory, and called for an increased uptake of theory-driven intervention research in this area. Their concerns were not unfounded, since reviews of early sexual health intervention studies revealed that they were largely ineffective in changing peoples' sexual behaviour (e.g. Fisher & Fisher, 1992; Oakley, Fullerton, Holland et al., 1995), and the rates of behaviour change that *were* reported tended to be small (McCusker, Stoddard, Zapka, et al., 1992). The reasons for this appear to be connected to a lack of intervention research being, 'based on formal conceptualisations' of theory (Fisher & Fisher, 1992, p463). The limited selection of early safer sex intervention research that did report effective behaviour change is consistently based in some form of social cognitive theory (e.g. Bryan, Aiken & West, 1996; Kalichman, Carey & Johnson, 1996; Jemmott, Jemmott & Fong, 1992; Kirby, Short, Collins et al., 1994; Walter & Vaughan, 1993).

1.8.2. Evaluations of atheoretical sexual health interventions

Recent research evaluating sexual health interventions has applied various designs to the issue. Some research has focussed on developing interventions simply to suit the needs of the population in question or the kind of person administering interventions, rather than being theory-driven. For example, a study with a British sample of nearly 9000 adolescents compared peer-led sex education with standard teacher-led classes

in 29 secondary schools (Stephenson, Strange, Forrest et al., 2004). The interventions were not based around a specific theory, but were developed by a team of health-promotion practitioners with experience of delivering peer-led sexual health programmes in schools. Three, one hour-long sessions were developed that covered relationships, STIs and contraception. They involved participatory activities, but these mainly centred on interesting ways to disseminate information. The control group continued with their usual sex and relationships education (SRE) lessons led by their teachers. Findings suggested that whilst participants reported greater satisfaction with the peer-led sessions, on the whole they had little impact on contraceptive use. Since the literature has tended to show that increasing knowledge of contraception alone is not sufficient to change behaviour (e.g. Richard & Van der Pligt, 1991), it is likely that this intervention's focus on information dissemination is largely responsible for the limitations of the findings.

Lou, Wang, Shen and Gao (2004) examined the effects of a community-based intervention programme on the contraceptive use of unmarried youths in Shanghai. The intervention itself was not based on a specific theory but attempted to affect contraceptive use via three main activities. The first activity was building awareness across the community with dissemination of educational materials that included brochures, pamphlets and books, instructional videos, lectures and group activities. A second activity was the provision of counselling involving a full-time young female counsellor, and much advertisement of this resource, and the third was access to contraceptive services was enhanced compared to a control group community who received standard provisions. The findings of this study were that, after controlling for demographic factors, the intervention group were 15 times more likely to use contraception than the control group. Whilst no specific theory was integrated within the intervention design, this health program was implemented on a massive scale, with the entire 15-24 year-old unmarried populations of two towns in Shanghai being

targeted (one for intervention and one for control). It is arguably the case that with an intervention of such a large scale, impacts may have been made indirectly on social cognitive variables such as self-efficacy for contraceptive use and attitudes regarding contraceptive use. However, without a theoretical basis to the intervention implementation, and the measurement of variables that have been shown to be important in behaviour change, it is not possible to ascertain exactly why the intervention worked. This thesis argues that while it is possible for atheoretical interventions to have beneficial and positive results, they lack the ability to provide detailed information about exactly why and how they work or do not work. This is a substantial issue when one considers the financial cost incurred through implementing a community-wide intervention such as the one reported by Lou et al. (2004). It may be that only certain aspects of it were important for effecting behavioural change. It is therefore important to isolate the specific factors effecting change so that successes can be repeated in a cost-effective manner.

In contrast to this, a study of Zambian adolescents incorporated an intervention that aimed to provide basic sexual health information alongside attempts to increase participants' perception of risk of contracting STIs and develop their positive normative beliefs regarding abstinence and condom use (Agha & Van Rossem, 2004). Thus, some theory was integral to the intervention design. Findings amongst the intervention condition compared with the control were promising, with development of positive normative beliefs that were sustained over a six-month period. Interestingly, normative beliefs regarding condom use took longer to develop than those about abstinence. Intentions to use condoms were increased in the short-term and the intervention successfully reduced sexual activity with multiple partners. There was however, no change in condom use, and no difference in risk perceptions were found between the intervention and control groups. These mixed findings may in part be explained by the limited theory applied to design and evaluation of the intervention. Though they make

use of normative beliefs and perceived risk, no mention is made of the TPB or theory incorporating perceived risk such as the HBM or PMT. It is likely that this study could have been improved at the design stage by incorporating other variables known to be causally related to contraceptive and other health-related behaviours.

1.8.3. Evaluations of theory-driven health interventions

Whilst theory-driven research focusing on explaining and predicting health behaviours, including sexual health behaviours and contraceptive use, has been extensive, there has been relatively little research that has applied the theory to intervention design, implementation and evaluation (Rutter & Quine, 2002). Studies into health behaviour change that *have* focused on intervention design and evaluation have included attempts to: reduce fat intake (e.g. Armitage & Conner, 2002), change drivers' attitudes to speeding (e.g. Parker, 2002), increase breastfeeding intention (e.g. Humphreys, Thompson & Miner, 1998), reduce smoking and increase smoking cessation (e.g. Quinlan & McCaul, 2000; Aveyard et al., 1999; Pallonen, 1998) and increase cycle helmet use in school-age cyclists (Quine, Rutter & Arnold, 2001; 2002). Encouragingly, the majority of these studies have met with some success.

Armitage and Conner (2002) for example, implemented a randomised-controlled intervention study with three conditions. Participants were either in an information-only control condition, an attitude-change condition or a self-efficacy enhancement condition. Baseline measures were taken and three months later the interventions were implemented. At baseline plus-five months, the post-intervention follow-up measures were taken. It was found that the interventions had a significant effect on TPB variables, and despite the fact that there was no evidence to suggest that the theory-driven conditions were more effective than the control condition in achieving this, both the attitude change and self-efficacy enhancement conditions had a

significantly improved attitude towards eating a low-fat diet. The theory-driven conditions also significantly reduced total fat intake by five-month follow-up. It was also the case however, that all three conditions of the intervention lead to reduced intake of saturated fat. When initial fat intake was controlled for, differences in TPB variables and reductions in fat intake were not attributable to condition of intervention. Overall it would seem that providing any of the interventions was enough to produce a 1 per cent reduction in dietary calories obtained from fat. Despite the disappointing findings in relation to theory-driven interventions Armitage and Conner report:

If one considers that even a 1 per cent reduction in dietary calories derived from fat could result in 10 000 lives saved in the US alone, the present intervention may have an important impact on morbidity and mortality when applied at the population level (Armitage & Conner, 2002, p99).

In addition, the intervention materials used within their study were limited in that they required participants to simply read leaflets. They had no control over the amount of engagement participants had with the materials provided. It is also arguably the case that the amount of time allowed to elapse between intervention implementation and follow-up was too long. It is possible that during a five-month period factors may have had an impact on the TPB variables, and on fat intake, that was not measured by the researchers.

Parker (2002) aimed to change drivers' attitudes to speeding in an attempt to reduce their likelihood of speeding and thus reduce the numbers of, or at least lessen the effects of, road accidents. This study used specially created videos that attempted to change either behavioural beliefs (attitude), control beliefs (PBC), normative beliefs (subjective norm) or anticipated regret. A neutral control video was also produced. Findings suggested that the behavioural and control belief videos were not effective in terms of changing attitudes to speeding, and the PBC video appeared to have the unfortunate effect of providing participants with, 'a ready-made justification for

speeding' (Parker, 2002, p149). However, both the normative belief and anticipated regret videos produced positive changes, with viewers of the normative video re-evaluating the wishes of friends and partners, and more general negative attitudes towards speeding being expressed by the anticipated regret viewers. Changes in behavioural intentions of participants (i.e. reducing likelihood of speeding) were not achieved by this intervention, but measures were only taken immediately after the interventions had been implemented. It is possible that changes in intention (and subsequent behaviour) may take longer to occur, because the persuasive effect of the message received during intervention implementation may occur over time (see Allen & Stiff, 1989).

Quine, Rutter and Arnold (2002) report a further TPB-based intervention study that aimed to increase cycle helmet use amongst school-age cyclists. In addition, it addressed some of the issues raised by the criticisms of Armitage and Conner's, and Parker's studies given above. The materials used by Quine et al. were reading tasks similar to those in Armitage and Conner's (2002) study, but they encouraged cognitive involvement because they required participants to tick boxes to indicate responses to the messages (Quine, Rutter & Arnold, 2001; see 5.4 below for further discussion of factors that increase the likelihood of changing beliefs). In addition, Quine et al. (2002) took immediate post-intervention measures *and* measures at five-month follow-up, so that short and long term changes in variables and behaviour could be assessed. The findings of their study suggested that participants in the intervention condition had more positive behavioural, normative, and to a lesser extent, PBC beliefs compared to the control condition. The intervention group also had greater intentions to wear a cycle helmet. Five months after the intervention these differences were still evident and the intervention group revealed a 25% increase in cycle helmet use, compared to no increase in the control group. It is arguably the case, therefore, that interventions

based in social cognition theories have the potential to aid psychologists in producing successful health-related behavioural change.

1.8.4. Evaluation of volitional health interventions

Interventions such as those outlined in section 1.8.3 above, on page 57 can be described as motivational, because of their focus on social cognitive variables theorised to *precede* intention in many of the social cognition models that have been applied to health behaviours. Where such interventions have been effective in terms of behaviour change, it is purported to be because they have manipulated social cognitive variables related to people's motivations to change their behaviour; they have succeeded in increasing intentions, which in turn have led to behavioural change. In contrast, some researchers have chosen to implement interventions that attempt to not only manipulate motivational constructs with the aim of increasing intentions, but also address specifically the translation of intention into action. Interventions that focus on this latter aspect of behaviour change can be described as volitional.

This distinction between motivational and volitional interventions relates to the work of Heckhausen (1991) and Gollwitzer (1993) who posited the existence of these two distinct processes in goal attainment. The motivational process, where a decision to act is made, depends on traditional expectancy-value constructs, whilst the volitional process involves making specific plans about the intended goal and how it will be achieved. Gollwitzer (1993) developed the notion of implementation intentions, which describe goal specific plans to perform behaviour x at time y in place z. Making such specific pre-decisions about when, where and how a goal or intention will be achieved, it is argued, allows the behaviour to develop a level of automaticity, such that environmental cues act to enhance memory to perform the intended behaviour (Gollwitzer & Schaal, 1998; Sheeran, Milne, Webb & Gollwitzer, 2005). Research has

shown that people sometimes form implementation intentions spontaneously (e.g. Gollwitzer & Brändstätter, 1997) and when they do they succeed in translating intentions into actions more frequently than those who have not formed implementation intentions (Orbell & Sheeran, 2000).

Studies that have incorporated volitional interventions, in the form of implementation intentions alongside motivational approaches, include two that focus on increasing exercise behaviour amongst participants (Milne, Orbell & Sheeran 2002; Prestwich, Lawton & Conner, 2003). Milne et al. (2002) compared findings from a control group and a group who received a protection motivation theory (PMT) motivational intervention only, as well as a group who received both the PMT intervention and were asked to form an implementation intention about when and where they would exercise in the next week. Similarly, Prestwich et al. (2003) compared a combined motivational and volitional intervention group with a control group and two other intervention groups who received only one of either the motivational or volitional interventions each. In both of these studies intervention conditions out-performed control conditions, and combined intervention groups incorporating both motivational and volitional approaches to behaviour change showed greater improvements compared to either approach in isolation. Such findings suggest that volitional interventions have potential for augmenting motivational approaches to interventions based on traditional social cognitive variables.

Other research has applied implementation intention interventions to a wider selection of health behaviours and looked at the utility of this approach alone in relation to increasing participant engagement. For example, Orbell, Hodgkins and Sheeran (1997) compared a control and intervention condition to look at effects of implementation intentions on women's breast self-examination (BSE) behaviour. Of

women who had high intentions to perform BSE, 100% of the intervention group succeeded in carrying out the behaviour compared to just 53% of the similarly motivated control group. A further study looking at vitamin C supplement use in undergraduates also found that forming implementation intentions significantly increased daily adherence to the pills provided compared to a control group (Sheeran & Orbell, 1999a). Critically, this study also incorporated a check that the improvement in health behaviour was not due to the intervention changing motivational factors and increasing intentions. Comparable behavioural differences between experimental and control groups in this study appear to be solely due to the implementation intentions aiding the translation of intention into action (Sheeran & Orbell, 1999a). Findings such as these again provide support for this volitional approach to behaviour change.

As illustrated above, there is some clear evidence in support of implementation intentions and their ability to help increase the uptake of certain health behaviours. Despite this, a further study by Sheeran & Orbell (2000), Has revealed a limitation of the implementation intention intervention approach. Sheeran and Orbell (2000) focused on the uptake of cervical screening, a program to enhance early detection and treatment of cervical cancer. In line with the findings of earlier studies, significantly more women from the implementation intention intervention group (92%) attended for cervical screening than did women from the control group (69%), despite both groups having strong intentions to attend. However, what this research also illustrated was the need to adapt the implementation intention approach for a more complex behaviour. Whereas behaviours such as taking a vitamin pill, engaging in exercise and performing BSE can be planned specifically and easily in advance, as the authors point out, attending for a cervical smear test firstly involves making an appointment to attend (Sheeran & Orbell, 2000). The implementation intentions that participants were required to make were therefore in relation to making the appointment rather than the health behaviour itself.

The issue highlighted above relating to behaviour complexity was not ultimately problematic in Sheeran & Orbell's (2000) study, in that forming an implementation intention to make an appointment led to a high proportion of participants doing so compared to controls, and then, having invested the time and effort to arrange an appointment, this seemed to ensure that participants kept it. However, when applying the principles of implementation intentions to contraceptive use however, the behavioural requirements become yet more complex, and the employment of implementation intentions for such varied and complex behaviours could be problematic for an intervention designed to be used efficiently within school environments. Whilst it can be argued that implementation intentions could be applied easily to contraceptive pill use in the way Sheeran and Orbell (1999a) applied them to vitamin C supplement use, the intervention the current thesis aims to develop needs to be suitable for administration within schools settings. A pill use implementation intention intervention could potentially exclude those who prefer to use condoms, and there would be ethical implications surrounding a blanket approach to forming such implementation intentions amongst those not currently engaging in sex and in relation to preventing them from STIs. This thesis is primarily concerned with the ideal of unintended pregnancy prevention, for which a variety of contraceptive methods are considered to be effective, which means that the specific behaviour required in an intervention study may differ for participants dependent on their preferred method. This makes specifying a single contraceptive behaviour more complex than the examples noted above. The major issue in terms of applying implementation intentions to contraceptive use is that most people are unlikely to know exactly when and where they are next likely to engage in sexual intercourse, so forming an implementation intention about when, where and what specific form of contraception will be used is an unrealistic aspiration. The alternative approach of identifying contraceptive pill users amongst a school population, to target them specifically, would also not be viable from

an ethical point of view. For these reasons, it is unlikely that a volitional, implementation intention approach to intervention design will be the most appropriate strategy for intervention development within this thesis, and a motivational approach is therefore favoured.

1.8.5. Evaluation of a theory-driven motivational sexual health intervention

Finally, work by Wight and colleagues (Wight, Abraham & Scott, 1998; Wight, Raab, Henderson et al., 2002) reports the development of a theoretically based sexual health promotion study carried out with adolescent participants in Scotland (project SHARE: Sexual Health and Relationships: Safe, Happy and Responsible). They were not concerned with the advancement of any one theory within this research, and so included theoretical insights drawn from a number of key theories (Wight et al., 1998). The intervention involved a five-day teacher-training programme and was delivered by teachers over two years in a total of twenty sessions. Standardised materials were provided for teachers to administer the programme to pupils. Findings from the first evaluation of the project were a mix of encouraging and disappointing results. The adolescent participants evaluated the intervention programme more positively than did those in the control group and sexual health knowledge was improved. Rates of satisfaction with sexual intercourse with most recent partner were also better for the intervention group compared with the control. Crucially, however, for those who had had sex by two-year follow-up there was no difference between intervention and control groups in terms of contraceptive use (Wight et al., 2002). Despite this, the intervention clearly had some positive impacts for participants, and the authors have yet to publish further follow-up data from participants aged twenty years. The possibility that such theoretically driven sex education has positive longer-term effects on behaviour remains an empirical question.

The costs of developing, implementing and evaluating an eclectic, theory-driven study such as the SHARE programme are likely to be high. Therefore, this thesis argues that there is merit in developing a more cost-effective, theoretically-driven intervention study that focuses on fewer cognitive predictors of contraceptive behaviour at a time. There is a large amount of research supporting cognitive variables as predictors of intentions to use condoms *and* actual condom use (see section 1.7 above, on page 42), and there is research that suggests safer sex interventions based in social cognition theories tend to be more effective than those that are not. Future research that aims to design effective interventions for increasing general contraceptive use, and decreasing pregnancy rates should therefore employ social cognition models and related theory to move forward. By examining fewer variables, it will be possible to determine which variables in isolation can be manipulated to affect cognition and behaviour. This in turn, may assist the development of larger-scale interventions aimed at population level behaviour change.

1.9. Summary

It has been established that rates of pregnancy amongst the adolescent population within the UK are high, and it is important that measures be taken in order to address this issue. Government strategies have been implemented nation-wide in response to concern about the rates of teenage pregnancy. However, it is argued that there is little evidence these strategies are working, and it is likely that this is because the most important causes of teenage pregnancy that are responsive to intervention are not being targeted. It is argued that interventions aimed at increasing effective contraceptive use and decreasing pregnancy rates should be grounded in theory-driven research.

Some of the literature concerning contraceptive use, particularly older psychological and sociological literature, has illustrated the complex nature of contraceptive use and

shown the varied nature of early attempts to predict and explain behaviour of this kind. However, it has been argued that the variables targeted were often not amenable to change and therefore limited in terms of aiding the future development of successful interventions. Research within health psychology, utilising social cognition and stage models to predict health behaviours, has developed a body of knowledge regarding the psychological variables associated with health behaviours that are the most responsive to change.

Models such as the HBM, TPB and TTM have been successfully applied to health behaviours, and support has been found for the predictive ability of the constructs that comprise these models. On the whole, however, the constructs of the TPB are more strongly supported as variables that explain the greatest proportion of variance in behaviour. Despite this, the TPB has been criticised for its failure to explain enough of the variance in behaviour and its lack of ability to explain how behaviour changes over time. It is felt that the TTM compensates for this to some extent because it provides a temporal dimension for behaviour change. Yet, the TTM has received criticism for representing a 'pseudo' stage model, and an integrated approach has been proposed as a way forward. As applied to contraceptive behaviour, particularly condom use, the TTM and the TPB have received strong support for their variables' association with behaviour, although there are some discrepancies.

Social cognition models designed specifically to be applied to contraceptive use have their roots in the same underlying theories as the TPB and the TTM, and it has been argued that these theories have not received as much attention as the TPB and TTM for two reasons. Firstly, specific models of contraceptive use have not provided explanations of behaviour that supersede the utility of the TTM and TPB, and secondly, the advent of HIV and AIDS meant that the study of contraceptive behaviour became

part of the agenda for health psychologists interested in helping to prevent the spread of these (and other) STIs.

A review of some of the extant intervention literature was provided which argued for the value of theory-driven intervention research, and introduced the notion of motivational versus volitional approaches to behaviour change. Whilst it was accepted that there is strong evidence for the inclusion of volitional approaches in interventions designed to change behaviour, it was argued that because of the difficulties inherent in applying this approach to general contraceptive use, the current thesis would be likely to adopt a more motivational approach.

In summary, this thesis argues that there is a need for research to investigate which social cognitive variables best predict contraceptive behaviour. The review has shown that it is likely that these variables will be derived from the TPB, TTM and others suggested by the literature to usefully extend the TPB. There is also scope for this to be done by using the stages of change from the TTM as an outcome measure, so that linearity of variables across the stages can be assessed, providing further evidence to add to the debate about whether the TTM represents a true stage model or not. There is particular need to conduct this research with a focus on adolescent general contraceptive use and pregnancy prevention, given the high rates of adolescent pregnancy in the UK, and the fact that the literature has focused primarily on condom use in recent years, and the prevention of the spread of STIs such as HIV. Therefore, this thesis aims to develop, implement and evaluate an intervention based on findings from such research.

The following chapter sets out the aims and objectives for the remainder of this thesis.

Chapter 2

Aims and Objectives

2.1. Aims

The principal aim of this thesis is to apply behaviour change theory to adolescent contraceptive use and pregnancy prevention, to enable the development of a theory-driven intervention designed to improve the contraceptive use of adolescents. In particular, the transtheoretical model (TTM; Prochaska & DiClemente, 1983) and the theory of planned behaviour (TPB; Ajzen, 1991), with their distinct approaches to behaviour change are the focus for the development of such an intervention.

Models of health behaviour have been applied to a wide variety of behaviours, and attempts have been made to predict and change health behaviour (e.g. Armitage & Conner, 2002; Parker, 2002). However, whilst there has been a strong focus on condom use and safer sex behaviour in relation to the prevention of and the spread of STIs and HIV (e.g., Abraham, Wight & Scott, 2002), general contraceptive use, and the prevention of unintended pregnancy, has seldom been the prime target of such research (see Chapter 1).

Qualitative research can often generate ideas for further study, and provide a basis for investigating relatively novel research areas. Given that general contraceptive use as a health behaviour requires further research, and the fact that qualitative literature is particularly lacking in this area, this thesis aims to enhance the literature by initially using a qualitative approach to develop a better understanding of British adolescents'

contraceptive experiences. This is particularly important given the impact of social and cultural norms on sexual and contraceptive practices, suggesting that much of the earlier literature that did investigate contraception and pregnancy prevention is now outdated. In addition, there is a precedent for using interviews and qualitative methods to elicit salient beliefs from populations of interest in relation to given health behaviours, and to use this data in the development of questionnaires (e.g. Armitage & Conner, 2002).

Chapter 3 investigates the feelings, thoughts, beliefs and experiences of adolescents' use of contraception, in order to establish firstly whether variables not prevalent in the quantitative literature reviewed in Chapter 1 could be identified, and secondly, to elicit salient beliefs relating to constructs within the literature. Findings identify a number of factors established within the literature as important in relation to adolescent contraceptive use, along with some others less well recognised as being related to contraceptive behaviour. A number of salient beliefs are also identified. The data gained from Chapter 3 were therefore used in conjunction with the broader literature to inform the development of a questionnaire to measure constructs from the TPB, TTM and the additional psychological variables identified.

Chapter 4 describes the development of this questionnaire and its use within a longitudinal investigation of the variables that best discriminate between stages of change for contraceptive use. Chapter 4 identifies the variables that could best be used within an intervention to improve the efficacy of contraceptive use, and to do this, those variables that predicted stage membership (behaviour) in terms of both cross-sectional and longitudinal designs are identified. Chapter 4 also aims to assess whether variables external to the TPB could predict stage membership, and whether there is any evidence for true stage categories (see 1.5.4 above, on page 21 and 1.5.5 above, on page 26).

Analysis of the data from Chapter 4 provides evidence of a set of variables capable of distinguishing the stages of change from one another in a linear fashion. This supports the argument that the core construct of the TTM may represent pseudo-stages rather than discrete categories. Chapter 4 discusses the variables identified in relation to the literature and their potential for being targeted within an intervention. Chapter 4 also discusses the idea that the stages of change are not an appropriate outcome measure for virgins within the sample. Thus, an argument is made for further analysis of the data incorporating more appropriate outcome measures than SOC.

Chapter 5 describes such analysis of the questionnaire data providing a more elegant solution concerning the variables that are the most appropriate for targeting within an intervention. The chapter concludes that self-efficacy, perceived behavioural control and anticipated regret are the most appropriate variables to target within an intervention aimed at increasing intention to use contraceptives and use of contraceptives amongst adolescents. Following this, discussion of some of the persuasive communication literature is engaged in, in order to justify decisions made in the development of intervention materials based around the chosen variables. The format, presentation and content of these materials are described in detail.

Chapter 6 goes on to describe the implementation of this intervention study aimed at increasing levels of anticipated regret and/or self-efficacy and perceived control (dependent on condition) amongst participants. It was hypothesised that increases in levels of these variables may lead to an improvement in contraceptive effectiveness amongst sexually active adolescents, and an improvement in intention to use contraception at onset of sexual intercourse amongst virgins. The findings of this study are presented and discussed, and a final Chapter (Chapter 7), synthesises the findings from each of the studies conducted, and discusses them in relation to the existing body

of theory and research findings, and in relation to the implications for the prevention of unintended pregnancy amongst adolescents in the UK.

In summary, this thesis aims to develop and evaluate an intervention designed to improve adolescent contraceptive use, through theory-driven investigation of the most effective predictors of contraceptive use. Additionally this thesis aims to assess the implications of its findings in relation to criticisms of both the TTM and TPB. Figure 2.1 below illustrates the order and relationship between Chapters 3 to 7, demonstrating the impact of each chapter on subsequent Chapters.

2.2. Objectives

- Assess key variables for targeting in an intervention
 - Which variables are best at discriminating between stages of change for contraceptive use?
 - Which variables should be targeted in an intervention designed to improve contraceptive use?
 - How effective is an intervention targeted at identified variables?
- Identify evidence surrounding issues of criticism of TPB & TTM from data
 - Does the TTM represent a pseudo-stage model?
 - Are the stages of change useful as an outcome measure of contraceptive use?
 - Are there variables external to the TPB that can predict contraceptive use?

Key for main aims:

- ▶ Identify variables
- ▶ Evaluate TPB/TTM

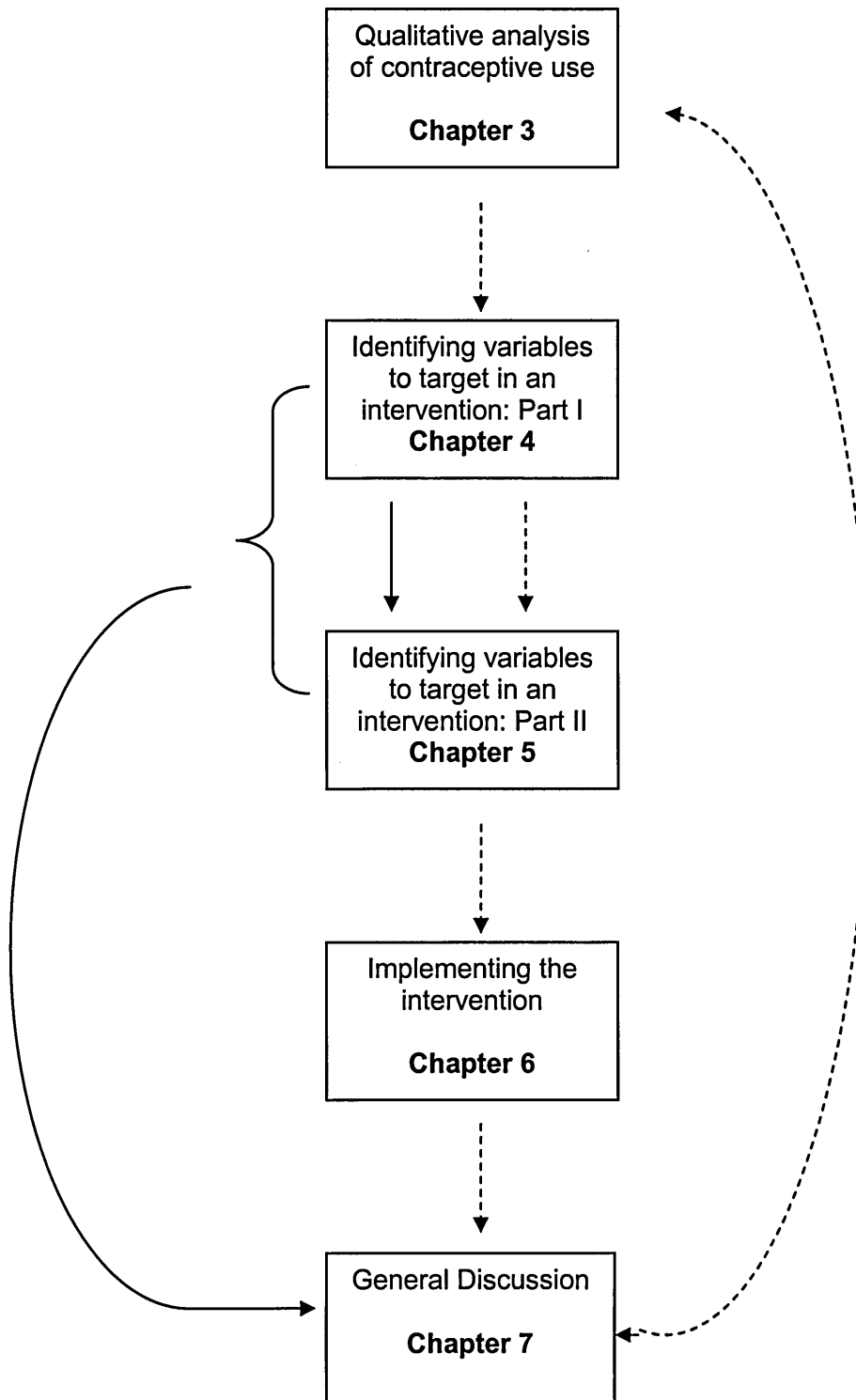


Figure 2.1 Flow diagram of thesis Chapters

Chapter 3

Exploring adolescents' experiences of contraceptive use: A qualitative analysis

3.1. Introduction

Chapter 1 of this thesis reviewed quantitative literature concerned with using social cognition and stage theories to explain and predict health behaviours. Specific attention has been given to the application of such research to condom and other contraceptive use, concluding with a review of the application of theory to intervention design. Whilst there is a wide body of evidence supporting the utility of models such as the theory of planned behaviour (TPB), and the transtheoretical model (TTM) in predicting and helping to change contraceptive behaviour, findings are far from conclusive. This is particularly the case for research focussing on pregnancy prevention and general contraceptive use amongst the UK's adolescent population.

Chapter 2 then set out the aims and plans for this thesis on a chapter-by-chapter basis. Here, it was suggested that before the main quantitative aims of this thesis can be addressed (in Chapter 4 onwards), there is a need to understand more of the underlying reasons why contraception is either not used, or used ineffectively or inconsistently by young people.

3.2. Exploring contraceptive experience

One way a greater understanding can be achieved, is through exploration of young people's experiences of, and beliefs and feelings about contraception. A literature search for research investigating people's experiences, feelings and beliefs regarding contraception revealed a paucity of findings. It was also apparent that research exploring the experience of contraceptive use has been mainly quantitative, involving the collection of questionnaire and survey data (e.g. Cowley & Farley, 2001; Oddens, 1999; Virjo, Kirkkola, Isokoski & Mattila, 1999). For example, in Odden's (1999) study, satisfaction with a variety of methods of contraception was investigated in terms of both physical and psychological effects among a sample of over 1400 women. This showed that the oral contraceptive pill and sterilisation were regarded far more positively than condoms, intrauterine devices and natural methods (e.g. rhythm or withdrawal method) of family planning. Similarly, Virjo et al. (1999) conducted research that investigated the knowledge sources of contraceptive methods for men and women, aimed at informing health professionals of the most effective ways to disseminate contraceptive information and advice. Research such as that mentioned above *is* important, as it aims to understand where there may be problems regarding the knowledge associated with obtaining and using contraception which may have otherwise remained concealed.

However, there is a lack of research that gathers this kind of information from teenagers and young adults. Oddens' (1999) study looked at women aged between 20 and 49 years of age, and Virjo et al. (1999) used a sample of 18 to 50 year old men and women, where two thirds of the respondents were aged 30 years or over. Furthermore, whilst such studies are of great importance within sexual health research, a deeper understanding of contraceptive experiences could be gained through well-conducted qualitative research. Qualitative methods can be particularly useful when research deals with a relatively novel area, and 'where issues are complex and dilemmatic' (Smith, Michie, Stephenson & Quarell, 2002, p133). Arguably, research

that investigates the contraceptive experiences of teenagers, particularly in relation to pregnancy prevention, would fit such a description.

3.3. Qualitative research

Where examples of qualitative research that have explored contraceptive use, pregnancy and sex exist, they cover a diverse range of issues, experiences and cultural groups. Roberts (1999) for example, focussed on attitudes towards condoms amongst a group of 20 women in Darwin, Australia. It was found that negative attitudes regarding condoms related to the necessity of having to be prepared for the possibility of sex occurring in order to use them, feelings that condoms were a nuisance, and having to be careful about using condoms properly. Positive attitudes were related solely to the lack of mess created when condoms were used. The study also revealed that the female participants felt that using a condom with a male partner suggested that they did not trust him, or that they themselves had been unfaithful.

A further two studies have examined condom use in relation to the use of other contraceptive methods. Roye and Seals (2001) studied an ethnically diverse sample of 39 women aged between 15 and 21 years. Using the Health Belief Model (HBM; Janz & Becker, 1984) as a framework for interviewing, it was found that use of a hormonal contraceptive, perceived trust in a partner and a negative perception of condoms as 'irritating' (Roye & Seals, 2001, p84) were all barriers to condom use. Facilitators of condom use included fear of pregnancy and STI infection, lack of trust in a partner, partner discussion and easy access to condoms. Similarly, Woodsong and Koo (1999) looked at a sample of African-American men and women aged between 18 and 39 years, and found that despite the belief by participants that condoms should always be used, regardless of whether other contraceptive methods were being used concurrently, issues of distrust and faithfulness between partners meant that condoms were often *not* used (Woodsong & Koo, 1999).

There are further examples of research that explore the use of condoms alongside natural methods of contraception (e.g. Wiebe, Janssen, Henderson & Fung, 2004) and research that explores experiences of hormonal contraception (e.g. Gilliam, Warden, Goldstein & Tapia, 2004). Wiebe et al. (2004) and Gilliam et al. (2004) highlight some of the problems experienced by Chinese women in Canada and Latina women in the US respectively, in relation to different methods of contraceptive use, but each of these fails to encompass experience of all methods within a single study.

Only one study has been identified that looked at beliefs and feelings toward contraceptive use generally, including condom *and* hormonal contraceptive use. Peremans, Hermann, Avonts et al. (2000) found that contraceptive knowledge amongst 26 17-year-old Belgian females was often incorrect, and that they held concerns about the safety of the contraceptive pill, including false beliefs regarding its contents and side-effects. Participants were also worried about the effectiveness of condoms as a method of pregnancy prevention (Peremans et al., 2000).

Of the qualitative research that focuses on pregnancy, contraception and STIs, there is little that takes into account the experiences of adolescents. Of the research detailed above, only one article includes a sample made up entirely of people aged 19 years or younger (Peremans et al., 2000). In addition, there is little research that includes male participants. Of the studies reviewed here, only one included male as well as female participants (Woodsong & Koo, 1999). This thesis argues that it is crucial to include males in contraceptive use research, since sexual behaviour and in some cases, contraceptive use (e.g. condom use), requires the co-operation of both partners. Indeed, even when the female alone can be responsible for her contraception (e.g. with pill use), it is likely that her behaviour is affected by social and cultural norms in which males play an important part (Romo et al., 2004).

There is also a scarcity of qualitative research that looks specifically at beliefs and feelings about contraceptive methods, and only one that considers the views of teenagers in respect of this (Peremans et al., 2000). Even then, contraceptive *behaviour* is not a focus of the study. Finally, as evidenced by studies reviewed here, there is a lack of research that explores contraceptive experiences and beliefs amongst British samples. It is possible that there are beliefs and specific experiences of contraceptive use that are unique to British adolescents, because of social and cultural differences between Britain and other countries where qualitative research in this area has been carried out (e.g. Skouby, 2004). It is therefore important to expand research, to include British samples.

In relation to the broader aims of this thesis, to identify variables to focus on within an intervention aiming to increase effective contraceptive use, conducting qualitative research identifying important beliefs of British adolescents in relation to contraceptive use is an important part of the process. It is standard procedure to conduct pilot studies in quantitative social cognitive research that collect salient beliefs that can be used in the development of questionnaire items relevant to the population of interest (e.g. Ajzen & Fishbein, 1980; Armitage & Conner, 2002).

3.4. Aims of the study

The aims of this Chapter are therefore twofold. Firstly, the study aims to contribute to the body of qualitative research investigating experiences of contraception, as well as beliefs and feelings about contraception amongst young British people. Secondly, it aims to inform the development of a questionnaire that will address quantitative issues set out within Chapter 1. To achieve this, males and females aged between 16 and 18 years of age will be interviewed about their use of contraceptive methods, as well as their feelings and beliefs concerning contraception.

3.5. Method

3.5.1. Interviewees

Eighteen interviewees, 12 females and six males were included in the study. They were recruited from a sixth form college in a town in the north of England, and a Youth Centre in a city in the north of England. In each location contact for recruitment was made through work-related acquaintances of the researcher. On arrival at each location requests for participation were made in person to groups of potential volunteers. All of those that volunteered to participate were between 16 and 18 years of age. The names of interviewees and people they talked about have been changed in order to maintain their anonymity.

Sixteen of the interviewees had gained standard English school qualifications expected by the age of 16 years, and were currently studying for advanced level qualifications normally expected to be achieved by age 18 at a college for 16 to 19 year olds. Two had dropped out of school and were attempting to gain qualifications through the help of a local Youth Centre. The college students were all white, and lived with at least one of their biological parents, who were either skilled or professional workers. The two participants from the Youth Centre, also white, lived with at least one of their biological parents. These parents were either unemployed or working in a manual job.

None of the interviewees had children, none were currently pregnant nor were they the male partner of a currently pregnant female. None reported having had a pregnancy terminated in the past. Eleven of the interviewees stated that they were single at the time of interview and the remaining seven said that they were currently in a heterosexual relationship with someone they referred to as a boyfriend or girlfriend. None of the participants were married.

3.5.2. Design / Materials

This was a qualitative study, conducted using a semi-structured interview technique. The questions asked of participants covered four basic topics concerning contraception: experiences of using contraception, experiences of obtaining contraception, experiences of contraception not working and thoughts on teenage pregnancy. Under these sub-headings, a series of related topics and questions were constructed by the researcher. These were discussed with a further researcher who agreed with the appropriateness of the items as a guide for semi-structured interviewing (please see appendix 1, page II). This list was used purely to guide the structure of the interview, with the talk of each interviewee leading the discussion as far as possible. Participants were provided with an interview information sheet before interviews began, and two consent forms were signed by each of the participants and the researcher. One copy was retained for project records and one was kept by the participant (please refer to appendix 2, page IV and appendix 3, page VIII for these materials). Each interview was tape-recorded. A research proposal was submitted to the ethics committee for the School of Social Science and Law at Sheffield Hallam University, and approved, before data collection began.

The qualitative methodology chosen for the present study was an adaptation of Interpretative Phenomenological Analysis (IPA; Smith, 1995; 1996). The theoretical underpinnings of IPA come from phenomenology, which is concerned with personal perception rather than objective reality, and symbolic interactionism, which argues that meanings associated with any topic about which people talk are socially constructed (see Smith, 1996). The focus of IPA is therefore the individual's perception of an event or object, and the meaning that they ascribe to that event or object, but with the understanding that the talk of the individual is influenced by the presence of the researcher, and that, in order to analyse data, the talk is subject to further interpretation (see Smith, Flowers & Osborn, 1997 for a detailed explanation of IPA).

It was felt that IPA was an appropriate method for approaching the data because the aim was to gain an understanding of the participants' experiences and beliefs concerning contraception, and the meanings they attached to those experiences and beliefs. Smith (1995; 1996) originally developed this approach to analysing qualitative data to complement the epistemological underpinnings of quantitative social cognitive research. Both IPA and traditional social cognition theories hold that a person's beliefs (or social cognitions) can be accessed and represented through verbal reports. Smith argues that;

While employing different methods...the shared commitment to mind and cognitions allows for the possibility of quantitative and qualitative (IPA) researchers usefully having dialogue with each other and quantitative and qualitative studies informing each other (Smith, 1996, p264).

Adaptation of the approach was however deemed necessary, given that the topic under investigation, namely contraception and contraceptive behaviour, is governed by a set of rules dictated by the medical profession. That is to say, there is an objectively correct way to use contraception if pregnancy prevention is desired, and the incorrect use of such contraception may result in pregnancy. It was felt that for this study to address the issue of teenage pregnancy and ineffective contraceptive use, the beliefs and experiences of participants needed to be represented and made sense of not only within the context of the researcher's interpretations, but also against the backdrop of the rules that govern effective contraceptive behaviour (e.g. see Guillebaud, 1999).

The study focused on the shared experience of 18 participants with regard to contraceptive use. A case study approach is commonly used with IPA involving fewer participants than the current study (e.g. Robson, 2002), but the aim was to interpret key themes amongst participants, illustrating some of their common experiences (a technique used by Kay & Kingston, 2002).

3.5.3. Procedure

The data was collected during one visit to a Youth Centre and three visits to a College for 16 to 19 year-olds. The researcher spent time on a one-to-one basis with each potential volunteer, telling them about the research and what participation would involve. To assist this process, the interview participant information sheet was given to each potential volunteer and, once they had read this and agreed to take part, they were asked to complete two of the participant consent forms. Participants were also asked to consent to the interview being recorded on audiotape, and this was a necessary requirement for participation in the study. Interviews lasted between 25 and 45 minutes, resulting in approximately ten hours of interview material. At the conclusion of each interview, the researcher answered any further questions from interviewees regarding the research and their involvement, and thanked them for participating.

3.6. Analysis / Discussion

The interviews were transcribed verbatim, and an adapted version of IPA (Smith, 1995) as outlined above, applied to the data. Please refer to appendix 4, page X for a description of the analytic procedure and an example of analysed transcript. Four main themes emerged from the analysis, which in some cases are illustrated by subordinate themes¹⁰.

3.6.1. Negativity relating to knowledge of contraception

A primary theme to emerge from analysis of the text was that whilst the participants did not display a lack of knowledge or ignorance regarding use of contraceptive methods

¹⁰ Within the transcript extracts, words presented in italics and within curved brackets are added by the author for clarification purposes. In addition, a comma represents a pause in speech of one second or less, whilst two or three dots in mid-speech stand for two or three second pauses. Where three dots appear at the beginning or end of an extract of speech, this indicates that the extract has been taken or cut mid-speech.

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per se (cf. SEU report, 1999) there appeared to be distinct negativity relating to the knowledge they *did* have. This point is illustrated through two subordinate themes.

Others' contraceptive use: The importance of anecdotal evidence

Many of the participants expressed concern about the effects of hormonal contraceptives. Although participants reported that they had for example, spoken to doctors or nurses, or read literature on the benefits and possible side effects of taking hormonal contraceptives, weighting given to anecdotal evidence from friends or relatives was very influential upon their views. One of the participants talked about having looked into alternative methods of contraception to the condom. He spoke of the experiences of a female friend of his:

Extract 1

Dave: ..ur, because, there's loads of side effects, with, the injection, ur, because one of me friends 'ad it, and she 'ad 'er period non-stop for, er four weeks.

Interviewer: Oh, can't have been much fun.

Dave: No not really, so we decided to leave that after we found out that...

(Dave, 17)

Dave and his girlfriend felt that this possible outcome of the hormonal injection was not worth the risk. A further participant had heard about negative effects of the contraceptive pill:

Extract 2

..my friend she went on the pill for a bit, she said she didn't like it, she said, she thought she put weight on.. (Sue, 18)

As a result it seems, Sue felt concerned about using oral contraception (OC). These reports of others' experiences seemed crucial to the participants' understandings of contraception, to the extent that these experiences influenced their own contraceptive

choices. Although the experiences that friends report may be true, they cannot necessarily be said to be representative of the typical experience of taking hormonal contraception within the wider population of users. Participants listening to negative anecdotal advice, and using it to determine the decisions they made for themselves appear to display a lack of trust in medical advice, preferring instead to base decisions for themselves on what they have heard from acquaintances.

Concerns expressed by participants about the side effects of hormonal contraceptives are not shared by health professionals regarding modern methods (e.g. Grimes, 1992; Guillebaud, 1999). Despite this, there is further evidence that young people are concerned about the side effects of hormonal contraceptives. Guendelman, Denny, Mauldon and Chetkovich (2000) found in their sample of low-income women from Latino and non-Latino backgrounds that fear of side effects and long-term illness was prompting them to stop using or avoid hormonal contraceptives. There is also evidence that 'rumors' (sic; Guendelman et al., 2000, p237), or anecdotal evidence concerning contraceptive methods are more likely to affect women's decisions than medical opinion (Guendelman et al., 2000; see also Gilliam et al., 2004).

Participants' own experiences of contraception

It was common for participants to report negative feelings regarding a method of contraception that they had used themselves, and some confusion was sometimes evident concerning the facts involved. Jon's girlfriend had decided that she wanted to stop taking the pill because of weight concerns:

Extract 3

I said she could come off it whenever she wanted, if she thought she was putting on weight or anything like that, an' I know you're supposed to come off it after using it for five years, you're supposed to have a rest, for a year, but I can't

remember why, it gives, gives you sommat, some form of cancer or something,
I can't remember... (Jon, 18)

Jon is conscious that there may be risks associated with OC use, but he is very unclear as to the details of these risks, and the correct precautions for lowering them. Jon is in fact mistaken in his belief that women have to cease taking OC after five years of use. It is better to use the pill continuously for the length of time pregnancy prevention is required, than to stop and start use during that time (Guillebaud, 1999). In addition, OC has been shown in some research to reduce the risk of some forms of cancer (Guillebaud, 1999). However, Jon's beliefs about harmful side-effects of hormonal methods have been evidenced before in terms of their impact on contraceptive behaviour (e.g. Clark, 2001). Indeed, even highly educated women from a private university in New England in the US have underestimated some of the health benefits of OC use (Tessler & Peipert, 1997). The findings of the present study suggest that such beliefs may also be relevant in terms of their impact on the behaviour of British samples.

A female participant talked about her dissatisfaction with condoms:

Extract 4

Yeah, I know it's wrong, but they're, horrible.., I think, I dunno, if some, they come in like, like, bit tight round the bottom and stuff like that so, it makes everything awkward, and they are, they're just a bit, sometimes they're easy and then sometimes I don't know, sometimes they're just difficult, 'cos it's a lot of messin' about... We usually end up givin' up with 'em... (Liz, 17)

Liz seems to be frustrated by condoms and their apparent inconsistency in ease of use. This has made her feel negatively about using them, and she has formed a dislike for

them as a method of contraception. A further participant talked about disliking condoms and lacking confidence in them:

Extract 5

It's not that they're difficult, it's that they're right like, they're just disgusting to touch and, they're not very, I don't think they're safe, an' they come off, and they split, an' then, there's no point, I'd rather be more safe in my mind by using something that's more effective. (Sue, 18)

Although both Sue and Liz know *how* to use condoms, they have experienced difficulty in getting them to work effectively, and safely. Research on condom use amongst adolescents has consistently shown that even those who use condoms are not doing so consistently. For example, Grimley and Lee (1997) reported that amongst their sample of 97 female adolescents who had engaged in vaginal sex within the last six months, 66% were using condoms but not always effectively (i.e. not consistently on every occasion of sexual intercourse). Quirk, Rhodes and Stimson (1998) further researched the inconsistency and ineffectiveness of condom use when they carried out research into the occurrence of unsafe sex, where attempts to use condoms *are* made at the time of intercourse. They identified three forms of what they refer to as 'unsafe protected sex' (Quirk et al., 1998, p105). These are condoms being used for ejaculation only, condom failure (splitting or breaking), and condoms being introduced after some penetration has occurred. Thus, experiences with condoms, and beliefs about them, such as those described by the participants in the present study could lead to adolescents abandoning the use of condoms either altogether or during sex on some occasions, whether they are using another form of contraception or not. In the words of Liz, '...we usually end up givin' up with 'em...' (extract 4).

3.6.2. Oral contraception (OC) and its impact on the female body

The dual purpose pill

Specific meanings associated with the contraceptive pill included expectations of it achieving more than just pregnancy prevention and thinking of it as having a dual purpose. Users expected the pill to have additional effects upon the female body;

Extract 6

...I expected a lot o' changes, but it just made the period pains go away, an' erm, ..that were it really, it sort of, I used to get really stressed out as well, an' but that went away as well... (Laura, 17)

Extract 7

...well she, she went on the pill when we started gettin' to know each other, because it helped with her periods and stuff like that, yeah it made them less heavy and stuff... (Jon, 18)

Extract 8

I mean, it is contraception in certain.. circumstances, but it's more for like skin and stuff...I've had two brands, (*of the pill*) depending on what I need it for, like urm, but I'm on one for about a year now, since, Jack... (Ellie, 17)

Where OC has positive non-contraceptive effects, interviewees accepted the use of it without question, yet when OC was reported to cause negative non-contraceptive effects in relation to the menstrual cycle, reactions varied. One participant reported the following experience of OC but still claimed she preferred it to condoms as it had regulated her periods:

Extract 9

I didn't go on you know, contraception, I went on (*the pill*) to regulate my periods....the first pill that I went on was fine up to about three years, and then it

started, it wasn't as effective, so, I started missing periods which started to worry me, 'cos I wasn't using condoms at that time, so, went three months without havin' a period, I had two pregnancy tests at that point, and they both came out negative, but I still wasn't comin' on... so I went onto a higher pill, you know, a more stronger pill, and that just made my period pains worse, I ended up in hospital with them... (Amy, 18)

However, another report of negative experiences of OC resulted in termination of its use:

Extract 10

Dave: ...the pill started to go dodgy after a bit so she decided to stop that.

Int: Right, so it's just condoms at the minute, okay. What went wrong with the contraceptive pill then?

Dave: Er, it were just makin' 'er 'ave really bad stomach aches, and like irregular periods... (Dave, 17)

When OC seemed to create problems there was evidence that the different meanings or beliefs attached to OC in such circumstances were related to differing behavioural responses. Dave described his girlfriend's pill as going 'dodgy', whilst Amy said her pill 'wasn't as effective'. Although Dave is not responsible directly for the actions of his girlfriend in ceasing to take the pill, it is feasible that he and his girlfriend conferred over the problems they were having with contraception, and that his interpretation in some way reflects hers. Amy seemed to believe that her OC simply stopped working in the way it had done previously and therefore changed her brand of pill, but continued to use hormonal contraception. In contrast, Dave believed there was something 'dodgy' about his girlfriend's pill and said that she stopped taking it. This difference in verbal reports about hormonal contraception not being satisfactory can be said to represent

differences in cognitions about hormonal contraception, and thus is likely to explain the different behavioural responses reported.

Mistrust of the pill

The texts provided evidence that some women may mistrust the contraceptive pill, believing it to be unnatural, dangerous and associated with weight gain. Some talk about mistrust of the pill was also identified, suggesting that participants believed it to be linked to health risks:

Extract 11

Anna: ...I wouldn't want to put, I wouldn't want to use the pill...

Int: You wouldn't...?

Anna: No, the idea of just like putting a toxin in my body is... just puts me off...

(Anna, 17)

Extract 12

I'd go on the pill, but it's just knowing the right one to go on. There's just all different ones, and there's like, there's all the history of pills, like they bring the pills out, and the pill is fine, an' then a few years later, like, taking them back off, so, you're wary of them 'cos you don't know what's in them really... (Cara, 17)

These health fears are clearly preventing future use of the pill for these participants and yet these fears are confused. Research suggests that fearing health-related side-effects of the pill is significantly negatively related to likelihood of using the pill when teenagers become sexually active (Moore, Adler & Kegeles, 1996). A more specific fear was weight gain:

Extract 13

...we've used the pill, and then, um, my girlfriend decided she wanted to lose weight, um because there's a sort of misconception that the pill makes you gain weight, so she came off the pill, and we started using condoms. (Jon, 18)

Extract 14

...people say that it makes you put on weight, um, and I think, I did read through the instructions, and I can't remember seeing that, I think it said it may, it might make you put on weight... (Jon, 18)

Guillebaud (1999) suggests that the pill is often mistakenly believed to be the cause of weight gain, with any effects that occur varying from woman to woman. Research has shown that in the first year of pill use, weight gain of more than two kilos, occurs in only 20-25 % of women, whilst up to 20 % actually lose more than two kilos (Guillebaud, 1999). In other cases, *significant* weight gain may be caused by metabolic disturbance due to the hormones in the pill. Prescription of the progesterone only pill (POP) as an alternative to the combined (progesterone and oestrogen) oral contraceptive could reduce the disturbance, and facilitate the loss of any excess weight gained (Guillebaud, 1999).

Lloyd, Taylor, Lin, et al., (2000) reported after an eight year longitudinal study on teenage girls, where an experimental and control group were used, that there was no evidence to suggest that the oral contraceptive pill caused weight gain amongst teenage users. In addition, a review (Gupta, 2000) showed that overall, there was no evidence that the OC causes weight gain. Nevertheless, it remains the case that weight gain is one of the most commonly reported unwanted side effects of OC use (Brunhubber & Kirchengast, 2002). It is of no surprise that this is of particular concern

to an adolescent sample where issues of weight concern are particularly high (Kaltiala-Heino et al., 2003).

3.6.3. Efficacy of future plans: '*...they didn't care...*'

Central to participants' talk in relation to teenage pregnancy was a notion of 'them and us'. Some of the participants consistently spoke of themselves in terms of having plans for the future, often involving university, and they spoke confidently about these plans. It seemed that they had no reason to believe they were not going to achieve their educational and/or occupational goals. In contrast, when they spoke about people they had been to school with, who had become pregnant, they talked about people who were not interested in education, and people who did not have plans for the future. For them, there was a 'certain type' of person who got pregnant. When asked if she knew anyone similar in age to herself, who had had a baby, Kate's response was:

Extract 15

Yeah, loads, people from my old school, an' it were people who you'd expect to, 'ave had kids, 'cos they're just, they're ...yeah (laughs) they were like that ...
(Kate, 17)

A little later, when asked how she thought they felt about getting pregnant, she said:

Extract 16

...they should have been bothered, I would have been right bothered, 'cos it were people who weren't planning on goin' to college, they didn't want to do owt, they were just going to leave school, and get a job, and they just, it didn't bother 'em at all, they didn't care... (Kate, 17)

There was further talk of 'the sort of people' who would get pregnant, who were reportedly uninterested in getting any further education:

Extract 17

I know, people that used to go to the same school as me, and we see them, you know, walking round with um, prams and kids, like, a couple of girls up my road, top of my road they'd both, both 'ad kids recently, but you can tell, you can tell by, the sort of people that they are, they are going to...*(have children young)*
(Adam, 18)

Adam later said, when asked why he thought they were likely to get pregnant compared to girls who were not likely to get pregnant:

Extract 18

I dunno, they weren't bothered at school, they weren't bothered about anything so, they've not got any plans to what they're gonna do, so why not have a kid, that might have been their plan, I don't know... (Adam, 18)

Many of the participants mentioned their future plans in relation to having children. Jane's talk was quite typical of the general view of having children and achieving future plans:

Extract 19

...I've got my heart set on, like goin' to uni and things like that, then, so it's more like, I want to do that, first, and I know I wouldn't be able to do it, if I've got kids... (Jane, 17)

The above extracts illustrate the way in which participants perceived differences between 'them' (teenagers who have had babies) and 'us', and the likely difference that

having (arguably achievable) plans for the future would make on the lack of desire to become pregnant. It is generally widely accepted that young people who attain higher levels of education are less likely to have a baby as a teenager, compared to their counterparts with fewer years in education (e.g. Kirby, 2002). A possible explanation for this might be that for those who continue full-time education post compulsory school age, a certain level of status (and later, arguably greater financial independence) is achieved through attaining a higher level of education. In contrast, it could be argued that those who leave school earlier, or even those still at school, not aiming to continue with education or training may view becoming a parent as an alternative way of achieving status as an adult. This is not to say that such teenagers make conscious decisions to become pregnant, but rather, have less of a vested interest in avoiding pregnancy than those aiming to go on to further education. If they *do* become pregnant they may feel less pressure to have the pregnancy terminated, and more inclined to take on the role of parent (Mellanby, Pearson & Tripp, 1997; Smith, 1993). Such an argument would be supported by the work of Arai (2004), who found that many of the young women in her study (who had had babies as teenagers), 'did not like school, were not academically bright and actually wanted to be mothers' (Arai, 2004, p213).

3.6.4. Patterns of risk-taking behaviour

Many of the participants talked about being careful with their use of contraceptives. For instance, it was common for some of them to have used the contraceptive pill and condoms simultaneously. One of the female participants said:

Extract 20

I've never missed a pill, but a condom's split before, but I was on the pill, so we didn't worry about it too much, an' I went for't mornin' after pill, just to be, certain, certain (*both laugh*). (Kate, 17)

Dual method use was often described as occurring at the beginning of a relationship, when fear of an unwanted pregnancy was a new experience, since many were in their first sexual relationship. In all instances where this was described, the participant was now using only one method, the one that had been preferred of the two. Existing research has shown that it is common for condom use as well as a hormonal contraceptive to be more consistent when with a casual or new partner (e.g. Royce & Seals, 2001; Gold, Skinner, Grant & Plummer, 1991) than with a partner who is considered long-term. Furthermore, Woodsong and Koo (1999) discovered that distrust is associated with condom use, and so in more long-term relationships there is a tendency to stop using condoms and rely solely on hormonal contraceptives. For the purposes of pregnancy prevention, this behaviour is satisfactory and effective, and for those participants in the current study who were in monogamous first sexual relationships, it is also relatively safe in terms of STI risk. Though, of course, for the majority of sexually active people, condom use should also be promoted to protect against STI transmission.

Situational factors

Despite an overall group account of fairly consistent and effective use of contraception, taking risks with contraception was talked about by many of the participants. One of the male participants who used condoms as a main method of contraception talked about occasions when he had failed to use one. When asked why he had not used a condom he said:

Extract 21

Um,...Lack of them, really, being the main thing, 'cos you can't really run downstairs naked, an' ask yer friends for any, it's just not appropriate, uh, I did that once (Int: Laughs) didn't, didn't, go down very well, I er, I 'ad time to throw on some boxers and go downstairs, through the middle of a crowded room, and ask for some condoms...so the awkwardness of trying to find condoms was a

factor, and er, it were really, drugs and alcohol, affecting, what yer thinking about. So you weren't thinking, well I weren't thinking at the time, shit, in nine months, I could 'ave a kid. I was thinking, hey I'm gonna get laid. (Joe, 17)

Here, Joe shows that he perceives the combination of not having a condom, the effects of drugs and alcohol and the fact that he was thinking not about preventing pregnancy or disease but about having sex, to have been the reasons why a condom was not used on some occasions.

Whilst understandings of safer-sex behaviour have been greatly improved by the work of researchers investigating social cognition models of behaviour (e.g. Abraham, Wight & Scott, 2002; Hardeman, Pierro & Manetti, 1997), other researchers have focused upon the situational and interpersonal influences on sexual behaviour that arguably, social cognition models do not account for (e.g. de Visser & Smith, 2001; Wilkinson, Holahan & Drane-Edmundson, 2002). There is a need for further research to take situational factors into account when measuring social cognitive variables, since it is perhaps the case that where situational factors affect real as well as perceived behavioural control, they may explain why sometimes both sexual partners intend to use contraceptives properly, but fail to do so.

Communication issues

Other participants talked about risk-taking in connection with lack of communication with their sexual partner. When asked whether he had experienced using a condom that had broken or come off during intercourse, a male participant said the following:

Extract 22

Yeah, but nothin' come of it...basically, yeah...um, an' I panicked, so I didn't tell my girlfriend... (Adam, 18)

Although Adam and his partner had attempted to use contraception, it failed, and because Adam did not disclose this fact to his partner, he initiated contraceptive risk that could have been avoided, and that his female partner, it would seem, had no control over. Guillebaud (1999) reports that 13.2% of condom breakage instances are never revealed to the female partner concerned. Another male participant within the current study talked about how his partner had caused a contraceptive risk by failing to communicate with him about contraception:

Extract 23

...she forgot to take it, (*the pill*) and one day, you're supposed to keep taking it, for about a week, and she didn't tell me she'd not taken it, um, told me after we'd 'ad sex, and so we, um, went for the morning-after pill afterwards... (Jon, 18)

Although, under these circumstances, the couple were able to seek emergency contraception (i.e. morning-after pill), the extract further illustrates the ways in which lack of partner communication can cause unnecessary risk-taking.

There is a growing body of literature that reports on the importance of social and interpersonal factors that influence safe sex behaviour (e.g. Afifi, 1999; Coleman & Ingham, 1999; de Visser & Smith, 2001). De Visser and Smith (2001) in particular, draw attention to the idea that traditional models of health behaviour (e.g. TPB; Ajzen, 1991) may be limited when it comes to explaining condom use, because variables such as attitudes and beliefs (Armitage & Conner, 2001) may fail to account for behaviour that is influenced by the characteristics of a sexual encounter, which involves cooperation between two people. Wilkinson et al. (2002) found that not only are individuals more likely to practice safer sex if they perceive that their partner wants to, but that traditional variables of health behaviour models, such as self-efficacy

(Transtheoretical Model; TTM; Prochaska & DiClemente, 1983) subjective norms and attitudes (TPB; Ajzen, 1991) are mediated by an individual's perception of their partner's desire to use contraceptives. It is argued that future research may do well to incorporate measures of ability to co-operate and communicate within social cognitive measures in order to address this issue.

Withdrawal use

In the absence of any recommended method of contraception use of the withdrawal method of contraception is always better than nothing, since tests have shown that some men do not release any sperm in their pre-ejaculate semen (Guillebaud, 1999). However, the withdrawal method, or *coitus interruptus*, is not a reliable form of contraception. Some participants in the current study talked about consistent use of the withdrawal method by either themselves, or people that they knew. Sue talked about acquaintances having sex without using a recommended method of contraception:

Extract 24

..they always like think that they're not gonna, get pregnant, d'y'know what I mean, they're in denial about it, an' I don't think they see it as an issue, 'cos they've done it for so long, and they've not become pregnant that, they don't think they will.. (Sue, 18)

Sue seems to believe that her friends have grown confident in their use of the withdrawal method, having not become pregnant so far. She seems to view this quite negatively. Interestingly, Sue later talks about her own risk-taking behaviour, where she had missed a pill and still had sex. She explains how that made her feel:

Extract 25

I'd worry for ages, and then I'd stop worrying and come on my period..*(laughs)*
(Sue, 18)

Sue seems to take the view that her friends' risk-taking is more serious than her own. Whilst she expresses concern about the idea that female friends she knows are taking a risk that is likely to end in pregnancy eventually, her own risk-taking behaviour is laughed off. Another participant talked about her experience of sole use of the withdrawal method:

Extract 26

Well it was like, probably, six months or something, but it were like we weren't doin' it very regularly, it was at the start of everythin', so we didn't do it that much, like that, so, so it were like over a long period of time but it weren't like it were every night, or, even every week... (Liz, 17)

When asked about possible pregnancy during that time she said:

Extract 27

Yeah, that's most of the time, when I were just worried, it weren't like, I didn't think about it too much. 'Cos I didn't miss any periods or anything, but like the day after, I'd think oh what if, do you know what I mean, 'cos it, it is a bit disgusting but it, it can seep out can't it, before e' actually ejaculates, so..it, it used to worry me. (Liz, 17)

Not having missed any periods, or being given any real concern about possible pregnancy seems to indicate that Liz and her boyfriend received reinforcement to continue using the withdrawal method over a period of six months, despite knowing they were taking a risk. Liz seems to be justifying the risk being taken in extract 26, by saying that they were not having sex frequently. Arguably, each time withdrawal was used and pregnancy avoided, a positive personal bias over use of the withdrawal method was reinforced.

Despite risk-taking by use of the withdrawal method alone being reported by participants, the overall opinion of this method appeared to be negative. One of the female participants who had used the method alone for a period of six months before starting to take the pill said:

Extract 28

...it's not very good doin' that (withdrawal method) 'cos you're worried all't time, so, it's just not worth doin' it...it was, it's like, oh, well, we'll do it for a bit (*laughs*) but it's not, I don't like it. (Liz, 17)

The limited research that has been carried out into the use of withdrawal as a method of contraception indicates that it remains popular, third only to OC and condom use (e.g. Everett, Warren, Santelli, et al., 2000). Additionally, Moore, Adler and Kegeles, (1996) found that pill use was negatively associated with the intention to use withdrawal, which they conclude means some adolescents may view withdrawal as a valid alternative to the contraceptive pill. It could certainly be the case that teenagers and young people view the withdrawal method as a way of reducing the likelihood of pregnancy, in a similar capacity to the pill. Withdrawal may also be viewed as favourable compared to the pill, because it does not involve many of the beliefs that the young people have talked about in association with the pill. For instance, withdrawal does not involve taking a manufactured drug, and therefore is likely to be favourable to someone who fears that the pill is poisonous in some way.

3.7. Summary of findings

None of the participants in the present study desired pregnancy, and most wanted pregnancy prevention for many years to come. All participants reported having used contraception, or intending to do so when they became sexually active, yet there were many examples of risk-taking behaviour. Participants talked about three main types of

contraception in this study, namely: condoms, hormonal contraceptives (in particular the oral contraceptive pill), and the withdrawal method. During analysis, four main themes emerged which represented the shared experience, thoughts and beliefs of the participants in relation to contraception. Broadly, these themes represented: negativity relating to participants' experience and knowledge of contraception gained through anecdotal evidence from others and their own experiences; perceptions of OC as being useful in a dual capacity in terms of its impact on the female body, but also being mistrusted for its impact on the female body; the importance of future plans in relation to the desire to postpone pregnancy; and the impact of situational and communication factors and personal biases regarding withdrawal, as validations of contraceptive risk-taking.

These themes, it is argued, are a valid representation of the meanings this particular group of adolescents ascribed to their experiences and thoughts relating to contraceptive use, interpreted against medical understandings of appropriate ways to use contraception effectively. This analysis provides information with direct implications for the promotion of effective and consistent contraceptive use amongst British adolescents. For example, evidence that young people are listening to the information and rumours regarding contraception that they receive from friends and peers, and evidence that this information is on many occasions negative, and sometimes false, suggests that there may be effective gains from intervening with respect to the transfer of knowledge between young people. It could also be argued that there is a need to gain an understanding of where false beliefs regarding the nature of contraception exist amongst youth sub-groups¹¹, in order that false beliefs can be tackled and have their possible impact on contraceptive behaviour diminished. Hormonal methods of contraception appeared to be thought of most consistently as associated with negative outcomes, despite the reality of them being the most effective

¹¹ Youth sub-group meaning sub-groups of teenagers divided by class, and/or sub-sections of popular culture.

in terms of preventing unwanted pregnancy, so it can be seen that these latter negative beliefs may require specific attention within an intervention aimed at improving the effective use of contraception amongst British teenagers.

3.8. Implications for the development of a questionnaire

Analysis of the talk of participants from this study has also provided a rich account of information on which to base the development of a questionnaire that measures the social cognitive predictors of effective adolescent contraceptive use. There are two ways in which the findings support such a development. Firstly, participants exhibit within their speech direct examples of variables already identified within the literature as being associated with contraceptive use (e.g. in extract 1 Dave exhibits an example of his outcome belief (from the TPB) that the hormonal injection will cause side-effects that are not pleasant). The fact that the spontaneous talk of adolescents includes such examples provides support for their relevance to adolescents' contraceptive behaviour. Secondly, specific beliefs elicited from the interview transcripts can be used to develop specific questionnaire items that are salient to adolescents in relation to their use of contraception. An explanation of how these qualitative findings translate to the development of a questionnaire is provided below.

3.8.1. Variables identified for inclusion in the questionnaire

Constructs of the TPB have been found within the literature to be predictive of contraceptive use. In particular there is evidence for their ability to predict condom use (e.g. Bennet & Bozionelos, 2000; see section 1.7). The talk of participants within the current qualitative study also suggests that these constructs may be relevant to the contraceptive use of adolescents.

Outcome beliefs

Outcome beliefs, that precede attitude as a component of the TPB, were particularly prominent amongst the talk of participants in relation to the pill and other hormonal methods of contraception. Specific examples of this are that participants talked about the pill and the hormonal injection causing weight gain, the pill causing cancer, and the pill being toxic. Participants also spoke of the pill reducing period-related problems such as period pains and heavy menstruation (e.g. see extracts 1-3, 6,7,11). These all represent beliefs about the outcome of using the pill, and thus beliefs theorised to be important in the formation of attitudes towards an object (e.g. Ajzen, 1991). It is therefore argued that there is strong support for inclusion of an attitude measure within the questionnaire, and that many of the specific outcome beliefs (e.g. pill causes weight gain) mentioned in relation to contraception should be used in the construction of questionnaire items.

Normative and control beliefs and self-efficacy

The relevance of normative and control beliefs (that precede subjective norm and PBC in the TPB) to adolescents' contraceptive use was also evidenced within the participants' talk. In respect of normative beliefs, this was most notable in relation to the consistent talk of the experiences of others. Important others' reports about the outcome of the use of a particular method (most notably those of their peers), are cited by participants as examples of reasons why *they* should or should not use a particular method, providing evidence that others' views influence their behaviour (e.g. extract 1). Because of this it is reasoned that a measure of subjective norm should be included within the proposed questionnaire. Similarly, examples of the importance of control beliefs are most notably present in talk about the use of condoms. Participants believe them to be difficult to use (e.g. extract 4) and perceive that certain factors have inhibited their use of condoms (e.g. extract 21). Because of the similarities between the PBC and self-efficacy constructs reported in the literature (see section 1.7.4), it is

argued that evidence for the relevance of control beliefs within adolescents' talk of contraception provides some support for inclusion of both PBC as outlined within the TPB and self-efficacy as outlined within the TTM, within a questionnaire. Again, specific control items (e.g. lack of a condom) and the referent groups mentioned (e.g. peers) are suggested as useful target constructs for item generation within the questionnaire development detailed in Chapter 4.

Optimistic bias

The validations provided by participants in relation to their own use of the withdrawal method, compared with their talk about others' use of the withdrawal method, suggests there may be an element of optimistic bias within participants' understandings of this contraceptive risk (see Weinstein, 1980; Weinstein & Klein, 1996). It seems likely that because participants know withdrawal to be an unreliable method of preventing pregnancy, they view the risk of other people becoming pregnant using this method as quite high. In contrast, examples of talk pertaining to their own use of withdrawal seem to represent a less serious account of this action as a major contraceptive risk (e.g. see extracts 24-27). There is some evidence within the literature that indicates that optimistic bias is linked to sexual risk taking in adolescents (e.g. Chapin, 2001), but further research is needed to see if the findings can be replicated amongst groups other than African American teenagers considered to be highly at risk for unintended pregnancy and STIs. Therefore, the inclusion of a measure of optimistic bias or unrealistic optimism may be a valuable addition to questionnaire development.

Future aspirations and prototype similarity

The theme that identified the importance of future aspirations amongst participants as part of their thinking as to why they wished to postpone pregnancy supports two further variables for inclusion within the questionnaire. Firstly, it is felt that a measure of future aspirations may be strongly related to effective contraceptive use, and should therefore

be included within the questionnaire, despite there being no literature that specifically includes or cites this as a variable related to effective contraceptive use. Secondly, it is argued that because the talk of the participants so clearly represented the idea of 'them' and 'us' in relation to teenagers who get pregnant and have children, there is evidence that prototype similarity may be relevant in relation to postponing pregnancy, and therefore, effective contraceptive use. Literature that has looked at prototype similarity suggests that there is evidence that the degree to which a teenage boy or girls perceives themselves to be similar to the average teenage girl who gets pregnant, or boy who gets a girl pregnant predicts risky sexual behaviour (see Gibbons, Gerrard & Boney McCoy, 1995; Thornton, Gibbons & Gerrard, 2002). Therefore it was decided a measure of prototype similarity should be included within the proposed questionnaire to examine its relationship with effective contraceptive use.

3.9. Methodological critique

There are a number of methodological issues within the research presented in this Chapter that could be addressed in future work. Firstly, limiting participation to 16, 17 and 18 year-olds could be criticised, and the reason for this occurring was twofold: practical constraints in relation to obtaining appropriate ethical approval to discuss contraception with teenagers meant that obtaining participants under the age of 16 was not possible; and the locations from which participants were recruited meant that the maximum age of participants recruited was 18 years of age. However, this criteria rendered the selection of participants by age rather arbitrary, and future research would likely benefit from gathering data from a wider age-range of adolescents.

In addition to this, the majority of the participants recruited were fairly well-educated. Given the fact that high levels of teenage pregnancy are associated with young women from poorer, and less well-educated backgrounds (e.g. Kirby, 2002), it may be said that findings based on the current sample are limited in their applicability to British

teenagers who most typically become pregnant. In concordance with this, it is suggested that research including more teenagers from lower socio-economic groups with lower levels of education, would be an important future direction for this area. However, it is also argued that the findings of the current study highlight problems associated with adolescent contraceptive use (e.g. negative and false beliefs) that are prevalent amongst generally effective contraceptive users who have no desire to become pregnant. Research and intervention development aiming to decrease rates of teenage pregnancy should aim to do this amongst all groups within society.

Lastly, it was asserted in the introduction of this Chapter (see section 3.3 above, on page 75) that it is important to include male participants in contraceptive use research. This particular study included six males and 12 females. The difference in numbers was due to fewer males volunteering compared with females. However, the findings show support for the importance of the inclusion of males in such research, since they clearly had important views, beliefs and experiences that they were keen to express. Their verbal reports appear to represent cognitions that are highly likely to affect both positively and negatively, their own contraceptive use and potentially the contraceptive use of their sexual partners.

3.10. Summary and conclusions

The present study aimed to provide a greater understanding of a sample of British adolescents' experiences and understandings of contraceptive use through interpretation of their expressed perceptions and beliefs. The findings have added to the relatively small body of qualitative literature that currently exists in this area. They have shown that the young people who took part in this research hold many negative and sometimes false beliefs about hormonal methods of contraception (particularly the contraceptive pill) and condoms. These beliefs often seemed to be gained at least in part from anecdotal evidence obtained from the reports of the experiences of other

people, notably peers. The existence of these kinds of beliefs has been reported in relation to contraceptive use in existing research (e.g. Moore et al., 1996) but this represents an expansion of the findings to British teenagers. In addition, these findings support the relevance of normative and outcome beliefs (see Ajzen, 1991) to adolescent contraceptive use. Evidence of the importance of control beliefs, self-efficacy for contraceptive use, and optimistic biases were also seen in relation to reports of risks taken with contraception. In addition, future aspirations and prototype similarity were flagged as constructs present in adolescents' spontaneous talk about contraception, supporting the argument for their inclusion as measures in the proposed questionnaire-based study within this thesis.

Chapter 4 details the development and design of a questionnaire-based study, which incorporates material derived from the findings reported in this Chapter, and also from the general literature, as being important in the prediction of adolescent contraceptive use.

Chapter 4

Identifying variables for targeting in an intervention: Part I

4.1. Summary

The first Chapter of this thesis reviewed key variables and models of health behaviour that have been applied to research investigating contraceptive use (see section 1.4 above, on page 9 onwards). It was argued that there is a relative lack of research within health psychology that focuses on the general contraceptive use of adolescents. In particular, it was argued that there is a paucity of literature aimed at the design, implementation and evaluation of interventions to improve adolescent contraceptive use (see section 1.8 above, on page 54). It was shown that both the transtheoretical model of behaviour change (TTM; Prochaska & DiClemente, 1983) and the theory of planned behaviour (TPB; Ajzen, 1991) have been widely and oftentimes successfully applied to a variety of health behaviours (e.g. TPB; Ajzen & Fishbein, 2000; Conner & Armitage, 1998; TTM; Prochaska et al., 1994; Velicer et al, 1999). Where application of these models has been made to condom use and attempts to predict and change sexual behaviour, the models have also received support (e.g. Albarracín et al., 2001; Sutton et al., 1999; Galavotti et al., 1995; Lauby et al., 1998; see section 1.7 above, on page 42). However, Chapter 1 also argued that little research has extended the investigation of these models to help predict and change general contraceptive use, particularly amongst the British adolescent population (see section 1.8 above, on page

54). It was therefore proposed that there was scope for conducting research aimed at identifying the most effective cognitive predictors of contraceptive use amongst adolescents in order that these predictors could be targeted within an intervention study. In addition, Chapter 1 explained that both the TPB and the TTM have received criticism in the literature (see sections 1.5.4 above, on page 21 and 1.5.5 above, on page 26). The TPB has been criticised for explaining too little of the variance in intention and behaviour, and the TTM has been criticised for representing a ‘pseudo’ stage model. It was therefore argued that research aimed at identifying the most effective predictors of contraceptive use amongst adolescents, should also assess the extent to which variables external to the TPB may be useful, and whether the relationship between important predictors of contraceptive use and SOC is linear, thus examining the ‘pseudo’ stage model critique.

Chapter 3 reported the findings from analysis of adolescent participants' interview transcripts. This initial study has provided useful insights into the understandings, beliefs and experiences of young people that will help to construct meaningful questionnaire items, as well as support for a number of psychological variables already prominent within the literature relating to condom and other contraceptive use. These variables include outcome beliefs that precede the attitude component of the TPB (see Outcome beliefs on page 101), normative beliefs that precede the subjective norm component of the TPB, and beliefs regarding control and self-efficacy over use of contraceptive methods (see Normative and control beliefs and self-efficacy on page 101), and evidence relating to unrealistic optimism (Weinstein, 1980; 1982; see Optimistic bias on page 102) and prototype theory (Gibbons et al., 1995; see Future aspirations and prototype similarity on page 102). In addition, analysis suggested that future aspirations of adolescents could be important in the prediction of adolescent contraceptive use (see Future aspirations and prototype similarity on page 102).

The current Chapter will deal with the development and subsequent findings of a questionnaire study designed to identify the variables most appropriate for targeting in an intervention.

4.2. Introduction

4.2.1. Additional variables identified in the literature

Findings from the qualitative study would suggest that there are variables in addition to traditional TPB constructs that could be important in relation to understanding and predicting contraceptive behaviour. This finding supports the view also held within the literature, that whilst constructs such as those from the TTM and TPB predict behaviour and behaviour change, they arguably explain relatively little of the variance in behaviour, and therefore other variables may be important also (e.g. see Abraham & Sheeran, 2004; Beck & Ajzen, 1991; Evans & Norman, 2002; Parker, 2002; Richard, de Vries & van der Pligt, 1998). These variables are likely to include: anticipated regret, moral norms, self predictions and self-identity as valid additions to the TPB, due to improved explained variance where some health behaviours are concerned (see sections 1.5.4 above, on page 21 and 1.7 above, on page 42).

4.2.2. Rationale

In order to develop a psychological intervention to improve adolescent contraceptive use, it is necessary to identify the variables most strongly associated with differences in effectiveness of contraceptive behaviour, so that these variables may be targeted. The TTM provides a measure of behaviour as its central tenet (the stages of change; SOC), which is useful for distinguishing between relatively poor and more effective contraceptive users. In addition, using the SOC from the TTM as a behavioural outcome measure would help to ascertain whether variables associated with differences in SOC are linear or not, thus providing evidence that may support or refute claims the TTM is a pseudo stage model (Sutton, 2000a). If evidence were found that

supported the notion of qualitatively different SOC, then it is likely that any intervention based on these findings would need to apply tailored interventions to participants dependent on their stage categorisation. However, if evidence were found that supported the pseudo stage model claims of Sutton (2000a), then a subsequent intervention may need to take on a more TPB-based intervention approach of one-size-fits-all.

The TTM and the TPB have been identified as useful, but not perfect, predictors of condom (and occasionally other forms of contraceptive) use (e.g. Ajzen & Fishbein, 2000; Velicer et al., 1999). Therefore, the constructs of these two models provide a number of the variables that need to be assessed in relation to differences in contraceptive behaviour. This thesis has also identified other variables associated with differences in effectiveness of contraceptive use, for example: moral norms, anticipated regret, self identity, self-predictions, optimistic bias, prototype similarity and future aspirations. Table 4.1 below provides a summary of all the variables to be measured in the questionnaire study alongside justifications for their inclusion.

4.2.3. Aims of the present study

This study aims to determine the psychological variable(s) that could usefully be targeted in an intervention designed to improve contraceptive use in adolescents. To achieve this, the variables that show the most discriminating power between the five stages of change for contraceptive use amongst an adolescent sample will be determined via a cross-sectional design. Secondly, a longitudinal design will be employed to determine which of the constructs vary for participants who move between the SOC between an initial wave of data collection and a subsequent wave of data collection at four-month follow-up. Finally, this study aims to add weight to debates within the literature concerning the ability of variables outside of the TPB to be important in the prediction of behaviour, and whether or not the TTM should be

considered a pseudo stage model. Evidence found relating to the critique of the TTM is likely to inform the style of intervention designed, because it has been argued within the literature that variables should depart from linearity across the SOC in order to support not only the notion of qualitatively different stages, but also the assertion that interventions need to be tailored to a person's SOC (Sutton, 2000a).

Table 4.1 Summary of variables to be measured within the questionnaire study and justifications for their measurement

Variable	Justification for inclusion
Experiential processes of change	From TTM (e.g. see Prochaska & DiClemente, 1983; Grimley et al., 1997).
Behavioural processes of change	From TTM (see as above).
Pros of contraceptive use	From TTM (see as above).
Cons of contraceptive use	From TTM (see as above).
Self-efficacy	From TTM (see as above)
Intention	From qualitative study (see section 3.7).
Attitude	From TPB (e.g. see Ajzen, 1991; Conner & Sparks, 1996).
Subjective norm	From TPB (see as above)
Perceived behavioural control (PBC)	From TPB (see as above)
Optimistic bias	From qualitative study (see section 3.7).
Moral norm	From literature (e.g. see Weinstein & Klein, 1996)
Anticipated regret	From qualitative study (see section 3.7).
Self identity	From literature (e.g. see Conner & McMillan, 1999; Evans & Norman, 2002).
Prototype similarity	From literature (e.g. see Parker, 2002)
Willingness to take a risk	From literature (e.g. see Evans & Norman, 2002).
Future aspirations	From literature (e.g. see Gibbons et al., 1995; Thornton et al., 2002)
Self predictions	From qualitative study (see section 3.7).
	From literature (part of prototype theory, e.g. see Gibbons et al., 1995; Thornton et al., 2002).
	From literature (e.g. see Gibbons et al., 1995; Thornton et al., 2002).
	From qualitative study (see section 3.7).
	From literature (e.g. see Fishbein & Staddon, 1990; Norman & Smith, 1995).

4.3. Method

4.3.1. Development of the questionnaire

TTM measure development

The first stage of questionnaire development involved designing an algorithm for measuring SOC from the TTM as a behavioural outcome, and developing items with which to measure the other TTM variables. This was critical since, although the TTM is an established model, unlike the TPB no standardised ways of measuring its constructs had at the time this research was conducted, been developed. In addition, although other TTM research has classified people into stage of change by asking them to self-categorise, it was felt that such a simple measure would not accurately gauge SOC for contraceptive use, due to issues of social desirability. Therefore a more complex measure designed to elicit a greater accuracy of categorisation was developed. Separate versions were produced for males and females so that questions and instructions did not have to be worded to make sense to both genders within the same questionnaire. For a copy of this first questionnaire please see appendix 5a on page XI which contains the male version as an example. Operationalisation of the constructs is explained in full below (see Section 1 of the questionnaire; general information, on page 114 to Measuring Psychological Constructs, on page 120).

Pilot study 1

An initial pilot study was conducted on these newly developed TTM measures. It involved 55 participants, aged between 15 and 19 years. The purpose of this first pilot was twofold. Firstly, it was used to assess whether the SOC algorithm (see 4.3.2 below, on page 112 to Section 7 of the questionnaire; further indicators of less than effective contraceptive use on page 118) worked in practice, that is to say, the pilot would determine whether it was possible to place participants into one of the SOC decisively. Secondly, the study allowed for the assessment of the method of measuring the other constructs of the TTM (see Measuring psychological variables on

page 120). Overall the measures were deemed satisfactory, and participants found the questionnaire straightforward to complete.

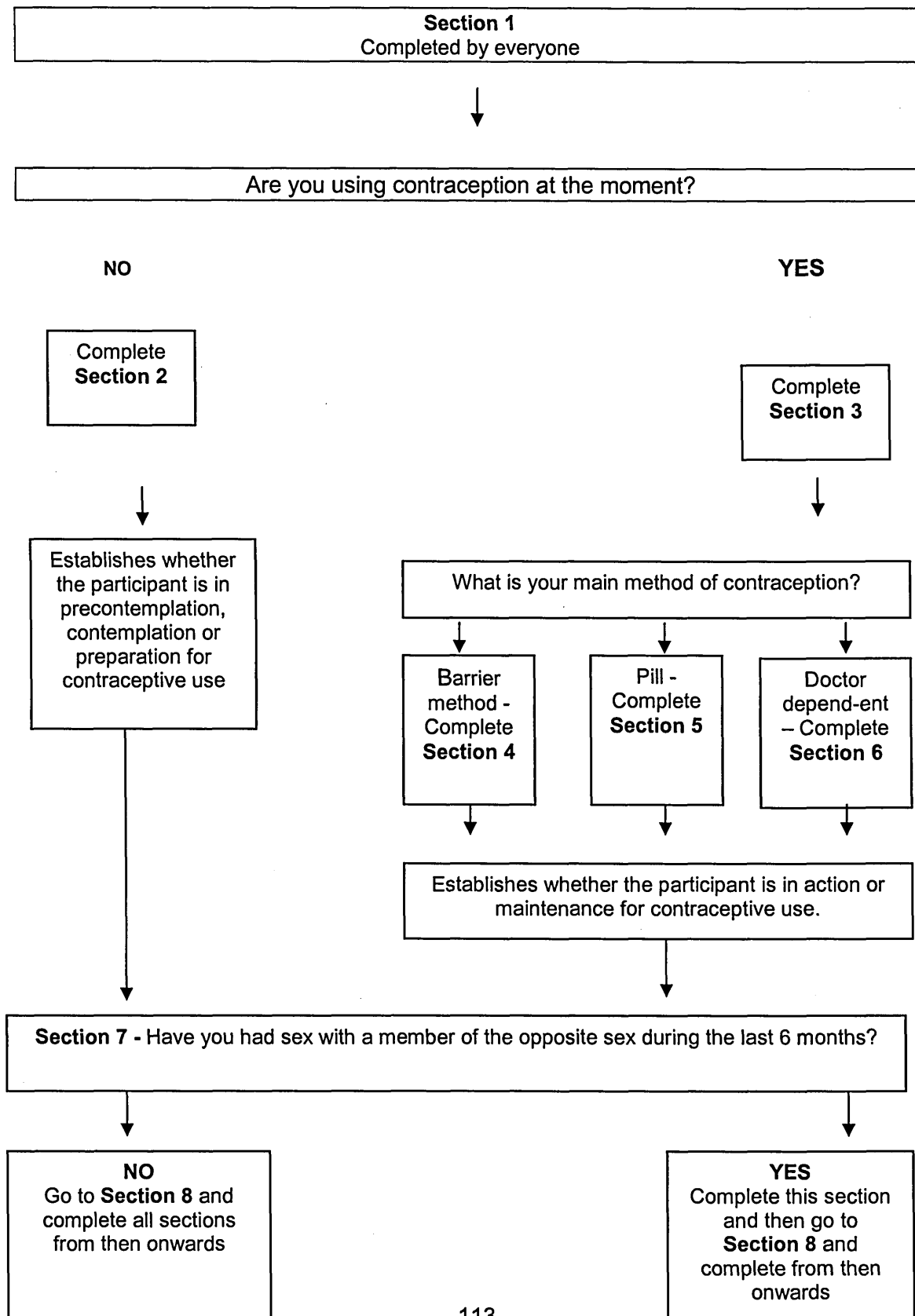
Pilot study 2

A second pilot study was conducted on this complete version of the questionnaire, involving 200 participants aged between 14 and 19 years. Feedback received from participants and teaching staff in participating schools regarding this pilot suggested that it was too long for participants to complete in a reasonable amount of time, and that some items were perhaps inappropriate. For example, one of the belief items on the questionnaire asked participants how likely they thought the contraceptive pill would be to cause cancer, since this was a belief that had been expressed by participants in the qualitative study (see Chapter 3). Some teaching staff thought that this item might be upsetting to teenagers who had experience of cancer in the family. In response to such concerns, items were removed, including those deemed inappropriate, so that the questionnaire was shorter and less time consuming for participants to complete. A detailed description of changes made to the questionnaire, and a rationale for each change is provided in appendix 6 on page LXXIII.

4.3.2. The final questionnaire

A female example copy of the final version of the questionnaire used in this study can be found in appendix 7 on page LXXVI. Sections 1 to 7 measured basic demographic data and operationalised the algorithm for determining contraceptive use based on the TTM's SOC measure. Section 1 of the questionnaire; general information on page 114 through to Section 7 of the questionnaire; further indicators of less than effective contraceptive use, on page 118 provide detail about sections 1 to 7 of the questionnaire and figure 4.1 below shows a flow diagram illustrating the staging algorithm sections on the questionnaire that participants were asked to complete.

Figure 4.1 Flow diagram illustrating how participants were asked to decide which sections of the questionnaire to complete



Section 1 of the questionnaire; general information

Demographic data included: age, relationship status (including whether or not the individual was currently engaged in a same sex relationship), whether or not the participant had willingly engaged in sexual intercourse with a member of the opposite sex, and whether or not they had willingly engaged in sexual relations with a member of the same sex. Participants were asked how frequently sexual intercourse occurred, whether they had any religious beliefs that affected their use of contraception, and which contraceptive methods were currently being used, if any.

Section 2 of the questionnaire; non-contraception users

Anyone who was not currently using contraception was required to complete section 2. The questions that followed firstly asked whether they had ever used contraception, or if they had considered using it, including which method, and if it was *not* used, why. This was to establish if a previously sexually active or currently sexually active individual had ever used contraception. The questions then went on to ask whether the individual was considering using contraception at some point in the next six months, and, if so, which method(s) they were considering and why. If the participant answered that they were considering using contraception at some point in the next six months they were then required to indicate whether they were considering using contraception within the next month. These questions were designed to assess whether someone who was not currently using contraception was either in: precontemplation from the SOC, and therefore not considering using contraception in the next 6 months; contemplation, and therefore considering starting to use contraception effectively in the next six months; or preparation and considering starting to use contraception effectively in the next month. The final question asked whether the participant had performed any of a set of listed behaviours in preparation for using contraception. Once non-contraception users have completed the questions relevant to them within Section 2

they were asked to turn immediately to Section 7 and continue answering the questionnaire from there.

Section 3 of the questionnaire; all contraceptive users

Participants who were contraception users were asked to miss out Section 2 and fill in Section 3 instead. Here, they were asked what they regarded as their main method of contraception, and for how long they had been using it. These questions were important in assessing whether a participant was in the maintenance stage, since the TTM states that an individual can only achieve this if they have been consistently performing a specific health behaviour for six months or more. Anyone who has been performing the behaviour for fewer than six months must be within the action stage (see Prochaska & DiClemente, 1983; Prochaska et al., 1992). In addition to this, participants were then asked if they ever used other methods of contraception, as this has implications for their contraceptive effectiveness (and SOC category). If a participant made a mistake with their main method of contraception, but a secondary contraceptive method was used, then they could still be classified as an effective contraceptive user (i.e. maintainer).

Section 4 of the questionnaire; barrier method users

The questionnaire then asked contraception users to answer *either* Section 4 *or* Section 5 *or* Section 6. People who used a barrier method of contraception as their main method were asked to complete Section 4 (this included those who use condoms, femidoms, the diaphragm/cap, the rhythm method, persona, withdrawal and/or spermicide). They were asked if they used their main method of contraception properly on the last occasion they had sex, and if it worked properly as far as they knew. If it had not worked properly for some reason, they were asked what had gone wrong, and what they had done about it. Following this, participants were asked about contraceptive failures during the last six months (since this is the time span for

qualifying for maintenance rather than action). If participants had had any contraceptive failures during the last six months for which they had not sought effective emergency contraception then they could only be considered as preparation or action in the SOC. It was decided that one single failure during the last 6 months would allow the individual to qualify for action, where as more than one failure would mean that they must be considered as preparers (See figure 4.2 on page 119 below for 'Definitions of Stages of Change' for general contraceptive use). This was so that otherwise effective contraceptive users did not get categorised as preparers because of one slip-up, and for this reason participants were also asked whether anything had gone wrong with their contraception more than once. They were also asked what they had done about it, and if they have always used emergency contraception if they thought something had gone wrong with their contraception.

Section 5 of the questionnaire; pill users

People whose main method of contraception was the contraceptive pill (or their girlfriend's contraceptive pill in the case of male participants) were asked to complete Section 5. They were first asked if the pill was taken as a method of preventing pregnancy. This was to establish whether the pill was taken as a method of contraception or purely for other medical reasons (e.g. treatment of problematic menstruation or skin conditions). Participants were then asked to specify any reasons other than pregnancy prevention for which the pill was used. Following this, participants were asked to answer 'yes' or 'no' to the question, 'Have you missed a pill or taken a pill more than twelve hours late at any time over the last 6 months?'. Participants were then asked if there had been an occasion during the last six months when they had sex not realising they had forgotten to take a pill, and what they had done about it when they realised. Finally, they were asked if they have had sex in the last six months knowing they had missed a pill, not using another contraceptive method, and what they had done about it afterwards. These questions were designed

to allow the researcher to assess whether pill users should be considered preparers, actors or maintainers for contraceptive use. Maintainers were those who had consistently used the pill correctly for six months or more. Those who had missed a pill, but afterwards had either not had sex, or had sex using condoms (or other effective methods) were also classed as maintainers. If emergency contraception was always used after an incidence of unprotected sex, then those participants were considered maintainers as well. Again, a concession of one mistake in 6 months meant that participants were put in action, but more than one mistake meant that they had to be classified as preparers. If pill use had been consistent for fewer than six months then the participant was placed in action.

Section 6 of the questionnaire; doctor dependent method users

People who stated that their main method of contraception was a doctor-controlled method (i.e. IUD/Coil, hormonal implants or injections) were asked to complete Section 6. Because of the nature of these methods, (i.e. that a medical doctor or other health practitioner has a major role in the control of their effectiveness) participants were asked if they have experienced any problems with their method, and if so, to explain briefly what the problem was and how it was dealt with. On the male version of the questionnaire, participants are asked to report this information to the best of their knowledge regarding their girlfriend's experiences. Very few participants completed this section, but those who did were classified as maintainers if they had been using the method for six months or more without problems and as actors if they had been using this method for less than six months. Any problems experienced with the method had to be considered on a case by case basis to decide whether it made a difference to their effectiveness as contraceptive users.

Section 7 of the questionnaire; further indicators of less than effective

contraceptive use

All participants who had been sexually active within the last six months were required to complete Section 7 of the questionnaire. Females were asked questions about their own experiences and males were asked questions relating to their girlfriend's experiences. Items ask about missed and/or late periods experienced and concern for possible pregnancy during the last 6 months. They also established whether or not participants had experienced an unplanned pregnancy in the last six months, an unplanned baby in the last six months, a terminated pregnancy in the last six months or a miscarriage of an unplanned pregnancy in the last six months. This section was not central to placing a participant within one of the SOC categories, but provided a broader perspective of participants' experiences and behaviour over the last six months, sometimes strengthening a case for a specific categorisation. So, for example, where a male participant may not have been clear about whether emergency contraception had been used by his female sexual partner after every occasion of unprotected sex, but he knew she had been concerned about a possible unplanned pregnancy, this section strengthened the case for placing him in preparation for contraceptive use rather than action.

	Precontemplation	Contemplation	Preparation	Action	Maintenance
Virgins	Never had sex Not planning to start having sex or using contraception in next 6 months	Never had sex Planning to have sex and use contraception properly in next 6 months	Never had sex Planning to have sex and use contraception properly in next 30 days		
Non-virgins (not currently having sex)	Had sex before Not had sex in last 6 months Not planning to have sex or use contraception in next 6 months OR Had sex in last 6 months No contraception used Not planning on using any in next 6 months	Had sex before Not had sex in last 6 months Planning to have sex and use contraception properly in next 6 months OR Had sex in last 6 months Did not use contraception at all - but planning to use it in next 6 months	Had sex before Not had sex in last 6 months Planning to have sex and use contraception properly in next 30 days OR Had sex in last 6 months but did not always use contraception properly	Had sex before Sex occurred within the last 6 months Used contraception properly every occasion in last 6 months (1 minor slip-up allowed)	
Non-virgins (currently having sex)	Currently having sex Not using contraception at all and not thinking about using it	Currently having sex Considering starting to use contraception properly in next 6 months	Currently having sex Planning to start using contraception properly in next 30 days OR Have used it sometimes in last 6 months	Currently having sex Using contraception properly but for less than 6 months	Currently having sex Have been using contraception properly for last 6 months or more (1 minor slip-up allowed)

Figure 4.2 Definitions of the stages of change for contraceptive use

Measuring psychological variables

Throughout these sections of the questionnaire, some items were reversed to help ensure that participants read each question before responding, rather than circling or ticking the same response throughout. Seven-point Likert-type scales were used to record responses to all questionnaire items.

Constructs of the TTM

Processes of change

Eleven items measured processes of change for contraceptive use (see section 8 of questionnaire), and these were adapted from example items relating to condom use, reported by Grimley et al. (1997). Five of these are held to be experiential and six are purported to be behavioural (see table 4.2 below for example items).

Table 4.2 Example items for processes of change

Measurement type	Example item	Scale used
Experiential processes of change	Over the last six months I have become increasingly aware of my risk of getting pregnant	1 'strongly agree' to 7 'strongly disagree'
Behavioural processes of change	Over the last six months I have rewarded myself for engaging in safer sex	1 'strongly agree' to 7 'strongly disagree'

The mean of the experiential items and the mean of the behavioural items provided a composite measure for each variable. Reliability was satisfactory¹² for experiential processes ($\alpha = .71$), though less so for behavioural processes ($\alpha = .64$). Analysis showed that removal of items would not have increased reliability, so principle components analysis (PCA) with varimax rotation was conducted on all the items that made up the processes. Varimax rotation was chosen because it is a good general approach that simplifies the interpretation of factors (Field, 2000). However, because processes of change are purported to be either experiential or behavioural in nature,

the items were forced into a two-factor solution. A loading criterion of 0.45 or above was used to identify items loading on factors, as this is considered to produce a fair measure of a factor (Comrey & Lee, 1992 cited in Tabachnik & Fidell, 2001). All behavioural processes of change items loaded onto factor 2 and all experiential items except one, loaded onto factor 1, supporting the notion that two distinct types of processes exist. The one item that did not load onto either factor refers to 'other people' unlike all other POC measures that relate to the self. This may explain its failure to load. However, given that the experiential items had satisfactory levels of reliability to begin with, and PCA confirms that all remaining items can be distinguished as two separate factors, the POC measures were deemed satisfactory (for rotated factor matrix refer to appendix 8, page CXII).

Pros and Cons

Twelve items measured pros and cons (or decisional balance) for contraceptive use. These were adapted from Grimley et al. (1997). Six items assessed the importance of various advantages of decisions to use contraception and six items assessed the importance of various disadvantages on decisions to use contraception (see table 4.3 below for example items).

Table 4.3 Example items for pros and cons of contraceptive use

Measurement type	Example item	Scale used
Pros of contraceptive use	How important in your decision to use contraception is protection from unwanted pregnancy?	1 'very important' to 7 'very unimportant'
Cons of contraceptive use	How important in your decision to use contraception is a decrease in sexual pleasure because of a method?	1 'very important' to 7 'very unimportant'

¹² Giles (2002) suggests that reliability levels of this size are acceptable.

Pros and cons were treated as separate variables with a mean score for each of the six items providing a composite score for each. Reliability was satisfactory for cons ($\alpha = .71$), but less so for pros ($\alpha = .62$). Again, removal of items from the scale would not have improved reliability, so PCA was conducted. Varimax rotation with a loading criterion of 0.45 and a forced 2 factor solution split the items into pros and cons with one exception. Item number six from the pros of contraceptive use (importance of having easier periods/girlfriend having easier periods) loaded onto function 1 with the six cons of contraception. This may be responsible for the lower reliability of the pros scale, and the loading could be explained by males in the sample not seeing personal advantage in their female sexual partner(s) experiencing easier periods. Thus, because the reliability levels for pros were comparable to and indeed higher than some of those reported in other related literature (e.g. Van Empelen et al., 2001) it was decided that these measures of pros and cons were acceptable for data analysis. Please refer to appendix 8, page CXII for the rotated factor matrix.

Self-efficacy

Self-efficacy was assessed by seven items using the format adapted from Grimley et al. (1997; see table 4.4 below for example items).

Table 4.4 Example items for self-efficacy

Measurement type	Example item	Scale used
Self-efficacy	How confident are you that you will use a contraceptive method effectively every time you have sex?	1 'very confident' to 7 'very unconfident'
Self-efficacy	How confident are you that you will use a contraceptive method effectively if you have been drinking or taking drugs?	1 'very confident' to 7 'very unconfident'

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A mean of all seven items comprised the score for self-efficacy. Reliability for this construct was satisfactory ($\alpha = .83$).

Constructs of the TPB

Intention (and self-predictions)

Conner and Norman (1996) suggest that for intention, multiple item measures are more appropriate than a single item, and that measures should commonly assess not only intentions or plans, but also desire and self-prediction or self-expectation. For these reasons, section 12 contained an item that measured intention, an item that measured desire and one that measured self-predictions. These items asked about intention to use contraception on every occasion of sex (see table 4.5 below for an example item). The mean of these items provided a composite measure of intention ($\alpha = .93$).

Table 4.5 Example item for intention

Measurement type	Example item	Scale used
Intention	I intend to use a method of contraception effectively every time I have sex	1 'strongly agree' to 7 'strongly disagree'

Attitudes

Section 13 of the questionnaire measured behavioural beliefs, the precursors to attitudes, regarding contraception. It was decided that only the preceding beliefs, and not overall attitude, should be measured within the questionnaire. The reason for this was twofold. Firstly, there was a need to keep the questionnaire as short as possible, and secondly, should this component of the TPB be found to be important in distinguishing between SOC, then it would be the beliefs that would be considered the most appropriate targets for intervention. Ajzen (1991) asserted that it is 'beliefs that are considered to be the prevailing determinants of a person's intentions and actions' (p189) concluding that, 'It is at the level of beliefs that we can learn about the unique factors that induce one person to engage in the behavior of interest and to prompt

another to follow a different course of action.' (sic; Ajzen, 1991; pp206-207). Thus, there was a greater need to establish the relationship between beliefs and SOC compared to attitude and SOC. In addition, because of the nature of different methods of contraception, it was decided that questions should relate to a selection of specific methods. Questions 1 to 12 related to the pill, hormonal implants and hormonal injections. Questions 13 to 32 related to condoms and femidoms and questions 33 to 40 related to the withdrawal method. These three major contraceptive types were chosen because they broadly represent the types of method that the vast majority of adolescents are familiar with, and are likely to use or consider using (Birth control and protection: A series of national surveys of teens about sex, 2004). The pill, the condom and withdrawal were also the three types of contraceptives mentioned consistently by participants in the qualitative study.

Consistent with Conner and Norman (1996), the precursors to attitudes as identified in the TPB were measured using paired items consisting of the strength of a behavioural belief multiplied by the outcome evaluation of that belief (e.g. 'Taking the pill/hormonal implants/hormonal injections could be poisonous', scored 1 'very likely' to 7 'very unlikely', multiplied by, 'having a poisonous substance in your body would be...', scored 1 'very good' to 7 'very bad'). Many of the behavioural belief items used in this section of the questionnaire were taken from the specific beliefs expressed by participants during the qualitative study. A mean of the multiplied pairs provided a composite score for behavioural beliefs. However, unacceptably low reliability scores for multiplicative belief items relating to the pill, condom and withdrawal led to exploratory factor analysis being conducted on these items. As before, principal components analysis was used with a varimax rotation and a factor loading criterion of 0.45. Five factors with eigenvalues greater than one were identified. Six paired items loaded onto factor 1 which broadly represented negative beliefs regarding the withdrawal method and positive beliefs about the condom with some emphasis on protection from STIs. Five

items loaded onto factor 2, representing positive beliefs about the pill and pregnancy prevention. Four items loaded onto function 3, representing negative beliefs about condoms. Three items loaded onto function 4 that appear to represent withdrawal being better than condoms, and two items loaded onto factor 5, representing negative beliefs about the pill. Refer to appendix 8, page CXII for the rotated component matrix.

Reliability analyses were conducted on each of these factors. Reliability was satisfactory for each of factors 1 ($\alpha = .79$), 2 ($\alpha = .8$) and 3 ($\alpha = .72$). However, factors 4 ($\alpha = .35$) and 5 ($\alpha = .31$) did not achieve satisfactory levels of reliability. For this reason, only factors 1, 2 and 3, hereafter named 'negativity toward withdrawal and positivity toward condoms and STI prevention', 'positivity toward the pill and pregnancy prevention', and 'negativity toward condoms' respectively, were included in further analysis. These new variables replaced multiplicative paired belief items for the pill, condoms, and withdrawal in the analysis. See table 4.6 below for example items from each new variable.

Table 4.6 Example behavioural belief items for factors 1, 2 and 3

Measurement type	Example item	Scale used
Factor 1 – negativity toward withdrawal and positivity toward condoms and STI prevention	'Using a condom / femidom would make sex feel safer' multiplied by 'Feeling that sex is safe is...'	1 'very likely' to 7 'very unlikely' multiplied by 1 'very good' to 7 'very bad'
Factor 2 – positivity toward the pill and pregnancy prevention	'Taking the pill / hormonal implants / hormonal injections / would be an easy way to prevent pregnancy' multiplied by 'Contraception being easy is ...'	1 'very likely' to 7 'very unlikely' multiplied by 1 'very good' to 7 'very bad'
Factor 3 - negativity toward condoms	'Using a condom or a femidom can interrupt the flow of sex' multiplied by 'Interrupting the flow is...'	1 'very likely' to 7 'very unlikely' multiplied by 1 'very good' to 7 'very bad'

Subjective norms

Subjective norm was measured using five sets of multiplicative paired items. Again, Conner and Norman (1996) suggest that normative beliefs can usefully be assessed by multiplying a belief score relating to a specific referent group, by the participants' motivation to comply with that referent (e.g. ", scored). For the same reasons as were given in relation to the attitude component of the TPB, only beliefs, and not overall subjective norm was measured. Referent groups included in items were: friends, boyfriend/girlfriends, parents and doctor/health workers.

Table 4.7 Example of a normative belief item

Measurement type	Example item	Scale used
Normative beliefs	'My friends think that I should use contraception every time I have sex' multiplied by 'With regard to contraception, how much do you want to do what your friends think you should?'	1 'strongly agree' to 7 'strongly disagree', multiplied by , 1 'not at all' to 7 'very much'

Unfortunately these items did not achieve satisfactory reliability ($\alpha = .58$), and it is thought that this may be due in part to the difference in impact of the varying referent groups asked about for different participants. It is not unusual for problems regarding measurement of subjective norm to be reported within the literature (e.g. see Armitage & Conner, 2001), and other measures with equally low reliability have been used in the existing literature (e.g. van Empelen et al., 2001) so the measure was therefore retained for analysis. For some discussion of subjective norms and measurement please refer to section Normative and behavioural beliefs on page 156

Perceived behavioural control (PBC)

Section 15 measured PBC. A paired item format was again used to measure control beliefs and the power that the participant thinks this has over their behaviour (see Conner & Norman, 1996). As with the attitude and subjective norm components of the

TPB only beliefs were measured, not overall PBC. Both external and internal control items were used. The external items measured were: the effect of drugs or alcohol; the context in which sex occurs; the availability of contraception; and the willingness of a girlfriend or boyfriend to use contraception. Internal items included: participants' knowledge of contraception; levels of arousal; skill or competence in contraceptive use; ability to discuss contraception with a boyfriend or girlfriend; and confidence within a sexual situation. See table 4.8 below for example items.

Table 4.8 Example external and internal control belief items

Measurement type	Example item	Scale used
External control beliefs	'How often is your use of contraception affected by you taking drugs or alcohol?' multiplied by , 'If I have used drugs or alcohol before having sex, it makes my contraceptive use...'	1 'never' to 7 'always', multiplied by 1 'much less likely' to 7 'much more likely'
Internal control beliefs	How often does your excitement or level of arousal during a sexual experience affect your use of contraception?' multiplied by 'My excitement or level of arousal during a sexual experience makes my contraceptive use...'	1 'never' to 7 'always', multiplied by 1 'much less likely' to 7 'much more likely'

The mean of these multiplicative items provided a reliable composite measure of control beliefs ($\alpha = .74$).

Other psychological constructs

Anticipated regret

Section 16 contained items designed to measure anticipated regret. The section contained two parts, with five items related to worry and regret following failure to use contraception, and an assessment of a person's favourability toward pregnancy and abortion (see table 4.9 below for example items from the first section).

Table 4.9 Example items for anticipated regret

Measurement type	Example item	Scale used
Anticipated regret	If you had sex and did not use your chosen method of contraception, how much do you think you would regret it the next day?	1 'not at all' to 7 'very much'
Anticipated regret	How much do you like the idea of being pregnant at this stage of your life?	1 'not at all' to 7 'very much'

The second part of this section asked participants to think about a sexual experience they had had in the past where they had a) used contraception properly and b) not used contraception. If they had not experienced either one or both of these scenarios, they were asked to imagine the experience. They were then asked to fill in a set of four semantic differential scales to represent how they would or did feel after having sex when contraception was used properly, and the same was required in response to being asked how they would or did feel after having sex when contraception was not used properly (e.g. 1 'unhappy' to 7 'happy', 1 'not worried' to 7 'worried'). All items from both sections were summed and a mean score provided a reliable composite measure ($\alpha = .83$).

Unrealistic optimism (Optimistic bias)

Section 17 incorporated a measure of optimistic bias. It incorporated two standardised ways of measuring optimism; a comparative risk estimate and a numeric risk estimate (e.g. see Sutton, 1999). The comparative estimate used two items to measure participants' perceptions of the likelihood of the average teenage girl having an unplanned pregnancy, and then, the likelihood that they themselves would experience or cause an unplanned pregnancy as a teenager. The difference between the scores represents a measure of individual optimism (Sutton, 1999). See table 4.10 below for the wording and scales used in measuring these items.

Table 4.10 Wording of comparative risk measure for unrealistic optimism

Measurement type	Example item	Scale used
Average teenage likelihood	How likely is it that the average teenage girl will have an unplanned pregnancy?	1 'very unlikely' to 7 'very likely'
Own likelihood	How likely is it that you will have an unplanned pregnancy as a teenager?	1 'very unlikely' to 7 'very likely'

The second standardised measure, a numeric estimate, involved asking participants to express the number of teenagers they believed got pregnant every year in England, expressed as a number out of 100 (Sutton, 1999). After some consideration, it was decided that the difference between the two comparative estimate scores would be used in analysis, to assess whether level of individual optimism distinguished between the SOC for contraceptive use, since the numeric estimate did not relate to perceptions of personal risk.

Moral norms and self identity

Moral norms were assessed by two items. These were adapted from standardised ways of measuring core TPB constructs (see Conner & Norman, 1996). A mean of the two scores provided a reliable composite measure ($\alpha = .70$). Self-identity was also measured using two items. Because the reliability of the two items in this case was not high ($\alpha = .56$), only one item (the one given in the example below) was used as a measure of self-identity in further analysis. See table 4.11 below for example items.

Table 4.11 Example items for moral norm and self-identity

Measurement type	Example item	Scale used
Moral norm	I think that it would be very wrong for me to have sex without using contraception	1 'strongly agree' to 7 'strongly disagree'
Self-identity	I consider myself to be someone who practices safe sex	1 'strongly agree' to 7 'strongly disagree'

Prototype similarity and willingness to take risk

Similarity to the prototypical teenager who gets pregnant or causes a girl to become pregnant was measured using eight items. These measures followed a format used by Gibbons et al. (1995) to measure prototype perception. Participants were required to rate the prototypical teenager on seven adjectives such as 'intelligent' and 'popular' from 1 'not at all' to 7 'very much'. Reliability of the composite mean score was not ideal ($\alpha = .55$), but this was likely to be due to the difference in meaning between the adjectives (e.g. a prototypical teenager could be both intelligent – a positive assessment, and confused – a negative assessment). A single measure of how similar to the prototype participants perceived themselves to be was also taken (1 'not at all' to 7 'very much') and the mean composite of the adjective ratings multiplied by the similarity measure was used in analysis.

Willingness to take risk in relation to contraceptive use was measured using two items that asked participants to judge the likelihood that they would a) not have sex and b) go ahead and have sex anyway, in the absence of contraception when their boyfriend/girlfriend wanted to have sex with them. The measure was adapted from Gibbons et al. (1995), and reliability was satisfactory ($\alpha = .79$).

Future aspirations

This measure was included in the original version of the questionnaire but was removed after piloting. This was due to a need to reduce the length of the questionnaire after pilot study 2 (see 4.3 above, on page 111), and it was felt that this measure was least critical to analysis, since it had not received support in the extant literature. Please refer to appendix 6, page LXXIII for further detail.

4.4. Method for the main study

4.4.1. Participants

Participants were recruited by writing to a large selection of local schools and colleges to ask for their participation. Those that responded positively were contacted by the researcher by telephone so that arrangements for data collection could begin. Four hundred and twenty-five participants from five local secondary schools, a local sixth form college and the university where the research was being conducted took part in an initial round of data collection. Of the returned questionnaires, 103 did not contain enough responses to be included in the sample¹³, 30 participants were excluded due to age (maximum age for inclusion in the study was 19 years) and 2 reported that they were homosexual, and were excluded from analysis. Therefore, the study included 291 participants. Details of participants are provided in table 4.2 below. The discrepancy between numbers of males and females represents the fact that although roughly equal numbers of males and females were initially sampled, more males returned incomplete questionnaires than females. Large attrition rates between time 1 and time 2 were due to four schools withdrawing from the research at time 2 because of restrictions on their time. Whilst the time 1 and time 2 participants clearly differed in terms of age and virginity status, t-tests revealed that there were no significant differences between the time 1 scores of those participants who were lost from the study at time 2 and those who remained (all ts between -2.48 & 1.98, df=289, all ps between .84 & .005 with Bonferonni correction placing significant $\alpha = .003$).

Table 4.12 Demographic data for participants who took part in Time 1 and Time 2 data collection

	Time 1	Time 2
Total number of participants	291	51
Number of males	91	8
Number of females	200	47
Age range	14-19 years	17-20 years
Mean and (SD) of age	17.1 (1.60) years	18.5 (0.67) years
Number of virgins	111	8
Number of non-virgins	180	43
Number whose main method is the condom	76	9
Number whose main method is the pill	93	36
Number whose main method is hormonal injections/implants	7	0
Number who used 'other' method of contraception	1	1
Number not using contraception	114	5

Table 4.3 below provides demographic information relating to the schools and Sixth Form College whose students took part in data collection for this study. This information was taken from publicly available Ofsted reports, and was therefore not available for the university whose students took part. However, the participating university is known for engaging in widening participation strategies for recruiting students and therefore includes students from a wide variety of socio-economic backgrounds.

¹³ Criteria used for exclusion were less than half of questionnaire items completed.

Table 4.13 Demographic data relating to the schools and Sixth Form College whose students took part

Educational institution	Description of school demographics
School 1	Pupils were aged between 11 and 16 years and the number of pupils eligible for free school meals was average (around 15%) compared to national figures. The majority of pupils were white.
School 2	Pupils were aged between 11 and 16 years with a high proportion coming from areas of high unemployment and social deprivation. The majority of pupils were white.
School 3	Pupils were aged between 11 and 16 years and the number of pupils eligible for free school meals was average (14%). The majority of pupils were white.
School 4	Pupils were aged between 11 and 18 years and most pupils were white and from affluent homes. A small proportion of pupils were eligible for free school meals.
School 5	Pupils were aged between 11 and 18 years and although most were white, a significant number of pupils from Black and Asian backgrounds attend the school. A below average proportion of pupils were eligible for free school meals (8.5%).
Sixth form college	Students were aged between 16 and 19 years and most lived in the town where the college was situated. This town has pockets of high economic and social deprivation, and students at the college came from a variety of socio-economic backgrounds. Most students were white.

4.4.2. Design

This study utilised a questionnaire design to measure a set of 17 psychological predictor variables and a grouping variable. The grouping variable was behaviour, split into five categories of contraceptive behaviour in accordance with the SOC of the TTM (Prochaska & DiClemente, 1983). The predictor variables were: experiential processes of change; behavioural processes of change; pros of contraceptive use; cons of contraceptive use; self efficacy; intentions to use contraception; normative beliefs relating to contraceptive use; control beliefs relating to contraceptive use; anticipated

regret; optimistic bias; moral norms; self-identity; prototype similarity; willingness to take a risk; negativity to withdrawal and positivity towards condoms and STI protection; positivity toward pill and pregnancy prevention; and negativity towards condoms.

4.4.3. Measures and materials

The questionnaire

The development of the questionnaire provided to participants has been outlined above (see section 4.3 above, on page 111). A female example copy of the final version can be found in appendix 7 on page LXXVI. The male version was identical except for gendered wording. The questionnaires were presented to males on yellow paper, and to females on blue paper. The different colours made it easy to distinguish between male and female versions of the questionnaires. In addition, so that questionnaires could remain anonymous, yet still be matched up over the two time points of the study, participants were required to complete a code on the front of the questionnaire. This consisted of the day and month of their birth, and the first three letters of their mother's maiden name. So for a child born on the 6th of March, whose mother's maiden name was Brown, the code recorded would have been 06/03 BRO. Readability statistics in MS Word showed the questionnaires to have a Flesch reading ease score of 68.5, and a Flesch-Kincaid grade level of 7.4 (Flesch-Kincaid grade formula and reading ease formula). These statistics suggest that the average 13 year-old should be able to read the questionnaire (Flesch-Kincaid grade formula and reading ease formula).

Participant information sheets

Participants received an information sheet before they completed the questionnaire (see appendix 9, page CXV).

Consent forms

Two types of consent form were produced for use in this study. The first was an *in loco parentis* consent form for completion by a Head Teacher or other member of staff with appropriate authority (see appendix 10 page CXVIII). The second type of consent form was produced for schools that did not wish to give consent on behalf of their pupils and wished instead to inform parents of their plans to take part in the research, thereby asking for individual parental/guardian permission (see appendix 11 on page CXX).

Instructions for teachers administering the questionnaire

A set of instructions for teachers was also produced for this study. This was provided to teachers who had requested that they administer the questionnaires in school time without the assistance of the researcher. It provided detailed information allowing for correct administration and collection of the questionnaires, maintaining participant anonymity and confidentiality (see appendix 12 page CXII).

4.5. Ethics

This study was conducted in accordance with the BPS code of ethics, and a proposal for the research was submitted to the Ethics Committee of the School of Social Science and Law at Sheffield Hallam University. Ethical approval was obtained from the committee before data collection began.

4.6. Procedure

4.6.1. Time 1

Questionnaires completed by students at the sixth form college and by the undergraduate students were administered by the researcher. Fully briefed teachers administered questionnaires to the school pupils. All data collection took place at the educational establishments to which participants belonged, in classroom settings, where participants were required to sit a reasonable distance from one another so that

privacy could be maintained. Data was collected from 20-30 participants in each session. Participant information sheets were provided for participants to read and a brief verbal description of the study was given. The voluntary nature of the study and issues of confidentiality and anonymity were emphasised to participants.

Participants were then given the opportunity to ask questions before they began and the opportunity to withdraw was provided via the suggestion that any participant who did not wish to complete the questionnaire could spend the time on other quiet work, returning an envelope at the end of the session containing blank materials.

Questionnaires were completed by participants under examination conditions, and queries were addressed during this time by a teacher/researcher if a participant raised their hand. The researcher/teacher carried a blank copy of the questionnaire on each occasion that a participant raised their hand, so that looking at a participant's questionnaire containing responses was not necessary.

Once each participant had completed the questionnaire they were required to seal it inside the envelope they had been given, and remain silent until the entire group had finished. Participants took between 25 and 40 minutes to complete the questionnaire. When all questionnaires were collected, participants were given a short debrief, which involved providing further detail regarding the nature of the research project and what would now happen to the data that had been collected. Any further questions from participants were answered, and they were thanked for their time and participation.

4.6.2. Time 2

A second round of data of data collection was administered to participants at a four-month follow-up. The procedure followed was identical to time 1. It was not possible to engage with all participants from time 1 due to practical constraints such as examination pressure on pupils and school staff. Of the five educational institutions

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eligible to take part in time 2 collection, only 1 agreed to continue their participation, yielding a matched sample of $n=51$.

4.7. Results

4.7.1. Classification across the stages of change

Of the 291 participants who completed an initial questionnaire containing sufficient responses to be included in the data analysis, 111 (38.1%) reported that they were virgins. A total of 89 (30.6%) participants were classified as belonging to precontemplation, 26 (14.8%) were considered to be in contemplation and 26 (8.9%) were in preparation. A further 59 (20.3%) were classified as being in action, and the remaining 74 (25.4%) were considered to be in maintenance for effective contraceptive use.

4.7.2. Missing Value Analysis (MVA)

Missing Value Analysis was carried out on the data to assess the percentage of items missing on each variable, and whether this level of missing data was statistically significant. Analysis revealed that self-identity, prototype similarity and willingness to take a risk, had more than 5% of data points missing (see Tabachnik & Fidell, 2001; p551). Separate variance t-tests showed that there was a significant relationship between missingness on those three variables and some of the other variables on the questionnaire. However, consultation of the Missing Patterns table¹⁴ suggested that most of the missing data occurred on items that appeared at the end of the questionnaire (i.e. self identity, prototype theory and willingness to take a risk) and other missing data corresponded with participants missing out a whole two sides of questions indicating they may have accidentally turned over two pages at once. Therefore, although data was not missing at random, it was highly unlikely that data

was missing because of the questionnaire items *per se*, but rather because of their position in the questionnaire and the possibility of associated boredom effects, or through genuine mistakes. From the 291, a total of 37 participants' data would be lost from analysis if the missing values were not replaced, so it was decided that missing data should be replaced by group means (i.e. the mean score for the variable on which an item is missing dependent on the group of the participant) in line with suggestions made by Tabachnik and Fidell (2001).

4.7.3. Descriptive statistics

Table 4.4 shows the means and standard deviations for participants' scores on each of the predictor variables measured, by stage of change for contraceptive use. The mean values for two constructs of the TTM appear to show a fairly consistent progressive decrease in scores (a low score indicates a more positive response to items) from precontemplation to maintenance; behavioural processes and self-efficacy. The three variables where this does not appear to be the case are pros, where the mean score appears to be very similar across the stages of change, experiential processes, where reports of their use increase between precontemplation and preparation and then decrease again across action and maintenance, and cons where mean scores fluctuate somewhat across the stages.

For variables of the TPB, intention, positivity to pill and pregnancy prevention, control beliefs and normative beliefs appear to show a consistent reduction in mean scores across the stages of change from precontemplation to maintenance. For positivity to pill and pregnancy prevention, preparation and action have very similar scores, with action being higher than preparation but other than that, the decrease appears very distinct. Negativity towards withdrawal and positivity towards condoms and STI

¹⁴ The Missing Patterns table is part of the output produced by SPSS MVA. It shows all cases with missing values and on which variables they are missing data. See appendix 13 page CXXV.

protection, and negativity towards condoms show some fluctuation across the stages. Control beliefs and normative beliefs are slightly different in that their mean scores increase between precontemplation and contemplation, and then decrease in preparation through to maintenance.

Amongst the other variables, anticipated regret appears to be the only one whose mean score consistently decreases across the stages from precontemplation to maintenance. Although the typical pattern for these other variables is that maintainers show lower mean scores (and therefore more positive responses towards contraception) than precontemplators, there also tends to be fluctuation across the stages for optimistic bias, moral norm, self-identity, prototype similarity and willingness to take risk.

Table 4.14 Means and standard deviations for participants' scores on measures of the psychological predictor variables by stage of change *

Variable (and possible range of score)	Precontemplation		Contemplation		Preparation		Action		Maintenance	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Experiential processes (1 'high' to 7 'low')	3.67	1.12	3.00	1.06	2.58	1.05	2.65	1.04	2.92	.94
Behavioural processes (1 'high' to 7 'low')	4.15	.93	3.95	.97	3.47	1.05	3.23	.92	3.19	.79
Pros/advantages (1 'high' to 7 'low')	6.07	.69	6.16	.44	6.18	.49	6.11	.83	6.16	.61
Cons/disadvantages (1 'high' to 7 'low')	4.73	.94	4.65	.87	4.79	.77	4.25	1.11	4.44	.97
Self-efficacy (1 'high' to 7 'low')	2.89	.93	2.77	.98	2.29	1.03	2.44	1.22	1.80	.69
Intention (1 'high' to 7 'low')	2.06	1.10	2.10	1.09	1.87	1.18	1.49	1.05	1.41	.74
Control beliefs (1 'high' to 49 'low')	12.54	4.71	14.47	4.82	11.57	6.12	10.24	4.68	8.18	4.62
Normative beliefs (1 'high' to 49 'low')	7.03	5.04	8.04	4.72	6.63	4.52	5.22	4.04	5.34	3.87
Anticipated regret (1 'high' to 7 'low')	2.19	.94	2.21	.96	2.07	.85	1.99	.85	1.59	.51
Optimistic bias** (-6 to +6)	-1.6	2.32	-1.56	2.01	-1.45	1.68	-1.92	2.13	-2.62	1.90
Moral norm (1 'high' to 7 'low')	2.39	1.31	2.93	1.68	2.49	1.65	2.27	1.59	1.86	1.06
Self identity (1 'high' to 7 'low')	2.72	1.33	2.84	1.34	2.85	1.40	2.06	1.20	1.87	1.24
Prototype similarity (1 'high' to 49 'low')	8.96	6.37	10.02	5.90	8.97	6.09	8.89	5.49	8.36	6.23
Willingness to take risk (1 'high' to 7 'low')	2.59	1.64	3.13	1.47	3.70	1.84	2.69	1.59	2.12	1.40
Factor 1 [#] (1 'high' to 49 'low')	4.01	3.31	4.02	3.47	2.78	1.69	3.45	2.67	2.81	1.57
Factor 2 ^{##} (1 'high' to 49 'low')	5.55	4.12	4.59	2.66	3.23	1.83	3.56	2.97	2.42	1.23
Factor 3 ^{###} (1 'high' to 49 'low')	22.77	6.02	23.16	6.74	26.92	8.31	24.45	7.36	26.74	7.06

* A lower score represents a more positive response towards contraceptive use.

** Negative mean scores for optimistic bias, relate to a positive bias; others' risk is perceived as higher than own risk of pregnancy.

Negativity towards withdrawal and positivity towards condoms and STI prevention.

Positivity toward the pill and pregnancy prevention.

Negativity towards condoms.

4.7.4. Inferential statistics

A direct discriminant function analysis was performed using the 17 psychological variables (see table 4.1) measured as predictors of membership of the five stages of change for contraceptive use. Four discriminant functions were calculated, with a combined $\chi^2(68) = 239.2$, $p < .001$. After removal of the first function, there remained a very high significant association between groups and predictors, $\chi^2(48) = 91.89$, $p < .001$. A third function also achieved a significant association between groups and predictors $\chi^2(30) = 46.2$, $p = .03$. A final function failed to achieve statistical significance $\chi^2(14) = 14.38$, $p = .42$. The three significant discriminant functions accounted for 66.4%, 17% and 11.5% respectively of the between group variability (see Tabachnik & Fidell, 2001). The lowest value of Wilks' Lambda presented in the summary of canonical discriminant functions was .424 and this was taken as the criterion above which pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions were considered valid. Examination of the structure matrix suggested that three of the psychological variables correlated with the first function, and three with the second function. One of the variables correlating with function 2 also achieved a correlation above .424 with function 1. None of the variables that loaded onto function 3 did so at a level that exceeded .424, and so this function was not considered further.

Consultation of the group centroids in figure 4.1 suggest that the first discriminant function maximally separates preparation, action and maintenance from precontemplation and contemplation. It also appears to provide a comparatively lesser distinction between precontemplation and contemplation, and between action and maintenance. Discrimination between preparation and action appears limited on this function, suggesting actors and preparers score similarly on variables that load onto this function. In addition, the centroids appear in order from precontemplation on the

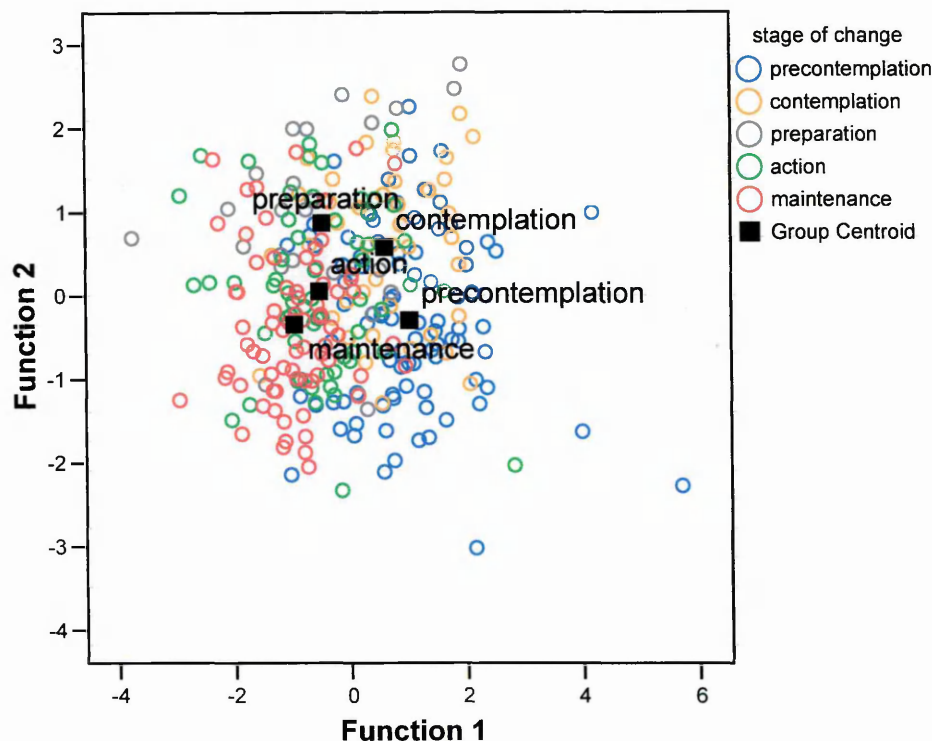
right to maintenance on the left, mirroring the order of stages within the TTM. The second discriminant function appears to find little distinction between precontemplation and maintenance, but maximally separates these two groups from contemplation, preparation and action, with some separation between each of these latter three.

4.7.5. The first discriminant function

The first discriminant function provided the optimum separation between the five stages of change for contraceptive use, and as shown by figure 4.1, provided distinctions between groups in the way the TTM does. The greatest separation between two groups in SOC order was between contemplation, where an individual is considering effective contraceptive use at some point in the next six months and preparation where a person is taking steps to change their contraceptive use in the next 30 days. The predictors that loaded onto this function are behavioural processes of change ($r = .559$), self-efficacy ($r = .509$) and positivity toward the pill and pregnancy prevention ($r = .498$). As figure 4.1 below would suggest, these three variables tend to show a decrease in mean scores from precontemplation to maintenance, representing an increase in positive responses across the stages with regards to contraceptive use (see table 4.1). Control beliefs also correlated relatively strongly with function 1 ($r = .461$), though achieved a slightly stronger correlation with function 2 (see 4.7.6 below, on page 143).

Figure 4.3 Plots of the stages of change and their group centroids on the two functions

that best separate the groups, derived from 17 variables



4.7.6. The second discriminant function

The second discriminant function separated the five stages of change, 'on the basis of associations not used in the first discriminant function' (Tabachnik & Fidell, 2001, p459). As reported in section 4.7.5 above, on page 142, this second function did not discriminate between precontemplators and maintainers, but showed these two groups to be separated from action, contemplation and preparation, which were all separated from each other. The predictors that loaded onto this function were willingness to take a risk ($r = .64$), control beliefs ($r = .522$) and experiential processes of change ($r = -.496$). Consideration of figure 4.1 above suggests that contemplators and preparers score most negatively on these variables, and consultation of mean scores in table 4.1 suggest though that, while preparers were the group most willing to take risks with

contraception, they also made the most use of experiential processes of change (which explains the negative loading of this variable). Contemplators had the lowest levels of control beliefs (see table 4.1).

4.7.7. Consideration of the 17 predictors as a discriminating model

Thus far, the data analysis has shown that there are three discriminant functions that significantly discriminate between the SOC, but that predictor variables only load onto two of those functions with correlations strong enough to be considered important for discrimination. In all, six of the psychological predictor variables have the strongest correlations with functions 1 and 2, and may be considered the variables that provide the best discrimination between the SOC (see 4.7.5 above, on page 142 and 4.7.6 above, on page 143). However, whilst these six variables provide the best discrimination, DFA assesses the utility of *all* predictors as a model for discriminating between the grouping variable, and the following statistics report findings in relation to this.

Pairwise Fs

Differences between the stages of change across all of the predictor variables were tested for using pairwise *F*s. Each stage was contrasted with all subsequent stages, meaning precontemplation was discriminated from contemplation, preparation, action and maintenance, $F_s(6, 281) = 4.07 - 18.63, ps < .01$; contemplation was distinguished from preparation, action and maintenance, $F_s(6, 281) = 3.55 - 11.77, ps < .01$; preparation was distinct from action and maintenance, $F(6, 281) = 2.22 - 4.67, ps < .05$; and action was discriminated from maintenance, $F(6, 281) = 3.58, p = .002$. Thus, the use of all 17 predictor variables to discriminate between the SOC for contraceptive use can be considered an adequate model for discrimination.

Classification results

Measurement of the 17 predictor variables has resulted in the correct classification of 159 out of 291 participants, compared with 67 that would be correctly classified by chance alone. Cross-validation of the classification coefficients showed that 131 cases would be classified correctly on any given new sample of cases. As might be expected, participants who were in the first and last behavioural categories, representing the biggest difference in behaviours, were most frequently correctly classified. Maintainers were most likely to be classified correctly (70.3% correctly classified), followed by precontemplators (69.7% correct classifications). Those in action came next (44.1% correct classifications), followed by those in contemplation (30.2%) and preparation (23.1% correctly classified).

4.7.8. Results at time 2

The overall means and standard deviations for each dependent variable for those participants who took part at time 1 and time 2 are shown in table 4.5 below. Data from 51 participants were useable at time 2. The sample was considered too small to be able to meaningfully perform multivariate analysis. Therefore, paired sample t-tests were conducted on each variable to assess whether there were any differences between these variables at time 1 and time 2. Findings suggested that only one variable achieved significance at $\alpha \leq 0.05$. Positivity towards the pill and pregnancy prevention differed between T1 and T2 at this alpha level, $t(50) = -2.315$, $p = .025$. However, given the number of t-tests performed, a Bonferroni correction placing $\alpha \leq .003$ was applied to the findings meaning that no significant differences between measures of any of the DVs at time 1 and time 2 was evidenced, $t_s(50) = -2.135$ to 0.103 , $p_s = 0.25$ to 0.918 (2-tailed). Please refer to a summary of these statistics in appendix 14 page CXXVI.

Table 4.15 Overall means and (standard deviations) for participants' scores on measures of the psychological predictor variables at T1 and T2*

Variables (and possible range of scores)	Time 1	Time 2
Experiential processes (1 'high' to 7 'low')	3.00 (0.92)	3.07 (1.10)
Behavioural processes (1 'high' to 7 'low')	3.32 (0.75)	3.43 (0.89)
Pros/advantages (1 'high' to 7 'low')	6.16 (0.48)	6.22 (0.52)
Cons/disadvantages (1 'high' to 7 'low')	4.51 (1.08)	4.57 (1.00)
Self-efficacy (1 'high' to 7 'low')	2.15 (0.88)	2.02 (1.11)
Intention (1 'high' to 7 'low')	1.58 (0.77)	1.39 (0.79)
Control beliefs (1 'high' to 49 'low')	9.67 (4.91)	9.30 (4.83)
Normative beliefs (1 'high' to 49 'low')	5.09 (3.49)	5.13 (3.21)
Anticipated regret (1 'high' to 7 'low')	1.72 (0.59)	1.73 (0.55)
Optimistic bias** (-6 to +6)	-1.96 (2.07)	-2.35 (1.76)
Moral norm (1 'high' to 7 'low')	2.01 (1.23)	2.08 (1.23)
Self identity (1 'high' to 7 'low')	1.92 (1.21)	1.89 (1.04)
Prototype similarity (1 'high' to 49 'low')	5.30 (1.69)	5.24 (1.59)
Willingness to take risk (1 'high' to 7 'low')	2.12 (1.39)	2.02 (1.24)
Factor 1[#] (1 'high' to 49 'low')	3.62 (2.71)	2.93 (1.78)
Factor 2^{##} (1 'high' to 49 'low')	3.55 (1.96)	2.72 (1.76)
Factor 3^{###} (1 'high' to 49 'low')	26.76 (7.51)	26.06 (6.66)

* A lower score represents a more positive response towards contraceptive use.

** Negative mean scores for optimistic bias, relate to a positive bias; others' risk is perceived as higher than own risk of pregnancy.

Negativity towards withdrawal and positivity towards condoms and STI prevention.

Positivity toward the pill and pregnancy prevention.

Negativity towards condoms.

4.7.9. Assessing linearity of variables

The six variables found to be strongly correlated with the two discriminant functions separating the stages of change were assessed for linearity using polynomial contrasts. Neither experiential nor behavioural processes of change were found to differ significantly from linearity ($ps < .001$). Self-efficacy was linear ($p < .001$). Positivity towards the pill and pregnancy prevention was linear ($ps < .001$). Control beliefs were linear ($p < .001$) but willingness to take risk was quadratic ($p < .001$), indicating a significant change in direction of mean scores across the stages from precontemplation to maintenance. Consideration of the mean scores on willingness to take risk for each of the five SOC suggests that its quadratic nature was due to preparers being the most likely to take a risk and have sex without an effective method

of contraception, followed by contemplators. Precontemplators and those in action were similarly less likely to take risk, and maintainers were least likely to take a risk (see table 4.1). It was thought that people in precontemplation and contemplation may be less willing to take a risk, because they were not currently having sex, and so the analysis was repeated on non-virgins only. Willingness to take a risk remained quadratic ($p < .001$).

4.7.10. Summary of Discriminant Function Analysis and t-tests

Findings indicate that behavioural processes of change, self efficacy, and positivity toward the pill and pregnancy prevention were the best predictors of membership of the grouping variable stages of change for contraceptive use. These three variables loaded with the strongest correlations onto the first discriminate function, which provided the best separation among groups. Each of these variables achieved correlations in excess of the lowest value of Wilks' lambda cut-off criterion for the data. The variables willingness to take risk, experiential processes of change and control beliefs loaded onto the second function, which best separated groups on the basis of associations not used in the first function. All three of these variables achieved correlations with the second function in excess of the lowest value of Wilks' lambda cut-off criterion for the data. Overall, the model provided by this DFA correctly classified more than half of the participants into a stage of change category. In particular, maintainers and precontemplators, the two groups at either end of the stage categories, were successfully categorised. Linearity of variables was assessed and all variables except willingness to take risk were found to vary in a linear manner across the SOC.

Overall, the variables that loaded onto function 1 could be described as summarising the way participants felt about contraception and felt about themselves in relation to contraception. It is this function that separated the stages in a way that reflects the

assertions of the TTM, suggesting that as participants progress through the SOC, positive feelings regarding their ability to use contraception and positive beliefs relating to contraception (or the pill at least) increase. The variables that loaded onto function 2 by contrast, appear to summarise participants' thoughts about risk-taking and the rights and wrongs of sex and contraception. Interestingly, this function discriminates those in contemplation, preparation and action from those in the two groups at either end of the behavioural spectrum. It is possible that neither maintainers nor precontemplators are thinking about either risk, or the rights and wrongs associated with sex and contraceptive use. Arguably this is because maintainers are successfully achieving safer sex already, whilst precontemplators are not engaging in, or even thinking about having sex, so neither category of participant needs to concern themselves with contraception or sexual risk-taking.

Comparison of the time 1 and time 2 data showed that there were no significant differences in SOC or any other measure between original data collection and four month follow-up. Tentative conclusions are therefore drawn that without intervention, changes in behaviour and psychological measures are unlikely to occur over a four-month period, and that this length of time, or less, is therefore a viable time-frame for conducting an intervention study, and evaluating any effects of that intervention.

4.8. Discussion

The main aim of this study was to identify variables for targeting within an intervention designed to improve adolescent contraceptive use. This aim has essentially been met by ascertaining the variables that provided the best discrimination between SOC. These were: experiential processes of change; behavioural processes of change; self-efficacy; control beliefs; positivity to the pill and pregnancy prevention; and willingness to take a risk (greater discussion of these variables is provided below, see section 4.8.1 on page 150). A second aim was to determine whether the variables identified also

varied with SOC over a four-month time period. However, attrition rates were such that it could only be established using univariate analyses that neither SOC nor any of the psychological constructs measured differed significantly between time 1 and time 2 (see 4.7.9 above, on page 146). It was therefore tentatively concluded that SOC and the psychological constructs measured within this Chapter are unlikely to change over a four month period, and thus, this period of time, or less, would be a suitable time-frame within which to implement an intervention and evaluate its impact.

A final aim was to contribute to some extent to debate within the literature relating to the TPB and the TTM. The TPB has been criticised for not explaining more of the variance in measures of intention and behaviour (see Rutter & Quine, 2002). Whilst the current study did not attempt to test directly the predictive ability of the TPB in relation to contraceptive use, or any additions to the model, findings suggest that there are variables external to the TPB that are important in distinguishing between effective and less effective contraceptive users. The TTM has been criticised for representing a pseudo stage model (Sutton, 2000a). This has wider implications for the application of its constructs within interventions aimed at changing behaviour, since, if it is the case that the SOC are not qualitatively different, then tailored interventions aimed at people within different SOC will not be necessary in order to increase people's uptake of a given healthy behaviour. Assessment of the linearity of variables found within the current study to discriminate between the SOC, was intended to contribute to the debate concerning whether or not the TTM is a pseudo stage model, since variables should depart from linearity if they are to illustrate the importance of different psychological constructs at different stages (see Sutton, 2000a; see also Armitage & Arden, 2002). Simultaneously, assessment of linearity of those variables was therefore intended to provide evidence on which to base a decision about the design of the proposed intervention study within this thesis. Further discussion of this is provided below (see section 4.8.2 below, on page 163).

4.8.1. Variables important in discriminating between the SOC for contraceptive use

Findings from the DFA of cross-sectional questionnaire data provided support for some of the constructs of both the TPB and TTM and their association with contraceptive behaviour. This suggests that both models hold potential for explaining and changing contraceptive behaviour. The DFA identified a selection of variables from those measured that provided the best separation between the grouping variable SOC. From function 1 of the DFA the variables identified were: behavioural processes of change, self-efficacy, and positivity toward the pill and pregnancy prevention; and from function 2 the variables were: willingness to take risk, experiential processes of change, and control beliefs. Some discussion of these discriminating variables in relation to the literature is provided below. Consideration is given to their suitability as targets for intervention as well as how the findings might be explained in relation to the two key theories that this thesis focuses on; the TPB and the TTM.

Consideration of the processes of change as targets for intervention

Processes of change for contraceptive use, from the TTM, were strong predictors of SOC. For the purposes of the present study, the processes (of which eleven have been identified for condom use, and were measured in this study in relation to general contraception; see Grimley et al., 1997) were sub-divided into two separate measures. These were behavioural processes of change, which loaded onto function 1 in the DFA, and experiential processes of change that loaded onto function 2 in the DFA.

There is relatively little research that has investigated the predictive value or discriminant ability of the processes of change, when compared to the literature that has focussed on variables of the TPB and self-efficacy and decisional balance in relation to safer sex behaviour. However, research that has focussed on the processes

has been supportive of them and their association with acquiring and maintaining effective condom use (e.g. Bowen et al., 2001; Evers, Saxon, Redding, Rossi & Levisque, 1996; Milstein, Lockaby, Fogarty, Cohen & Cotton, 1998; Noar et al., 2001; Redding & Rossi, 1993). Typical findings amongst these studies are that the processes of change are used by participants who are improving in their consistency and effectiveness of condom use, and that the processes are used significantly less by those in precontemplation compared to those in other SOC. It has also been asserted that the processes are emphasised differentially depending on the stage an individual is in (e.g. DiClemente et al., 1991; Prochaska et al., 1985).

In the present study, the behavioural processes of change were summed and a mean score for their use was calculated for the analysis. The same treatment was applied to analysis of the experiential processes of change. For this reason the use of individual processes (for example, 'Over the past six months I have become increasingly aware of my risk of getting pregnant') across the stages cannot be commented on. However, analysis did reveal that the behavioural processes of change were highly significantly correlated with the first derived discriminant function, which provided the best separation amongst SOC. The correlation of experiential processes of change with the second derived function provided further evidence of the discriminating ability of this construct of the TTM in relation to adolescent contraceptive use.

The present study therefore appears to provide support for the somewhat limited body of existing literature where the processes have been examined in relation to safer sex behaviour. For example, Noar et al. (2001) illustrated the predictive value of the processes of change individually for condom use, and took into account attitudes towards condoms, pros, and self-efficacy regarding condom use. They found that all of the processes were associated with condom use, and that three processes accounted for unique variance in the prediction of condom use. The first, environmental re-

evaluation, is an experiential process. The second (helping relationships) and third (stimulus control) are both behavioural processes. Whilst the data from this Chapter did not examine individual processes or their predictive ability *per se*, it did provide support for an association between the processes and SOC for contraceptive use (cf. Milstein et al., 1998; Noar et al., 2001; Redding & Rossi, 1993; Redding et al., 2001), and support for precontemplators using significantly fewer processes than those in other groups (cf. Prochaska et al., 1992; 1994).

Analysis of scores on both experiential and behavioural processes were shown to be linearly distributed across the SOC. This finding is consistent with other research that has investigated the processes in relation to condom use (e.g. Prochaska et al., 1985; DiClemente et al., 1991), and also corroborates the suggestion that the TTM is a pseudo-stage model (see Sutton, 2000a). It is possible that examination of the processes separately may have yielded evidence for departure from linearity across the SOC for contraceptive use, with different processes being emphasised differentially depending on stage. However, such analysis was beyond the scope of the current Chapter, so this may offer a viable avenue for future research considering the theoretical underpinnings of the TTM in relation to contraceptive use. However, it was the case that factor analysis and reliability analysis revealed that the behavioural and experiential processes as measured within this study were two separate and internally reliable constructs (see Processes of change, on page 120). Thus, justification for their measurement as two constructs, rather than eleven, was provided. Furthermore, the fact that this study and much of the wider literature suggest that the processes increase linearly across the stages does little to detract from the significance of their relationship with contraceptive behaviour. Therefore, in light of such findings, it might be argued that there is a need to examine further the predictive validity of processes of change in relation to general contraceptive use, to better understand their relationship with contraceptive behaviour and the SOC.

It could also be argued, though, that the reason for the strong association between SOC and processes of change is less than ideal for intervention design. The reason for this is that processes of change can be conceptualised as descriptions of past behaviour and thoughts regarding contraceptive use (e.g. 'Over the last 6 months I have chosen an effective method of contraception and become committed to using it properly'). There is clear evidence in the literature that past behaviour predicts future behaviour (e.g. Norman & Conner, 1996b; Norman & Smith, 1995), and it may therefore be considered unsurprising that the processes of change predict stage of change for contraceptive use (as in this study) or a measure of past condom use (as they do in existing literature; e.g. Noar et al., 2001). The fact that specific past contraceptive behaviours and/or thoughts regarding contraceptive use can predict *other* past or future contraceptive effectiveness, does not provide a useful basis for the content of one-off interventions aiming to change behaviour. This is because past behaviour or thoughts cannot be changed or manipulated in order to impact upon future behaviour. It is therefore argued that the processes of change may not be the most appropriate targets for an intervention aiming to improve adolescent contraceptive use.

Consideration of control beliefs and self-efficacy as possible targets for intervention

Within the present study, the measure of self-efficacy was based on self-efficacy as envisaged within the TTM, which was itself derived from Bandura's concept of self-efficacy (see Bandura, 1977; 1991; 1997). The control beliefs measure detailed in this Chapter was derived from the original TPB construct, perceived behavioural control (PBC; see Ajzen, 1991). Ajzen has argued that PBC and self-efficacy are synonymous terms, claiming that the work of Bandura and colleagues has informed 'much of our knowledge about the role of perceived behavioural control' on behaviour (Ajzen, 1991,

p184). However, there is a body of research that supports a theoretical distinction between self-efficacy and PBC (for a review, see Conner & Armitage, 1998). Studies supporting the distinction have been carried out across a variety of behaviours (e.g. in relation to eating a low fat diet, Armitage & Conner, 1999a; 1999b; academic achievement, Manstead & van Eekelen, 1998; exercise behaviour, Terry & O'Leary, 1995), including sexual behaviours (e.g. White, Terry & Hogg, 1994). The findings in each case support the notion that self-efficacy represents an assessment of internal influences on behaviour (i.e. the confidence that a person has in their ability to carry out a behaviour based on perceptions of their own skills and competence), and perceived control represents an assessment of external influences on behaviour, such as, in the case of condom use for example, the availability of condoms.

In line with the measurements for condom use incorporated in a paper authored by key proponents of the TTM (see Grimley et al., 1997), a 'confidence in ability' approach to measurement of self-efficacy was used in the present study, however, this incorporated items which asked about external influences as well as the confidence a person had in their own ability. Measurement of control beliefs in the study reported in this Chapter, which precede the PBC construct, utilised both internal and external items to represent constructs of self-efficacy and perceived control over behaviour (see Armitage & Conner, 2002) in a 'frequency beliefs multiplied by power' format, as originally proposed by Ajzen (1991). Self-efficacy loaded onto the first derived function of the DFA, whilst control beliefs loaded onto function 2. Given that function 1 explains two thirds of the between group variability whilst function 2 explains only 17%, this finding is consistent with other literature that has assessed the role of self-efficacy and perceived behavioural control and found that self-efficacy is the better predictor of intentions *and* behaviour (e.g. Dzewaltowski, Noble & Shaw, 1990; White et al., 1994). However, because the difference between the two measures in this study are arguably driven by the way the questions were asked (i.e. confidence in ability versus frequency x power

beliefs) and not determined by items asking about external *versus* internal control¹⁵, it is suggested that the difference in results between self-efficacy (from the TTM) and control beliefs (from the TPB) may be due to a difference in the terminology used in the questions. It is argued that whilst the two variables may tap into the same or very similar underlying constructs, questions about self-efficacy may, by their nature (i.e. asking about confidence), elicit more positive responses from participants than questions about control (refer to appendix 7 on page LXXVI for the questions). This may explain why both constructs differentiate between the SOC but show different patterns of loading onto the two significant functions in the DFA. Thus, differences reported in the literature between these two constructs (e.g. Armitage & Conner, 1999a; 1999b; White et al., 1994) may represent measurement issues rather than the existence of two truly distinct constructs. It is suggested further research is necessary to investigate this assertion. Whether these variables represent synonymous or distinct constructs, the findings of this study provide strong support for the considerable literature that suggests PBC and/or self-efficacy are extremely important determinants of intention and behaviour, and are therefore likely to be crucial to the design of interventions aimed at improving adolescent contraceptive use. Furthermore, the fact that these constructs are based around beliefs relating to confidence and control makes them ideal potential targets for possible manipulation within an intervention.

Consideration of the findings in relation to the TPB

Control beliefs and behavioural beliefs from the TPB were represented within the DFA as variables important for distinguishing between the SOC. Normative beliefs and intention from the TPB, however, failed to load onto either of the significant functions.

A discussion of this in relation to the literature is provided below.

¹⁵ It should be noted that reliability analyses on the two separate scales showed that both self-efficacy and control beliefs had high levels of internal reliability despite including both internal and external items (see Self-efficacy, on page 122 and Perceived behavioural control (PBC), on page 126).

Normative and behavioural beliefs

Attitude and subjective norm are major constructs of both the TRA (Fishbein & Ajzen, 1975), and the TPB (e.g. see Ajzen, 1991). Both constructs have received considerable support for their ability to predict intention and behaviour across a variety of areas of health research (e.g. Ajzen, 1991; Povey et al., 2000). Armitage and Conner (2001), in their meta-analytic review of the TPB, found an average correlation of attitude with behavioural intention of .49, and an average correlation of subjective norm with intention of .34. Intention itself had an average correlation with behaviour of .47. The outcome measure used in this Chapter was SOC rather than a TPB measure of behaviour, but SOC can be said to incorporate a measure of intention and behaviour.

The findings of the DFA presented in this Chapter show that a measure of behavioural beliefs (the precursors of attitude) relating to positivity toward the pill and pregnancy prevention, loaded onto the discriminant function that best separated the SOC, whilst normative beliefs (that precede subjective norm in the TPB) did not load on to either of the significant discriminant functions. Explanations for the failure of normative beliefs to load on to either function, when other TPB constructs do, may partially be explained by the fact that, as illustrated by the average subjective norm correlation with intention reported by Armitage and Conner (2001), this correlation is significantly weaker than the other relationships of TPB variables with intention. If subjective norm is more weakly related to intention than either attitude or PBC, it would make sense that normative beliefs (a constructs that is further removed from intention and behaviour than subjective norm) are not among the variables that differentiate between the SOC for contraceptive use.

Further explanation of the reason why normative beliefs do not distinguish between the SOC, may be sought through investigation of their measurement. Armitage and

Conner (2001) found that, although subjective norm was the TPB component most weakly related to intention in their meta-analytic review, when type of measure was used as a moderator, subjective norm's poor performance was found to be due to its measurement. The fact that the majority of TPB studies have used only a single item to measure subjective norm supports this assertion. The present study however, used a series of individual normative beliefs multiplied by motivation to comply to assess the normative component of the TPB (see Conner & Norman, 1996). On the one hand it might be expected that use of multiple items might therefore increase the likelihood that the norm component would be identified as important. However, the fact that it was not, might be explained firstly by its relative distance from behaviour compared with a measure of overall subjective norm, but also by the fact that the measure was based on a general selection of beliefs rather than individually elicited ones (i.e. beliefs selected as important by participants individually), since some research has shown that individually elicited beliefs are directly predictive of behaviour whereas modal beliefs (beliefs important to most people) are not (Steadman, Rutter & Field, 2002).

Intention and normative beliefs

An alternative explanation for normative beliefs not loading onto the discriminating functions may also provide an explanation for intention not loading. It is possible that this may be explained by the social desirability of questionnaire items asking about intention and normative beliefs in relation to contraceptive use amongst adolescents. Indeed, there has been some concern regarding the neutrality of questionnaires as tools for measuring these, and other constructs of health behaviour models (e.g. Budd, 1987; Sheeran & Orbell, 1996). Although Armitage and Conner (1999c) addressed many of these issues in their research relating to food choice, concluding, 'the impact of questionnaire format and social desirability on models such as the theory of planned behaviour is minimal...' (p261), they make brief reference in their discussion to the reliance on self-report for a measure of social desirability as, 'one of the enduring

paradoxes of social psychology' (p271). In the case of the present findings it is argued that normative belief measures in particular are similar to measures of social desirability in that both ask about participants' desire to comply with the wishes of other people. Intention too, may have been affected by the need for people to provide a socially desirable response in relation to contraceptive use since it is likely that few people would wish to admit that they did not intend to use contraception every time they have sex. Thus, social desirability may explain why normative beliefs and intention do not differentiate between SOC. Given the fact that normative beliefs did not load onto the discriminating functions, and the discussions provided here in relation to this, it is argued that normative beliefs are unlikely to provide a useful target for intervention. Further discussion relating to intention is given below.

Intention and willingness to take risk

Further explanation of the reason why intention did not discriminate between the SOC for contraceptive use may be found in relation to the fact that willingness to take risk *did* load onto to function 2 of the DFA. According to the TPB, intention should mediate the relationship between attitude and behaviour, the relationship between subjective norm and behaviour, and in some cases the relationship between PBC and behaviour (though PBC can have a direct effect on behaviour where perceptions reflect actual control; see Ajzen, 1991). Yet the findings from the present study indicate that intention fails to load onto either of the discriminant functions in the DFA at a level above the lowest value of Wilks' Lambda. This suggests that TPB variables that did load onto the functions (i.e. positivity towards the pill and pregnancy prevention and measures of control beliefs and efficacy; see Consideration of the findings in relation to the TPB, on page 155 and Consideration of the findings in relation to the TTM, on page 161) are better at discriminating between the stages of change than a measure of intention. Although the SOC do not represent a measure of behaviour in the same way

behaviour is measured within TPB studies, it seems feasible to expect intention to differentiate between those who are effective and less effective users of contraception.

It has already been argued that social desirability may explain the reason for the relative unimportance of intention in distinguishing between SOC (see Intention and normative beliefs, on page 157). However, a final variable that emerged as loading onto function 2 on the DFA was willingness to take risk, and it is possible that the emergence of this variable may offer an explanation for the absence of intention as a discriminating variable. The variable willingness to take a risk, as measured in this study was taken from the prototype/willingness model of adolescent health risk (P/W model; see Gibbons et al., 1995). This model posits that whilst risky behaviour *can* be reasoned and intentional, some risky behaviours are *not* intentional and proceed through a construct that is distinct from intention. This construct is behavioural willingness, and reflects willingness on the part of an adolescent to engage in a given behaviour should the opportunity to do so arise.

Within the P/W model, intentions are regarded as plans to perform specific actions, aimed at achieving set goals. The consequences of actions based on intentions are likely to have been considered, and the construct is the same as that proposed by Ajzen and Fishbein (1975; 1980). In contrast to this, the parallel construct of behavioural willingness does not involve plans, forethought for consequences or specified actions. In such cases, where risk opportunity arises, behavioural willingness has been shown to predict a number of risk behaviours amongst adolescents including drug use (e.g. Gerrard, Gibbons, Zhao et al., 1999; Gibbons, Gerrard, Blanton & Russell, 1998) and unprotected sex (Gibbons et al., 1998). Given the quadratic nature of willingness to take a risk in the present study, it is conceivable that maintainers and precontemplators for contraceptive use (who score similarly to one another on this variable) are likely to either intend to use contraception when they have sex, or do not

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intend to have sex and therefore not use contraception respectively. Comparatively, those in the middle stages may be willing to use contraception, but also be more willing to take a risk and have sex without it, depending on the opportunity that arises. It is argued that it may be for this reason that willingness to take a risk discriminates between the stages of change for contraceptive use, whilst intention does not. Thus, future research might do well to further investigate the relationship between intention and willingness to take a risk, and their ability to predict risk-taking behaviour. For the purpose of intervention design, neither of these variables lends itself to being a potential target for intervention, though an outcome that would be desirable from the intervention would be to increase intention to use contraception and decrease willingness to take a risk with contraception.

Behavioural beliefs

Behavioural beliefs (which precede attitude in the TPB) were represented in the DFA as discriminating between the SOC for contraceptive use. However, only one of three factors representing these beliefs was found to load onto a discriminating function. The reason that positivity toward the pill and pregnancy prevention was one of the predictors loading on to function 1, whilst other behavioural belief measures that were not focussed on pill use did not load, may be due to the fact that two thirds of the sample were female, and may have considered the pill, over any other method, to be particularly relevant. Furthermore, 32% of the sample stated that the pill was their main method of contraception, making it the most favoured method amongst this sample. In addition, the nature of the pill (i.e. that it is taken independently of intercourse) makes it likely to be favoured by those in longer-term relationships who are having sex on a regular basis (Guillebaud, 1999; Morrison, 1985). The data from the present study shows that individuals in this situation tend to be those in action and maintenance (i.e. more effective contraceptive users), and it is therefore unsurprising that this variable contributed to the best discrimination between the stages of change

for contraceptive use. Because of this, caution should perhaps be exercised in assuming that general contraceptive behavioural beliefs (the theoretical precursors of attitude) are a good predictor of contraceptive use. For the purpose of intervention design, promoting contraceptive pill use by targeting behavioural beliefs pertaining to pill use may be effective, but caution must be taken to ensure that pill use is not promoted at the expense of condom use, replacing unintended pregnancy with unintended transmission of STIs.

The relatively high use of the contraceptive pill and numbers of females in this study, may also add further to an explanation for the apparent unimportance of normative beliefs in predicting stage of change in the DFA. Pill use is a relatively private behaviour, and can be engaged in without the knowledge of any members of an individual's referent group other than a healthcare professional bound by a code of ethics where confidentiality is seen as paramount. For this reason, perceptions of what important others think an individual should do regarding contraceptive use may be less relevant than behavioural beliefs regarding the pill and control beliefs or feelings of self-efficacy.

Consideration of the findings in relation to the TTM

Both processes of change and self-efficacy from the TTM were found to discriminate between the SOC for contraceptive use, and these constructs have been discussed in relation to the literature above (see Consideration of the processes of change as targets for intervention, on page 150 and Consideration of control beliefs and self-efficacy as possible targets for intervention, on page 153). However, the other constructs of the TTM measured within this Chapter, pros and cons for contraceptive use, did not load onto either discriminant function in DFA.

Pros and cons

A possible explanation for the failure of pros and cons of contraceptive use to load may be that these constructs are conceptually the same as the attitude construct within the TPB (e.g. Armitage et al., 2004). Statements about the positive and negative consequences of performing a given behaviour, in this case, effectively using contraception, can be said to be equivalent to positive and negative behavioural beliefs. The findings from the current Chapter suggest that behavioural beliefs relating to the pill and pregnancy prevention have been important in discriminating between effective and less effective contraceptive users, and it may therefore be the case that any impact pros and cons may have had in discriminating between the SOC has been subsumed by positivity to the pill and pregnancy prevention.

Interim Summary

The primary aim of this thesis is pursuing the development of an intervention that will improve contraceptive behaviour. From the data presented and discussion provided in this Chapter, it would appear that a focus on behavioural, control and self-efficacy beliefs may be merited given their importance in the DFA and potential for being targeted within an intervention. The disregarding of normative beliefs would appear appropriate as indeed it has been in other research (e.g. see Sparks Shepherd, Wieringa & Zimmermans, 1995). Additionally, processes of change, willingness to take a risk, and intention have been shown to be poor potential psychological constructs to target within an intervention. However, whilst the DFA has presented some potential targets for intervention, thus meeting the first aim of this Chapter, analysis of the linearity of these variables warrants further discussion, in order to meet a further aim relating to the status of the TTM as a stage model.

4.8.2. Linearity of variables

All of the variables identified as most effective at discriminating between the stages, with the exception of willingness to take a risk, were found to be linearly related to stage (see 4.7.10 above, on page 147). It was thought that the quadratic nature of willingness to take a risk may have been due to large numbers of virgins being placed in precontemplation and contemplation (i.e. they were demonstrating a lack of willingness to take a risk by abstaining from sex), but the variable remained quadratic when virgins were eliminated from the analysis. It is feasible that the limited number of non-virgins in the precontemplation and contemplation stages (30 in total) may partly account for a proportion of the sample that had had sex in the past but were not currently in any sexual relationships. If a person is not currently sexually active then they may not have considered themselves as likely to have sex in the near future, and may therefore consider it unlikely that they would engage in risky sex. It may therefore be a person's perceived likelihood of having sex *per se* that affects their answers, and not their perceived likelihood of having sex without contraception (please refer to appendix 7 on page LXXVI for the question items that measured willingness to take risk). In addition, the relatively small sample size of these two groups after the removal of virgins from analysis arguably makes it difficult to generalise the quadratic nature of willingness to take risk to other sexually active samples.

The fact that all other discriminating variables are not significantly different from linear, and the problematic nature of generalising willingness to take a risk as quadratic, poses a problem for the TTM as a stage model. This is because it has been argued in the literature that linear increases in variables across stages are indicative of a pseudo-stage model (Sutton, 2000a). Instead of distinct stages, where different variables are important for transition between (say) precontemplation and contemplation compared to contemplation and preparation, a pseudo-stage model incorporates a continuum where increases (or decreases) in a psychological variable are necessary to move from

any given stage to the next. The findings from the present study seem indicative of the latter. In order for cross-sectional data, such as the time 1 data in this study, to represent a true stage model, discontinuation from linear changes across the stages of change would need to be evident (see Armitage & Arden, 2002; Sutton, 1996; 2000a). In respect of the proposed intervention design, the linearity of the key discriminating variables provides evidence to suggest that a one-size-fits-all intervention is likely to be a parsimonious solution to improving the contraceptive use of adolescents.

Furthermore, if the SOC are considered to be a behavioural continuum, and not discrete stages, then analysis of them as discrete stages using DFA may not have been the most appropriate way of identifying the best targets for an intervention aiming to improve contraceptive use amongst adolescents. It is therefore suggested that further analysis of the questionnaire data that looks at the dichotomous outcome of effective contraceptive user versus less effective may be more appropriate.

Dichotomous variables have been used to assess outcome in extant intervention literature (e.g. Quine et al., 2002).

4.8.3. Problems with the Stages of Change as an outcome measure

In addition to the fact that the linearity of variables distinguishing between SOC supports an argument for the TTM as a pseudo-stage model (see 4.8.2 above, on page 163; Sutton, 2000a), a further issue relating to the SOC measure has been identified. Having considered the findings, it seems problematic that virgins should be categorised within the SOC at all. This is because virgins cannot possibly have achieved either maintenance or action for contraceptive use, and can therefore only intend to use contraception at some point in the future when they begin to have sex. Since they are unlikely to know exactly when that will be, the timeframe within the SOC for intention to use contraception becomes arbitrary to a point where it is no longer useful. It seems that a more useful future outcome measure for virgins in this thesis may therefore be

their strength of intention to use contraception when they do have sex, since intention has been shown to be a reliable predictor of future behaviour (e.g. see Armitage & Conner, 2001).

There have been three issues raised in relation to the use of SOC as an outcome measure within the present Chapter. Firstly, variables shown to discriminate between them do not support the TTM as a genuine stage model and therefore suggest that a TPB-style one-size-fits-all intervention may be appropriate. Secondly, it has been argued that the SOC do not provide an appropriate outcome measure by which to assess virgins. This has addressed two of the objectives set in Chapter 2 relating to the TTM and SOC (see 2.2 above, on page 71). Thirdly, it has also been argued that, if SOC represent a behavioural continuum, analysis of them as discrete stages may not have been the most appropriate way of identifying targets for an intervention. It is therefore argued that further analysis of data from this study is needed. Such analysis should judge virgins and non-virgins separately for outcome, focussing on dichotomous distinctions of intention to use contraception amongst virgins and actual contraceptive behaviour amongst non-virgins.

4.8.4. Summary and conclusions

The main aim of this Chapter was met in that a selection of variables which discriminated between the SOC for contraceptive use were identified and considered as potential targets for intervention. Both experiential and behavioural processes of change were found to load onto the functions that significantly discriminate between the SOC for contraceptive use. Despite this, it has been argued that the processes may in fact be conceptualised as little more than descriptions of past thoughts and behaviour, and thus have limited utility in the design of one off intervention materials aimed at improving contraceptive use. However, a more positive evaluation of the support found for control beliefs and self-efficacy was reported. These two variables,

like the two types of processes of change, loaded onto different functions in DFA, suggesting that they discriminate between the stages in different ways, and are therefore likely to represent two different psychological constructs. Though the difference between them has largely been considered within the literature to be due to the impact of internal versus external influences, in the present study it seems likely that any difference is related to TTM versus TPB ways of assessing these variables. Asking about confidence in ability (TTM approach) appears to provide the greater discrimination between stages of change.

One of this study's attitude-based measures (multiplicative behavioural beliefs regarding positivity toward the pill and pregnancy prevention) was also shown to be a good predictor of stage of change, although beliefs regarding withdrawal and the condom were not. Normative beliefs also failed to load onto either function in the DFA. The favourability of positivity towards the pill and pregnancy prevention, was explained in relation to large numbers of females and pill users in the sample, whilst the failure of normative beliefs to load was discussed in relation to social desirability and measurement issues as well as high numbers of females and pill users. The failure of intention to load was also discussed in relation to social desirability. It was stressed that caution should be exercised in accepting manipulation of beliefs regarding the pill as a strong contender for targeting within an intervention, and normative beliefs were discarded as a useful predictor.

A final variable, willingness to take a risk, was discussed in relation to the absence of intention as a discriminating variable. It was thought that the work of Gibbons, Gerrard and colleagues (e.g. Gibbons et al., 1998) could help to explain why intention did not load onto either function, since they posit that willingness to take a risk may act instead amongst adolescents in relation to behaviours such as contraceptive use and non-use. It was argued that future research could usefully investigate this.

The linearity of the variables identified within this study as good discriminators between the stages of change, provided evidence for a pseudo-stage model (Sutton, 2000a) and supports the use of a single intervention aimed at increasing the positive levels of psychological predictors for all who take part. Additionally, it was argued that if SOC were in fact a behavioural continuum rather than discrete stages, DFA may not be the best way to assess which variables to target in an intervention, and that SOC were also not a useful outcome measure for participants who had yet to become sexually active. It was therefore argued that further analysis of the data was needed and that it should use strength of intention as an outcome measure for virgins and that behaviour should only be the focus for non-virgins.

Chapter 5 therefore explores the data further by splitting participants into virgins and non-virgins. By doing this, more appropriate dichotomous outcome measures can be used to ascertain which variable or variables should be usefully focussed on in the proposed one-size-fits-all intervention study.

Chapter 5

Identifying variables to target in an intervention: Part II

5.1. Summary

The findings from qualitative analyses of adolescents' experiences of contraceptive use in Chapter 3, were used to help inform the design of a questionnaire study which has assessed 17 psychological variables to find those that best discriminate between stage of change (SOC) for contraceptive use (see Chapter 4). The variables that provided the best distinction between stages (function 1; see section 4.7.5 above, on page 142) have been identified as behavioural processes of change, self-efficacy, and positivity toward the pill and pregnancy prevention. In addition, there was support for the discriminant ability of experiential processes of change, control beliefs and willingness to take risk (function 2; see 4.7.6 above, on page 143). The linearity of all but one of the discriminating variables substantiated the argument that the TTM is a pseudo-stage model, and therefore, supported the assertion that targeting of all participants with intervention material regardless of their SOC would be appropriate (see sections 4.7.10 above, on page 147 and 4.8.2 above, on page 163; Sutton, 2000a).

However, it was argued that the problematic nature of SOC as an outcome measure, particularly with regards to virgins, meant that further analysis should use intention as an appropriate outcome measure by which to judge virgins. This Chapter further details the process of determining which variables would be targeted in an intervention,

through further analysis of the questionnaire data. It also explains the development of the intervention materials themselves.

5.2. Further analysis of the questionnaire data

5.2.1. Creating a new outcome measure for virgins in the sample

In order to assess virgins in terms of their intention to use contraception effectively, the data set was split into virgins and non-virgins. Exploratory analysis of virgins versus non-virgins revealed that the median response on intention to use contraception effectively for non-virgins was 'strongly agree' whilst the median response for virgins on the same variable was 'agree'. It was therefore decided that for the virgins within the sample, anyone who responded either 'strongly agree' or 'agree' on intention would be classed as an 'intender', whilst anyone who responded 'slightly agree' to 'strongly disagree' would be classed as a 'non-intender'.

5.2.2. Non-virgins

In order to carry out comparable analyses on the non-virgins in the sample, they were split into effective and non-effective users based on their SOC category. Those in action and maintenance were classified as effective users, whilst those in preparation, contemplation and precontemplation were categorised as non-effective users.

5.2.3. Independent samples *t*-tests on virgins only

Independent samples *t*-tests were carried out on the virgins comparing intenders and non-intenders. Bonferroni's correction was used, to adjust for familywise error due to the number of analyses being conducted on the same data set, lowering alpha to .002. Table 5.1 below shows the means, standard deviations, degrees of freedom and *t* values for each variable, for intenders and non-intenders amongst the virgins.

Significant differences were found between intenders and non-intenders for self-efficacy, normative beliefs, control beliefs, anticipated regret, moral norm, self identity,

prototype similarity, willingness to take a risk, and positivity toward the pill and pregnancy prevention.

Table 5.1 Findings of independent samples t-tests using Bonferroni's correction on non-intending versus intending virgins.

Variables (and possible range of scores; 1 = high)	Mean and (SD)		df	t
	Intenders	Non-intenders		
Experiential processes (1 to 7)	3.30 (1.18)	3.86 (1.05)	108	-2.39
Behavioural processes (1 to 7)	3.88 (0.95)	4.28 (0.87)	108	-2.10
Pros (1 to 7)	6.25 (0.45)	5.63 (1.21)	35.98	2.88
Cons (1 to 7)	4.76 (0.98)	4.49 (1.05)	107	1.26
Self-efficacy (1 to 7)	2.53 (0.87)	3.57 (0.83)	106	-5.77*
Normative beliefs (1 to 49)	5.24 (4.03)	11.95 (4.96)	108	-7.51*
Control beliefs (1 to 49)	11.31 (4.05)	14.24 (5.09)	104	-3.19*
Anticipated regret (1 to 7)	1.76 (0.59)	2.91 (0.98)	42.5	-6.*
Optimistic bias (-6 to +6)	-1.88 (2.06)	-0.76 (2.48)	105	-2.44
Moral norm (1 to 7)	1.88 (1.17)	3.80 (1.56)	104	-7.04*
Self identity (1 to 7)	2.28 (1.26)	3.46 (1.18)	103	-4.56*
Prototype similarity (1 to 49)	5.42 (1.58)	6.65 (2.21)	101	-3.23*
Willingness to take risk (1 to 7)	2.04 (1.25)	3.45 (1.75)	102	-4.14*
Factor 1 (1 to 49)	3.40 (3.10)	5.84 (4.07)	106	-3.07
Factor 2 (1 to 49)	4.22 (2.27)	7.66 (4.74)	106	-3.97*
Factor 3 (1 to 49)	23.40 (5.44)	21.32 (7.14)	107	1.67

* $p \leq .002$

Given that a lower score represents a more positive response with regard to contraceptive use, consideration of the means suggests that for each of these significant differences, intenders responded more positively towards contraceptive use than non-intenders.

5.2.4. Independent samples t-tests on non-virgins only

Independent samples t-tests were carried out comparing the two groups (effective users and non-effective users) on each of the psychological variables measured. Findings are reported in table 5.2 below.

Table 5.2 Findings of independent samples t-tests using Bonferoni's correction on non-effective versus effective non-virgins

Variables (and possible range of scores; 1 = high)	Mean and (SD)		df	t
	Effective	Non-effective		
Experiential processes (1 to 7)	2.76 (0.93)	3.02 (1.21)	178	1.40
Behavioural processes (1 to 7)	3.18 (0.81)	3.93 (1.12)	178	4.41*
Pros (1 to 7)	6.18 (0.56)	6.12 (0.49)	178	-0.63
Cons (1 to 7)	4.35 (0.98)	4.75 (0.80)	178	2.56
Self-efficacy (1 to 7)	2.03 (0.95)	2.65 (1.06)	178	3.85*
Intention (1 to 7)	1.41 (0.75)	2.02 (0.98)	178	4.53*
Normative beliefs (1 to 49)	5.10 (3.63)	7.37 (4.28)	178	3.37*
Control beliefs (1 to 49)	9.04 (4.76)	13.92 (5.98)	178	5.78*
Anticipated regret (1 to 7)	1.75 (0.68)	2.33 (1.02)	178	3.79*
Optimistic bias (-6 to +6)	-2.40 (2.00)	-1.49 (1.98)	178	2.78
Moral norm (1 to 7)	1.95 (1.20)	2.87 (1.53)	178	3.86*
Self identity (1 to 7)	1.94 (1.23)	2.96 (1.34)	178	4.92*
Prototype similarity (1 to 49)	8.66 (5.91)	10.46 (5.95)	178	1.85
Willingness to take a risk (1 to 7)	2.40 (1.52)	3.64 (1.64)	178	4.81*
Factor 1 (1 to 49)	2.99 (1.90)	3.28 (2.45)	178	0.85
Factor 2 (1 to 49)	2.74 (1.80)	4.38 (3.83)	178	2.97#
Factor 3 (1 to 49)	25.79 (7.27)	25.36 (7.88)	178	-0.36

* $p \leq .002$ # approached significance at $p=.004$

Significant differences were found between effective and non-effective contraceptive users for behavioural processes, self-efficacy, normative beliefs, control beliefs, anticipated regret, moral norm, self identity, and willingness to take a risk. Positivity toward the pill and pregnancy prevention (factor 2) approached significance at the .002 level. Given that lower scores again represented more positive responses in relation to contraceptive use, consideration of the mean scores suggests that significant differences indicate effective users of contraception have responded more positively in relation to contraception than non-effective users.

5.2.5. Consideration of effect sizes

T-tests have revealed a substantial overlap in variables found to differ significantly between effective users/intenders and non-effective users/non-intenders. Variables found to differ significantly for both virgins and non-virgins were; self-efficacy, normative beliefs, control beliefs, anticipated regret, moral norm, self identity and willingness to take a risk. Positivity toward the pill and pregnancy prevention (factor 2) was also found to differ significantly for virgins and approach significance for non-virgins. Effect sizes were established for all of the variables found to differ between both intending and non-intending virgins, and effective and non-effective contraceptive users using Cohen's *d* (Thalheimer & Cook, 2002). Control beliefs, self-efficacy and anticipated regret had the largest effect sizes amongst the non-virgins, whilst normative beliefs, moral norm and anticipated regret had the largest effect sizes amongst the virgins. This finding suggests that for both virgins and non-virgins, these are the variables that would be the most appropriate targets for intervention. Table 5.3 below shows the variables and their corresponding effect sizes for both non-virgins and virgins.

Table 5.3 Effect sizes for variables found to differ between intenders and non-intenders amongst virgins and between effective users and non-effective users amongst non-virgins.

	<i>d</i>	
	Non-virgins	Virgins
Self-efficacy	.14	.25
Normative beliefs	.11	.37
Control beliefs	.20	.09
Anticipated regret	.13	.30
Moral norm	.09	.32
Self ID	.11	.19
Willingness to take risk	.12	.17
Factor 2	.09#	.20

only approached significance at $p=.004$

5.3. *Interim discussion*

Independent samples t-tests carried out using Bonferroni's corrections showed that seven variables as measured by the questionnaire (see Measuring psychological variables, on page 120) distinguished between the dichotomous outcome variables for both virgins and non-virgins within the sample. Effect sizes were calculated to see which variables showed the greatest differences between intenders and non-intenders and between effective users and non-effective users, and therefore represented the best targets for intervention. Variables shown to have the greatest effect sizes are discussed below.

5.3.1. *Anticipated regret*

Anticipated regret was unique in that it had an equally high effect size (the third highest) for the difference between both intenders and non-intenders amongst virgins, and effective and non-effective contraceptive users amongst non-virgins. It is clearly an important variable in distinguishing between these two dyadic outcome measures. Indeed, within the existing body of health behaviour literature there is evidence to support the ability of anticipated regret to predict behavioural intentions and behaviour. For example, Sissons-Joshi, Beckett and MacFarlane (1994) found that it distinguished between adolescent wearers and non-wearers of cycle helmets, and there is further evidence supporting its predictive ability in the context of condom use (Van der Pligt & Richard, 1994). Furthermore, previous intervention research aimed at improving driver safety on the roads found that anticipated regret was one of the most important variables in terms of changing behaviour (Parker et al., 1996), and research has also shown that anticipated regret predicts health behaviours independently of TPB variables and past behaviour (Abraham & Sheeran, 2004).

Given the predictive success of anticipated regret in the literature it is understandable that this variable should be found to differ between intenders and non-intenders and effective users and non-effective users of contraception. It is certainly feasible that both virgins and non-virgins may be affected by anticipated regret, since consequences of a possible future behaviour are relevant whether an individual is currently sexually active or still to begin engaging in sexual intercourse. In addition, anticipated regret has been shown to be amenable to manipulation within health intervention settings (Parker, 2002; Parker et al., 1996). Because of this, it is felt that there is strong evidence to support the inclusion of this variable for manipulation within an intervention aiming to improve effective contraceptive use amongst adolescents.

5.3.2. Normative beliefs and moral norms

Normative beliefs and moral norms had the greatest effect sizes for variables distinguishing between intenders and non-intenders amongst the virgins in the sample. It seems plausible that for individuals who have not yet started to have sex, it is their beliefs about what significant others think they should do, and their beliefs about what is morally right and wrong that determines their intentions to use contraceptives, since as yet, they have no personal experience on which to base their behavioural expectations.

The two constructs share similarities in that both refer to an expectation that an individual will behave in a certain way, and both of those expectations are social in origin. Yet, normative beliefs on the one hand, represent perceived social pressure to perform (or not perform) a behaviour, whilst moral norms represent perceived moral obligations to perform (or not perform) a behaviour (Manstead, 2000). The two differ further in that it is possible to feel social pressure to engage in a given behaviour (e.g. having sex) but feel that is morally wrong to do so also (e.g. feel it is morally wrong to have sex before marriage). The difference between the two constructs is further

exemplified by the fact that research supports both subjective norm, as an overall construct, in its ability to predict behavioural intention (e.g. Albaracín et al., 2001) and the ability of moral norm to predict unique variance in intention above and beyond variables of the TRA and TPB (e.g. Beck & Ajzen, 1991; DeCourville & Zanna, 1993a; 1993b). This ability has also been shown in relation to condom use (Boyd & Wandersman, 1991).

It should also be noted that moral norm is related to anticipated regret, since it is arguably impossible for an individual to consider behaving in opposition to their perceived moral norms without anticipating regret should they do so. However, it is entirely possible that an individual may anticipate regret about performing or not performing a given behaviour in a context that is absent of moral obligations, if they anticipate other negative impacts of their actions or lack of them (Manstead, 2000). Given the findings from further analysis of the questionnaire data within this chapter, and the findings of existing literature, it is suggested that contraceptive intervention research could usefully incorporate subjective and moral norms within intervention material, particularly where information is provided to those who may not yet be engaging in sexual intercourse.

5.3.3. Control beliefs and self-efficacy

Control beliefs and self-efficacy had the greatest effect sizes amongst variables that differed between effective and non-effective users of contraception amongst non-virgins in the sample. Clearly, non-virgins are likely to have had recent experience of contraceptive use. Their perceived control over contraceptive behaviour, and the confidence they have in their ability to perform such behaviour are likely to have been impacted upon by their experience of contraceptive use to date. Indeed, control beliefs and efficacy have been shown by this Chapter's findings to be important in terms of differentiating effective and non-effective users.

There is also strong evidence from Chapter 4 of this thesis for the ability of efficacy and control beliefs to distinguish between the SOC for contraceptive use (see DFA results in sections 4.7.5 above, on page 142 and 4.7.6 above, on page 143). Additionally, there is a large body of literature within health psychology that supports the importance of self-efficacy and PBC in predicting and changing health behaviours (e.g. Armitage & Conner, 2002; Manstead & van Eekelen, 1998) including safer sex behaviours (e.g. White et al., 1994). Because of this it is felt that there is strong support for the inclusion of material in an intervention study aimed at increasing levels of self-efficacy and control beliefs for contraceptive use.

5.3.4. Rationale for selection of variables to target within the proposed intervention study

The intervention to be developed and evaluated in this thesis needs to focus on a specific variable or variables, shown by the research presented here, to be strongly associated with the differences between those who are effective contraceptive users and those who are less so. Although the discriminant function analysis (DFA) presented in Chapter 4 of this thesis identified a selection of variables that discriminated between the SOC for contraceptive use, problems identified with using SOC as an outcome measure for virgins meant that further analysis was needed in order to reach a decision about the most appropriate targets for intervention.

Separate analyses of virgins and non-virgins using dichotomous outcome variables (cf. Quine et al., 2002), have provided some potential targets that show intenders and effective users of contraception to score significantly more positively than non-intenders and non-effective contraceptive users. Virgins with strong intentions to use contraception had higher levels of normative beliefs and higher levels of moral norm than did virgins with less strong intentions to use contraception, and these significant

Chapter 5 Identifying variables for targeting in an intervention. Part II

differences had the largest effect sizes amongst virgins. Non-virgins who were effective contraceptive users were shown to have higher levels of self-efficacy and higher levels of beliefs about perceived control than non-virgins who were not effective contraceptive users, and these significant differences had the largest effect sizes amongst non-virgins. Furthermore, anticipated regret was shown to distinguish between both intending and non-intending virgins, *and* effective and non-effective contraceptive using non-virgins. Significant differences here had the third highest effect sizes for both virgin and non-virgin samples. This therefore leaves a selection of five possible targets for intervention: control beliefs, self-efficacy, anticipated regret, normative beliefs, and moral norm.

All of these variables have the potential for manipulation within intervention materials, but it was felt that fewer variables than this should be targeted as argued in section 1.8.4 above, on page 60, to determine which variables in isolation might be useful for changing cognitions and behaviour. It was also felt that it is more important to target adolescents who are already sexually active, and attempt to improve *their* contraceptive use, than it is to target virgins, and improve their intentions to use contraception at some point in the future. Therefore, it was decided that control beliefs, self-efficacy and anticipated regret should be the focus of the proposed intervention study, since these variables had the highest effect sizes for significant differences between effective and non-effective contraceptive users.

5.4. Additional analysis of sub-groups

In order to account for the possibility that gender differences and differences by relationship status i.e. those in casual relationships versus those in more long-term, steady relationships, may exist amongst the data, further analysis of the data was

deemed necessary. Relationship status data was translated into a dichotomous categorical variable. Participants who were either single, seeing people or having sex with multiple partners were classed as being in a casual relationship. Participants who claimed to be in a relationship for either less than one year or more than one year with one person were classed as being in a steady relationship. Given the intention to provide participants with a single one-size fits all intervention the focus of this analysis was not whether different variables would be suitable for males and females or individuals with different relationship status, rather to check that the variables of focus in the intervention would not have differential effects on males and females, and those with differing relationship status. Therefore additional analyses examined interactions between contraceptive use (or intention to use contraception in virgins) and gender, and contraceptive use (or intention to use contraception in virgins) and relationship status. These analyses are reported below.

5.4.1. Additional analyses of virgins' data

Table 5.4 Mean and standard deviation scores for virgins by gender and intention on the 3 dependent variables identified to be the focus of the intervention study

	Males		Females	
	Intenders	Non-intenders	Intenders	Non-intenders
Self-efficacy	2.65 (.62)	3.53 (.81)	2.49 (.96)	3.58 (.89)
Control beliefs	12.31 (4.07)	14.57 (4.34)	11.05 (3.91)	13.63 (6.41)
Ant. regret	1.95 (.55)	3.14 (.94)	1.68 (.59)	2.43 (.89)

Table 5.4 above shows the means and standard deviation scores of the virgins in the sample split by gender and level of intention to use contraception. These descriptive statistics appear to suggest that male intenders and female intenders have similar scores to one another and that male non-intenders and female non-intenders have similar scores to one another. To assess whether male and female virgins differed significantly in relation to the variables shown to differentiate between intenders and non-intenders and chosen to be the targets of the intervention study a 2 (gender) x 2

(level of intention) between-subjects MANOVA was conducted on the 3 dependent variables identified (see section 5.3.4 above, on page 176). Findings showed that there was no significant interaction between gender and the outcome variable of interest, intention $F(3, 104)=0.88, p=0.452$. This suggests that whether participants were male or female had no impact on the differences between intenders and non-intenders amongst the virgins in the sample.

Table 5.5 Mean and standard deviation scores for virgins by relationship status and intention on the 3 dependent variables identified to be the focus of the intervention study

	Casual		Steady	
	Intenders	Non-intenders	Intenders	Non-intenders
Self-efficacy	2.52 (.89)	3.55 (.84)	2.60 (.81)	3.52 (.70)
Control beliefs	11.36 (4.09)	14.06 (5.12)	11.67 (3.7)	16.1 (5.29)
Ant. regret	1.7 (.53)	2.89 (.97)	1.97 (.71)	2.79 (1.22)

Table 5.5 above shows the means and standard deviation scores of the virgins in the sample split by relationship status and level of intention to use contraception. These descriptive statistics appear to suggest that casual intenders and steady intenders have similar scores to one another, and that casual non-intenders and steady non-intenders have similar scores to one another. To assess whether relationship status was significant in determining the way intenders and non-intenders differed on any of the 3 intervention DVs a further 2 (relationship status) x 2 (level of intention) between-subjects MANOVA was conducted. Findings showed that there was no significant interaction between relationship status and level of intention $F(3, 104)=.36, p=.784$. This suggests that whether participants were in steady or casual relationships had no impact on the differences between intenders and non-intenders amongst the virgins in the sample.

5.4.2. Additional analyses of non- virgins' data

Table 5.6 Mean and standard deviation scores for non-virgins by gender and effectiveness of contraceptive use on the 3 dependent variables identified to be the focus of the intervention study and intention to use contraception

	Male		Female	
	Effective	Non-effective	Effective	Non-effective
Self-efficacy	2.41 (1.13)	2.77 (1.04)	1.94 (.89)	2.56 (1.08)
Control beliefs	11.23 (4.81)	15.15 (4.35)	8.53 (4.62)	13.1 (6.82)
Ant. regret	2.01 (.78)	2.55 (.83)	1.69 (.64)	2.18 (1.12)
Intention	1.64 (1.01)	2.21 (.89)	1.35 (.68)	1.89 (1.02)

Table 5.6 above shows the means and standard deviation scores of the non-virgins in the sample split by gender and level of effectiveness for contraceptive use. These descriptive statistics appear to suggest that effective male and female users have broadly similar scores, as do male and female non-effective users. To assess whether male and female non-virgins differed in relation to the variables shown to differentiate between effective and non-effective contraceptive users a 2 (gender) x 2 (contraceptive effectiveness) between-subjects MANOVA was conducted on the 4 dependent variables in table 5.6 above. Findings showed that there was no significant interaction between gender and contraceptive effectiveness $F(4, 173)=.26, p=.905$. This suggests that whether participants were male or female had no impact on the differences between effective and non-effective contraceptive users amongst the non-virgins in the sample.

Table 5.7 Mean and standard deviation scores for non-virgins by relationship status and effectiveness of contraceptive use on the 3 dependent variables identified to be the focus of the intervention study and intention to use contraception

	Casual		Steady	
	Effective	Non-effective	Effective	Non-effective
Self-efficacy	2.29 (1.07)	2.62 (1.01)	1.94 (.9)	2.71 (1.21)
Control beliefs	11.26 (4.88)	14 (5.54)	8.33 (4.52)	13.72 (7.29)
Ant. regret	2.03 (.75)	2.37 (1.08)	1.66 (.63)	2.22 (.89)
Intention	1.62 (.93)	1.92 (.73)	1.34 (.68)	2.29 (1.45)

Table 5.7 above shows the means and standard deviation scores of the non-virgins in the sample split by relationship status and level of effectiveness for contraceptive use. These descriptive statistics appear to suggest that effective users in both casual and steady relationships have broadly similar scores, as do non-effective users in both casual and steady relationships. In order to assess whether relationship status was significant in determining the way effective and ineffective contraceptive users differed on any of the intervention DVs, one further 2 (relationship status) x 2 (contraceptive effectiveness) between subjects MANOVA was conducted. Findings showed that there was no significant interaction between relationship status and contraceptive effectiveness $F(4, 173)=1.23, p=.301$. This suggests that being in either a casual relationship or a steady relationship has no effect on the way effective and non-effective contraceptive users differ on each of the dependent variables identified as a focus for the intervention or on intention to use contraceptive use.

Additional analysis of sub-groups, looking specifically at males and females and those in steady versus casual relationships, has suggested that participants in the questionnaire study did not differ dependent on membership of these sub-groups on the DVs identified as the most appropriate to focus on in an intervention. It was therefore considered unproblematic to provide a one size fits all intervention based on those DVs to males and females alike as well as those in both casual and steady relationships. The following section explains how the variables selected as the focus for the proposed intervention study (i.e. self-efficacy, control beliefs and anticipated regret) were incorporated into the development of the intervention materials, justifying the nature of the materials for the purpose of manipulating the identified DVs.

5.5. Development of the intervention materials

Having decided on the variables most appropriate for targeting within an intervention designed to improve the contraceptive use of British adolescents, consideration had to be given to the most appropriate way to incorporate these variables within intervention materials, and the format such materials should take.

5.5.1. The Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) of persuasion provides an approach for understanding the different factors that influence persuasive outcomes on receipt of a message, dependent on the amount of thinking or elaboration involved. The model purports that when confronted with a persuasive message people will respond by engaging in a degree of cognitive involvement with that message. This can vary from paying very close attention, engaging in careful scrutiny of the arguments, to giving little or no thought at all to the message. Persuasion is possible anywhere along this spectrum of engagement with the message, but the ELM asserts that persuasion processes vary according to the level of engagement (Petty & Cacioppo, 1986).

Although the ELM proposes an elaboration continuum, two routes for processing information from a message are suggested; the central route and the peripheral route. The central route represents the processes that are involved when elaboration of a message is high; that is, when deep, issue-relevant thinking is engaged in by the receiver. In contrast, the peripheral route represents processes involved in low elaboration of a message. In this case, peripheral cues or heuristics (simple decision rules), such as source credibility, are employed to make cognitively light assessments of a message. Thus when elaboration is high, the quality of a message's arguments are very important in terms of persuading a recipient, whereas when elaboration is low, peripheral characteristics of the message, such as the way it is presented, and who is

presenting it become more important. Because elaboration likelihood is a continuum, it is of course possible to engage in moderate levels of elaboration, in which case, both central and peripheral route processes may be important (Petty & Cacioppo, 1986; Petty & Wegener, 1999).

5.5.2. Factors affecting elaboration likelihood

There are several factors that have been established within the literature to affect elaboration likelihood, or the likelihood of engaging in deep, issue-relevant thinking about a message, such as multiple message sources (e.g. Harkins & Petty, 1987), mood of the recipient (e.g. Bless, Mackie & Schwartz, 1992) and message repetition (Cacioppo & Petty, 1989). Some factors found to affect elaboration likelihood that may be particularly relevant to adolescents and contraceptive use are outlined below.

Personal relevance has been widely studied in relation to its impact on issue-relevant thinking, with evidence conclusively supporting the notion that the more personally relevant a message is to a receiver, the more likely they are to engage in high elaboration of that message (e.g. Petty & Cacioppo, 1984; Petty, Cacioppo & Goldman, 1981; Petty, Cacioppo & Schumann, 1983). It is thought that, within the proposed intervention study, messages pertaining to self-efficacy, control beliefs and anticipated regret regarding contraceptive use may be more personally relevant to non-virgins within the sample than to virgins, encouraging greater elaboration amongst those who have experience of sex. However, it may also be the case that non-virgins who feel they are already achieving effective contraceptive use may not feel they need advice, and may therefore not see the information as particularly relevant to them.

Need for cognition, which describes the tendency to enjoy and engage in thinking, has also been found to be related to likelihood of elaboration, with individuals who are high in need for cognition tending to engage in higher levels of elaboration after receiving a

Chapter 5 Identifying variables for targeting in an intervention. Part II

message (for a review see Cacioppo, Petty, Feinstein & Jarvis, 1996). It is likely that any sample of adolescents who take part in the proposed intervention study will be made up of individuals who have varying degrees of need for cognition. In addition, there may be varying degrees of prior knowledge regarding contraceptive use and the information contained within messages amongst the sample. Prior knowledge has also been shown to be related to elaboration, with research showing that the more extensive an individual's prior knowledge of a topic the more likely they are to engage in high elaboration of the message (e.g. Wood, 1982; Wood & Kallgren, 1988). With varying degrees of elaboration of the intervention messages likely to occur, it is important to incorporate elements within the intervention that will aid persuasion for both high and low elaborators. To this end, consideration of some of the factors shown to be most effective in persuading high and low elaborators is given below alongside an explanation of the chosen format and characteristics of the intervention materials.

5.5.3. Persuasion and the intervention format

Research suggests that when individuals engage in high elaboration, argument strength is one of the most important aspects of the message in terms of achieving persuasion. A well argued case with sound evidence is necessary to evoke a positive evaluation of the message and increase the likelihood of persuasion being successful (e.g. Petty & Cacioppo, 1984; Petty et al., 1981; Petty et al., 1983). Whilst there is little in the literature that explicitly details what constitutes a strong argument (O'Keefe, 2002; Petty & Caccioppo, 1986), such findings would suggest that in order to maximise the potential for persuading high elaborators, the intervention materials in the proposed study need to make well argued points that will convince those who are attending deeply to the content to feel more confident and more in control of their contraceptive behaviour and/or feel greater levels of anticipated regret should they not use contraception effectively.

For message recipients who engage in lower levels of elaboration, the literature suggests a number of peripheral cues that are likely to impact on persuasion. Amongst these are the extent to which the message communicator is considered credible (e.g. Petty et al., 1981), the extent to which the communicator is liked (e.g. Petty et al., 1983), and the extent to which people around the recipient believe a message (see Axsom, Yates & Chaiken, 1987 for a review). The more credible and liked a communicator is perceived to be, and the more consensus there is from other people concerning a message, the more likely a low elaborator is to be persuaded. In addition, the mode of presentation of a message has also been found to influence its persuasive ability. Where communicator credibility and favourability are high, video and live presentations of a message have been found to be more effective in bringing about persuasion than written and audio messages, and when communicator credibility and favourability is low, audio and written messages prove more effective (e.g. Chaiken & Eagly, 1983). Furthermore, message comprehension has been found to be the same across all forms of presentation mode when the message being communicated is simple, but for more complex messages, a written format, which allows for re-reading of material that is not comprehended initially, provides a better method of persuasion (Chaiken & Eagly, 1976).

Taking these findings into account, and to aid straightforward¹⁶ delivery of the intervention within schools, it was decided that the intervention materials should take the form of a reading and writing task that could be implemented within a classroom setting. Using a written presentation format should maximise the potential for comprehension amongst participants, regardless of whether or not they find the information simple or complex to understand (Chaiken & Eagly, 1976). In addition, it will potentially decrease the impact of participants not liking the message communicator (Chaiken & Eagly, 1983). It was decided that illustrated colour booklets

that present information in the style of a comprehension task should be produced. The booklets should provide participants with sections of information to read, followed by a question about the information. Getting the participants to read a question and respond to it is intended to promote rehearsal of the information they read, or possible re-reading of the information, since it has been shown that moderate repetition of a message should increase persuasion (e.g. Cacioppo & Petty, 1989). Each question will require that a box or boxes be ticked to indicate a response from a selection provided. This tick box format has been used previously in an intervention to promote cycle helmet use amongst school-age cyclists (see Quine et al., 2002). It is felt that this kind of response requires less effort from participants than writing their own response, so is more likely to elicit answers from them. In order to minimise costs, approximately 80 booklets will be produced, and laminated, so that they can be re-cycled by being wiped clean after each data collection session. Thus, participants' responses to the questions in booklets will not be kept for analysis. It is felt though, that the laminated booklets, which participants will complete with coloured marker pens, potentially make the task more engaging compared with merely reading the information.

5.5.4. Deciding on conditions of the intervention

Having established which variables to target within an intervention, and the format the intervention materials should take, it is necessary to make a decision about the number of conditions within the intervention and the specific content of intervention conditions. Some theory-driven intervention research has utilised just two intervention conditions, one that attempts to change behaviour through manipulation of identified theoretical constructs, such as all of the components of the TPB, and a comparison control condition (e.g. Quine et al., 2002). Other research has separated the constructs being targeted for intervention into separate conditions of the intervention, and compared

¹⁶ Using a reading and writing task would involve less training/involvement of teachers than any other form of intervention, and be more cost and time-effective than producing a video, for example.

each with a control as well as each other (e.g. Armitage & Conner, 2002). In the present study it has been decided that both of these approaches should be incorporated, that is, each of the variables chosen for targeting should be represented within its own condition, and compared with a control condition. In addition, a further condition should combine manipulation of the constructs to see if a differential effect is observed. Furthermore, given the proximity of self-efficacy and control beliefs to one another, as exemplified to some extent within the literature (e.g. Ajzen, 1991; see Consideration of the findings in relation to the TPB, on page 155), and the fact that within the present thesis, most items measuring these two constructs cover cognate beliefs¹⁷, it was decided that attempts to increase levels of self-efficacy and control beliefs should be made within the same intervention condition. Therefore it was decided that the intervention should involve four conditions; one representing self-efficacy and control beliefs, one representing anticipated regret, one representing a control or comparison condition and a further condition combining the control beliefs and self-efficacy condition with the anticipated regret condition.

Self-efficacy and control beliefs condition

The TPB would suggest that it is theoretically possible to change behaviour by increasing positive and/or decreasing negative salient behavioural or normative beliefs regarding a target object or behaviour, which should increase overall positive attitude, subjective norm and intention regarding performing the behaviour (e.g. Ajzen, 1991). However, Ajzen (1991) does not offer such guidance in relation to the manipulation of control or efficacy beliefs. Thus, suggestions made by Bandura (1997) relating to the provision of advice for dealing with a perceived lack of control and lack of confidence were followed.

¹⁷ They differed mostly in relation to the phraseology of questionnaire items.

The specific control beliefs and self-efficacy items used in the questionnaire study have already been shown to differentiate between effective contraceptive users and less effective contraceptive users (see Chapter 4 and section 5.2.4 above, on page 170). Therefore the beliefs referred to in each of these questionnaire items will become the specific targets for manipulation within this condition of the intervention. Those beliefs are: the negative effects of drinking alcohol and drug taking on contraceptive use; contraception not being easy to get hold of; contraception not always being available when sex is desired; negative impacts of levels of arousal, and the refusal of a partner to use contraception. The way in which the manipulation of each of these beliefs was operationalised in the intervention booklet is described for each belief below.

'I'm not confident that I can use contraception properly if I've been drinking or taking drugs!'

For ethical and legal reasons, this section began with a warning that drugs should never be taken because they are illegal, and that alcohol should only be consumed by those aged over eighteen, and then, only in moderation. However, it was also conceded that drug and alcohol use do occur. Participants were then asked if they thought unintended pregnancy was more likely in teenage girls, if they and their boyfriends had sex under the influence of drink or drugs. A response was required using the tick box format. A reminder was then provided that even if a girl takes the pill, this does not provide protection from STIs, and that the pill can be rendered ineffective if she is sick (something that is more likely after consumption of drugs or alcohol). Following this, a series of suggestions were presented aimed at increasing feelings of competence and confidence in dealing with the issue of sex and contraception when drugs and/or alcohol are used. To illustrate the look of this intervention condition, the self-efficacy/control belief materials relating to drug and alcohol use are presented in figure 5.1 below.



I'm not confident that I can use contraception properly if I've been drinking or taking drugs!

Of course the first response to this concern is that you should not take drugs (they're illegal!) and that you should not drink alcohol before you're eighteen, and only then in moderation. If you don't do either then no problem!

However, just because you shouldn't do something doesn't necessarily mean you don't!



Do you think that teenage girls are more likely to get pregnant accidentally if they and their boyfriend have sex when they've been drinking or taking drugs?

☐ Yes I do

☐ No I don't

☐ Don't know

Remember that even if you are on the pill (or your girlfriend is) you are not protected from sexually transmitted infections (STIs). Also, if the drugs or alcohol a girl consumes make her sick, it can affect the contraceptive pill.

If you know you are going to go out and take drugs or drink alcohol then think about how likely it is you will have sex while under their influence.

Think about how less able to control your behaviour you might be and consider the precautions you need to take. Make sure you have condoms on you.

Even if you don't think you will have sex, the opportunity may arise - so take condoms anyway.

Be prepared to say no, and perhaps wait until a time when you are both free from substances and will enjoy the experience more.

If you think about it before you drink or take drugs, you will feel more prepared to deal with the situation effectively should it arise.

Figure 5.1 Example material from the self efficacy/control belief intervention booklet

'I can't use contraception if it's not readily available!'

This booklet began by presenting the potential problem that contraception is not easily available, and participants were asked about whether they thought obtaining contraception was problematic. Advice and suggestions were then offered as to how condoms and the contraceptive pill *can* easily be obtained to encourage strengthening of beliefs that contraception *is* readily available with a minimum of effort.

'What about when we don't have any contraception, or the excitement means we don't want to use it, or my partner refuses to use it?'

This section of the self-efficacy and control beliefs condition began by suggesting that in some cases, there might be things that happen within the sexual situation that affect someone's control of contraceptive use (i.e. absence of a condom and/or a missed pill, arousal levels and partner refusal). Participants were asked if they thought it would be difficult to refuse to have sex in such a situation. Following this, further guidelines and advice were offered about trying to ensure contraception is always available, finding other ways to be intimate, overcoming feelings of arousal that may jeopardise contraceptive use, and dealing with a contraceptively uncooperative sexual partner. This advice was aimed at increasing feelings of control and self-efficacy within such situations. A final comprehension tick box section reviewing this advice was then included to complete the efficacy condition.




Anticipated regret condition

A different approach was adopted within this condition compared to the self-efficacy and control beliefs condition, since anticipated regret is not an original construct of the TPB. A series of three vignettes were created, which presented the stories of three teenagers' experiences of having sex but not using contraception. Vignettes have been used in the literature as a way of implementing interventions to adolescents (e.g. Duncan, Duncan, Beauchamp et al., 2000) and in relation to the manipulation of

anticipated regret (e.g. Colenda, Poses, Rapp & Leist, 1995; McConnell, Niedermeier, Leibold et al., 2000). It was expected that by getting participants to read stories about similar others' experiences and regrets, and then asking them to respond to questions that asked how they would feel in the same situation, the feeling of anticipated regret may be made to seem more personally relevant to participants, thus encouraging higher elaboration of the message (e.g. Petty & Cacioppo, 1984). In addition, getting participants to answer questions about anticipated regret has been shown to increase levels of anticipated regret and intention to perform a behaviour in the existing literature (e.g. Sheeran & Orbell, 1999b). Furthermore, Richard, van der Pligt, & de Vries (1996) found this to be the case specifically in relation to condom use. The operationalisation of anticipated regret in this format is detailed below.

The booklet began by suggesting that having sex without using contraception may lead to feelings of worry and regret. The fact that not using contraception may lead to unplanned pregnancy and transmission of STIs was also stated. Participants were then asked if they thought that they would feel worried if they were to have sex without using contraception. A tick box response was then requested. Following this, three vignettes were presented which told the stories of Trinh, John and Claire. Trinh's story introduced the idea that failing to use a condom when you have sex with someone can lead to feelings of regret, worry and upset, wondering whether pregnancy has occurred. John's story introduced another incident of sex where a condom was used, but broke, and the central character failed to do anything about the breakage, even though he suspected it had occurred. His feelings of regret were also focussed on. The final vignette told the story of Claire who gets pregnant after having failed to use the contraceptive pill correctly. Her and her boyfriend's feelings were focussed on in relation to the decision of what to do about the unplanned pregnancy. Each vignette was followed by a tick box response item that drew the participants' attention to the feelings of regret talked about in the story, and asked them to think about it in relation

to how they would feel in the same situation. Figure 5.2 below illustrates some of the material from the anticipated regret intervention material.







Thinking about feelings of regret caused by not using contraception properly!

It's possible that if you have sex with a boyfriend or girlfriend and you do not use contraception (e.g. a condom and/or the contraceptive pill) you will feel worried, upset or regretful afterwards.

If you do feel worried it may be because you are unsure whether the sex you had has caused you or your girlfriend (if you're male) to be pregnant. You may also be worried about whether one of you has given an STI (sexually transmitted infection) to the other.


Do you think that you might feel worried or concerned about what will happen if you have sex without using contraception?

☐ Yes I'd be worried ☐ No, not at all worried ☐ Don't know



Below, experiences of sex and contraception of some young people like you are described.

This is **Tam's** story. She is 16 years old and lives in a big city in England with her mum and step dad, brother and step sister.



She goes to a school on the other side of the city from where she lives, which means that every day she has to get a bus from her home to the

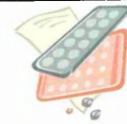
Figure 5.2 Example of material from the anticipated regret intervention booklet

Information only control condition

It was decided that the control or non theory-based comparison condition should provide participants with information in a similar format to that received by the participants in other conditions, but that this should represent the providing of straightforward information about condoms and the contraceptive pill only. Similar approaches for providing a control condition have been used in the literature before (e.g. Armitage & Conner, 2002). Care was taken to ensure that the information did not attempt to manipulate beliefs or feelings in any way, simply provide factual information. One section of the booklet gave information about condoms and a further section provided information about the contraceptive pill. In the condom section the questions, 'What is a condom?', 'How effective are condoms?' and 'How are condoms used?' were answered, and followed by a tick box comprehension task that asked which out of a selection of statements about condoms were true. In the contraceptive pill section, a very similar format was used to answer the questions, 'What is the 'pill'?', 'How effective is the pill?' and 'How is the pill taken?'. Once more, a tick box comprehension task followed. Figure 5.3 below provides an example of material included in this condition.

Combined anticipated regret and self-efficacy/control beliefs condition

A final condition of the intervention combined the anticipated regret and self-efficacy/control beliefs conditions, as outlined above (see 5.5.4 above, on page 186). Presentation of the booklets was counterbalanced, so that half of the participants in this condition received the anticipated regret condition first and half received the self-efficacy/control beliefs condition first.



Facts about condoms

What is a condom?

Condoms are a thin rubber tube which fits over the man's erect penis before intercourse. When the man ejaculates, he does so into the condom which prevents the sperm from entering the vagina. Most condoms are made of latex and when coated with spermicide, are considered an effective means of protection from pregnancy and the spread of STDs.



How effective are condoms?

When condoms are used properly, they are about 95% effective in the prevention of pregnancy. When condoms are used with spermicidal foam, their effectiveness rate is nearly 100%. Furthermore, condoms provide excellent protection from the spread of sexually transmitted diseases, although the exact rates of success are unknown. The latex condom is the recommended form of STD and pregnancy prevention.



How are condoms used?

When using a condom, you check for holes and review the expiry date. Never carry a condom in a hot, confined place such as your wallet. Always ensure they are kept out of direct sunlight. Squeeze the tip to release the air and then roll the condom down to the base of the penis. Some rolled latex will remain at the base of the penis to make it easier to pull the condom off after ejaculation. Be sure that your fingernails

Figure 5.3 Example of information-only control condition intervention material

5.6. Summary and conclusions

Further analysis of the questionnaire data from Chapter 4 of this thesis, splitting the sample into virgins and non-virgins, has culminated in a decision to focus on the variables anticipated regret, self-efficacy and control beliefs in an intervention aiming to improve adolescent contraceptive use.

Consideration of some of the literature relating to the ELM and persuasion theory was used to rationalise the development and format of written intervention materials with four intervention conditions, and these have been explained and described in detail above. To follow from this, Chapter 6 will present the implementation and evaluation of an intervention study utilising these materials in an attempt to improve the contraceptive use of non-virgins and increase intentions to use contraceptives generally amongst a sample of fourteen to nineteen year-olds.

Chapter 6

Implementation and evaluation of the intervention

6.1. Summary

The findings from analysis of questionnaire data (presented in Chapters 4 and 5 of this thesis), supported development of a unitary intervention (see section 4.8.1 above, on page 150), and identified a selection of the original 17 predictor variables as being most effective in discriminating between the SOC. The following variables were identified using discriminant function analysis: behavioural processes of change, self-efficacy, positivity toward the pill and pregnancy prevention, willingness to take a risk, control beliefs and experiential processes of change. The findings were discussed in relation to the TPB and the TTM and the implications for intervention design (see section 4.8 above, on page 148).

Chapter 5 of this thesis explained analysis of the data sample split by virgin status using the dichotomous outcome variables of intenders versus non-intenders amongst virgins and effective contraceptive users versus non-effective amongst non-virgins. The variables finally chosen to be the focus of the proposed intervention study were those with the largest effect sizes for differing significantly between effective and less effective contraceptive users amongst the already sexually active (see section 5.2.5

above, on page 172). Those variables were anticipated regret, self-efficacy and control beliefs.

6.2. Introduction

6.2.1. Variables to be targeted

Analysis of the questionnaire data presented in Chapters 4 and 5 has culminated in the decision to focus an intervention study aiming to improve the contraceptive use of adolescents using manipulations of anticipated regret, self-efficacy and control beliefs. Support has been found for all three of these constructs in relation to their predictive ability with regards to contraceptive use. For example, Richard et al. (1998) found evidence to support anticipated regret as a predictor of precautionary sexual behaviour (see also, Bakker et al., 1997; Buunk et al., 1998). Other studies have supported the utility of self-efficacy (e.g. Lauby et al., 1998) and PBC (which proceeds control beliefs in the TPB) in the prediction of contraceptive use (e.g. von Haefen & Kinski, 2001). Although there has been some dispute within the literature as to whether the constructs of self-efficacy and PBC can be considered synonymous (e.g. see section 1.7 above, on page 42), for the purposes of the present intervention study, it was decided that control beliefs and efficacy beliefs *should* be considered synonymous constructs. This was because, as outlined in section 5.5.4 above, on page 186, the items used to measure control beliefs and self-efficacy in this thesis largely represent the same beliefs. Targeting them should allow for increases in both feelings of perceived control and self-efficacy.

Interventions reported in the health behaviour literature have used a variety of designs. Parker et al. (1996), for example, used a cross-sectional design comparing the impact of manipulations on: behavioural beliefs, normative beliefs, anticipated regret and PBC, on drivers' attitudes to speeding. Findings suggested that participants in the normative beliefs and anticipated regret conditions had significantly more negative attitudes

towards speeding than did controls, but impact on intentions failed to achieve significance (Parker et al., 1996). One of the limitations of their study is that it did not measure the impact of the intervention longitudinally. It therefore failed to ascertain whether there were changes in beliefs within the conditions of the intervention due to the manipulation, or whether changes in intentions to speed, and actual speeding, occurred later as a result of the intervention. It is possible that further processing of information and persuasion caused by the message contained within an intervention occurs later, and this may be missed if follow-up measures are not taken (Hovland, Lumsdaine & Sheffield, 1949; Kelman & Hovland, 1953). In contrast, Armitage and Conner (1999a) took longitudinal measures in their intervention study aiming to reduce levels of fat intake. They compared an information-only control condition with a self-efficacy condition and an attitude change condition, and measured respondents at baseline and at follow-up. However, three months elapsed between baseline and intervention implementation, so although participants were randomly allocated to conditions of the intervention, there was potentially time for elements external to the study to influence attitudes, self-efficacy, intentions and behaviour. Furthermore, follow-up measures were not taken until 5 months post intervention. It is possible that shorter-term impacts of the intervention than those reported by the authors could have been missed.

A further intervention study investigated cycle helmet use in school age cyclists (Quine et al., 2001). This study implemented an intervention condition, which manipulated all components of the TPB, and compared findings with a control group. In this study, baseline measures were taken, and an unspecified amount of time passed between baseline and intervention implementation. This could be seen as potentially problematic for the same reasons as given above in relation to Armitage and Conner (1999a). Quine et al. (2001) took follow-up measures including behaviour again, five months later, and in addition, measures were taken immediately after implementation

to assess any immediate impact of the intervention. Despite the fact that positive increases in levels of intention and behaviour were observed, it is argued that it is possible that stronger impacts occurring some time after implementation, but sooner than five months post intervention, could have been missed.

6.2.2. Rationale

It has been argued that relatively little research has extended social cognitive theories to the development, implementation and evaluation of interventions (see Rutter & Quine, 2002). In particular, there has been a paucity of research that extends theory-driven intervention design to general contraceptive use by adolescents. The present study aims to implement and evaluate an intervention designed to increase effective contraceptive use by British adolescents.

The variables chosen for targeting within this intervention study have been selected through analysis of previous research presented in Chapters 3, 4 and 5 of this thesis. The variables chosen were self-efficacy (SE) and control beliefs (CB), which, as explained earlier (see 5.5.4 above, on page 186), will be targeted together, and also anticipated regret (AR). Therefore, concurrent with other behaviour change intervention research, one condition of the intervention will be based around SE and CB and one condition around AR (see section 5.5.4 above, on page 186), and these conditions will be compared with an information-only control (IOC). The purpose of developing the proposed intervention study was not to test any one theory *per se* but to isolate a limited number of variables most associated with effective contraceptive use, and determine whether manipulation of those variables could achieve behavioural change. It was also deemed appropriate to test whether combining the manipulation of SE/CB (from here on referred to as SE) and AR would have a greater impact than manipulating either one in isolation, since this is comparable to what happens in a TPB intervention when all components are targeted simultaneously (e.g. Quine et al., 2002).

The study will compare pre-intervention baseline measures of behaviour, SOC, intention, self-efficacy, control beliefs, anticipated regret and other TPB measures to post-intervention measures taken immediately and at four-week follow-up. For virgins within the sample, the most salient outcome measure will be intention to use contraception since this is the best measure available to judge how likely they will be to use contraception when they begin to have sex at some point in the future. For non-virgins, both intention to use contraception *and* behaviour will be important outcome measures. SOC will also be an outcome measure of relevance to the whole sample, since although it has been established as somewhat problematic when applied to virgins, progression in the stages is still preferable to regression¹⁸. Measures of self-efficacy, control beliefs and anticipated regret will be taken to determine whether the attempted manipulation of these variables can alter them favourably with respect to effective contraceptive use. Measurement of the other remaining TPB variables (normative beliefs and behavioural beliefs) will also be included. This is because, of the two social cognition models of behaviour change that have been the focus of this thesis (i.e. the TPB and the TTM), findings have tended to favour the TPB model. In Chapter 4, evidence was found to suggest that the SOC represent a behavioural continuum rather than discrete stages, and this led to a decision to adopt a more TPB-style approach to intervention implementation. Furthermore, problems with using SOC as an outcome measure for virgins has led to the use of the more TPB-based outcome measure of intention in Chapter 5, and the present Chapter intends to use measures of intention and self-report measures of behaviour as well as SOC by which to judge participants. Finally, the fact that the two constructs being manipulated in the present intervention study are either part of the TPB or cited as a useful addition to the TPB in

¹⁸ Progression may mean that they begin to have sex, but means they are at least considering using contraception if not already using it, regression *may* mean they are considering having sex, or have begun having sex, but not considering using contraception.

the literature, suggests that measurement of all TPB-based constructs to fully assess the potential impact of the intervention would be prudent.

The proposed timeframe of the study is designed to address issues raised in relation to the designs of existing intervention research discussed above (Armitage & Conner, 1999a; Parker et al., 1996; Quine et al., 2001). Ensuring that the time that elapses between baseline (time 1) and immediate post-intervention follow-up (time 2) is kept to one week should minimise the potential for external influence on the measures being taken, and ensure that baseline measures represent closely the beliefs, intentions and behaviour of participants immediately before they complete the intervention. Taking measures immediately post intervention as in Quine et al. (1998), should capture any immediate shifts in beliefs as a result of the intervention. Finally, conducting follow-up measures at four-week follow-up (time 3) should allow for capture of possible shifts in beliefs, intentions and behaviours that occur sooner than were allowed for in existing intervention research (Armitage & Conner, 1999a; Quine et al., 2001).

6.2.3. Research predictions

It is predicted that there will be a main effect of condition, in that significant differences in scores on the dependent variables (DVs) will be seen across conditions of the intervention. It is also predicted that there will be a main effect of time, in that significant differences will be detected between baseline (time 1; T1) and time 2 (T2). It is predicted that any differences between T1 and T2 will either be maintained, resulting in significant differences between T1 and time 3 (T3) but not between T2 and T3, or further shifts will be seen, resulting in significant differences between T2 and T3 also. A final prediction is that there will be a significant interaction between the within subjects independent variable (IV) of time, and the between-subjects IV of condition. It is expected that the interaction will be due to significant differences on DVs occurring across the time points for some but not all of the intervention conditions. These

predictions relate to the sample as a whole and when the sample is split, to virgins within the sample, and non-virgins within the sample.

6.3. Method

6.3.1. *Participants*

Participants were recruited by writing to a large selection of local schools to ask for their participation. Those that responded positively were contacted by the researcher by telephone so that arrangements for data collection could begin. Table 6.1 below shows a summary of the participant information for each time point of the intervention and for the participants who took part in all three parts of the intervention study. Table 6.2 below shows summary descriptions of the demographics of each school.

Baseline (T1)

Four hundred and fourteen participants recruited from five secondary schools and two universities completed a baseline questionnaire. Of those participants, 234 were male and 180 were female. Ages ranged from 14 to 19 years with a mean age of 16.7 years and a standard deviation of 1.5 years. Of the 414 participants, 209 reported that they were virgins. Of those who reported having had sex on at least one occasion, 94 reported that the condom was their main method of contraception, and 97 reported that the contraceptive pill was their main form of contraception. One person reported that hormonal injections were their main method, and 13 did not report a main method of contraception (refer to T1 column in table 6.1 below).

Participants at intervention implementation (T2)

Three hundred and fifteen participants from the original 414 took part in the intervention implementation session and completed an immediate follow-up questionnaire. Of these, 168 were male and 147 were female. Analysis of baseline data for these participants suggests that ages still ranged between 14 and 19 years, with a mean age

of 16.8 years and a standard deviation of 1.5 years. One hundred and fifty-four of these remaining participants reported being virgins, and of the remaining 161 who reported being non-virgins, 69 said that the condom was their main method of contraception. A further 86 reported that the contraceptive pill was their main method and six participants did not report the use of a main method of contraception (see T2 column of table 6.1).

Participants at 4-week follow-up (T3)

Of the original 414 participants who completed a baseline questionnaire, 278 completed a final questionnaire at four-week follow-up. Of these, 146 were male and 132 were female. Their ages now ranged between 14 and 20 years, with a mean age of 17.0 years and a standard deviation of 1.6 years. Of the 278, 130 reported they were still virgins. Of the 148 non-virgins, 62 reported that the condom was their main method of contraception. A further 79 reported that the contraceptive pill was their main method, two cited the hormonal injection, and five did not report use of a main method (see T3 column of table 6.1).

Participants who took part across all three time points

Thirty-one of the 278 participants who completed a questionnaire at T3, had not completed a T2 questionnaire, and had presumably been absent during the intervention implementation session (T2). Therefore, data from participants who completed all three parts of the study was available for a total of 247 participants (61% of the original 414 sampled at baseline), 126 of who were male and 121 female. Ages of this sample ranged from 14 to 19 years at baseline (T1), rising to 14 to 20 years at T3. Mean age at baseline was 17.0 years with a standard deviation of 1.5 years, rising to a mean age of 17.1 years with a standard deviation of 1.6 years at T3.

At baseline, 121 participants reported that they were virgins, decreasing to 115 at T3. Across both of the time points where this data was collected, a total of 13 non-virgins reported that they had not had sex within the previous six months. The remaining 119 non-virgins reported having sex during the course of the study and/or the six months preceding commencement of the study. Of the 132 non-virgins sampled across all three time points, by T3, fifty-five reported that the condom was their main method of contraception, 73 the contraceptive pill, one the hormonal injection, and three still failed to report a main method of contraception (see 'all three' column of table 6.1 below). Of the six participants who reported starting to have sex for the first time during the course of the study, four reported using condoms, one reported using the pill, and one reported using the hormonal injection.

Differences between retained and absent participants

An independent samples t-test was carried out to see if participants who were retained across all three time points differed in age from those who were absent from either one or both T2 and T3. Findings suggested that participants who were lost from analyses were significantly younger (mean=16.31 years; SD 1.39 years) than those retained (mean = 16.95 years; SD = 1.52 years) $t(376.134) = -4.44, p < .001$. Although the difference is significant, it is relatively small ($d = .44$), and is most likely accounted for by greater rates of withdrawal observed amongst school-age participants compared to university-age participants.

Chi-square analyses were used to examine whether there was an association between attrition and the gender and virginity status (i.e. virgin or non-virgin) of participants. A significant association was found between gender and attrition ($\chi^2 = 7.56, df=1, p = .006$). A greater proportion of males were lost from the study compared with females. However, a greater loss of males was anticipated, based on experiences from data collection for Chapter 4 of this thesis, and so more males than females were originally

recruited, leaving approximately equal numbers of males and females in the final sample. No significant association was found between attrition and the virgin status of

Table 6.1 Summary of information describing participants in the study

		Baseline T1	Time 2	Time 3	All three
Retained	No. of participants	414	315	278	247
Absent		-	99	136	167
Retained	No. of males	234	168	146	126
Absent		-	66	88	108
Retained	No. of females	180	147	132	121
Absent		-	33	48	59
Retained	Mean age (& S.D.)	16.69 (1.5)	16.82 (1.5)	17.03 (1.55)	T1 16.95 (1.52) T3 17.08 (1.55)
Absent		-	16.28 (1.44)	16.26 (1.38)	16.31 (1.39)
Retained	No. of non-virgins	205	161	148	T1 126 T3 132
Absent		-	44	57	79
Retained	No. of Virgins	209	154	130	T1 121 T3 115
Absent		-	55	79	88
Retained	Condom users	94	69	62	T1 51 T3 55
Absent		-	25	32	43
Retained	Pill users	97	86	79	T1 72 T3 73
Absent		-	11	18	25
Retained	Other method	1	0	2	T1 0 T3 1
Absent		-	1	-	-

participants ($\chi^2 = 3.59$, $df=1$, $p = .166$). Therefore, comparable proportions of virgins and non-virgins remained in the final sample compared to the original sample.

Although demographic data relating to socio-economic status was not collected from participants on an individual basis, care was taken to include schools with pupils from different socio-economic backgrounds as can be seen from the descriptions of schools provided in table 6.2 below. The two universities that were used to collect data from some of the older adolescents are also known for their inclusion of students from a range of backgrounds.

Table 6.2 Demographic data relating to the schools whose students took part

Educational institution	Description of school demographics
School 1	Pupils were aged between 11 and 18 years and the number of pupils eligible for free school meals was above average (21.6%) compared to national figures. Some were from areas of considerable social and economic deprivation. The majority of pupils were white.
School 2	Pupils were male and aged between 11 and 18 years. A very small proportion of pupils were entitled to free school meals. The majority of pupils were white.
School 3	Pupils were aged between 11 and 18 years, and the socio-economic profile of students was average. The majority of pupils were white.
School 4	Pupils were aged between 11 and 18 years and came from a full range of social and economic backgrounds. A high proportion were from areas of very high deprivation. Almost half of the pupils were from ethnic minority backgrounds.
School 5	Pupils were male and aged between 11 and 18 years. The proportion of pupils entitled to free school meals was well below average and the majority of pupils were white.

6.3.2. Design

This study used a 4 x 3 mixed design. Participants were randomly assigned to one of four intervention conditions (information-only control [IOC], self-efficacy [SE],

anticipated regret [AR], or SE/AR combined), and measured on ten dependent variables across three time points (baseline/T1, immediately post-intervention/T2, and four-week follow-up/T3). The dependent variables were SOC, behaviour (only analysed for non-virgins), intention, self-efficacy, anticipated regret, control beliefs, negativity to withdrawal and positivity to condom use and STI prevention, positivity toward the pill and pregnancy prevention, negativity toward condoms and normative beliefs. Half of the participants in the SE/AR combined condition received the SE information first and the other half received the AR information first.

6.3.3. Materials

Intervention materials

The development of intervention materials used in this study is detailed in Chapter 5 (see section 5.5 above, on page 182). Separate booklets for each of the four intervention conditions were randomly distributed amongst participants, so that at any one data collection session each participant had an equal chance of being placed in any of the four conditions.

Questionnaires

Envelopes were provided along with the questionnaires in order that the questionnaires could be sealed inside before being returned. Three questionnaires were used to collect data at the three different time points (please refer to appendices 15a and 15b on pages CXXVII and CXLVIII for copies a questionnaire used at time 1 and time 2. The time 3 questionnaire was identical to the time 1 questionnaire except for the amount of time being asked about in the behavioural measure; see Time 3 four-week post-intervention follow-up, on page 212). The questionnaires were based on the format of items from the questionnaires used in the previous study (see section 4.3.1 above, on page 111). Separate versions of each questionnaire were produced, as before, for males and females, so that instructions and questions did not have to be

overly complicated by being made appropriate to members of both sexes. All questionnaires required participants to complete a code on the front page so that data could be matched across time points whilst maintaining the anonymity of participants. The codes were the same as those used in the questionnaire study presented in Chapter 4, asking for participants' day and month of birth and the first three letters of their mothers' maiden names (see The questionnaire, on page 134).

Time 1 (Baseline) questionnaire

Section 1: general information

As in the questionnaire used for the previous study (see section 4.3.2 above, on page 112), this first section of the questionnaire recorded demographic data including: age, whether or not the participant had willingly engaged in sexual intercourse with a member of the opposite sex, and whether or not they had willingly engaged in sexual relations with a member of the same sex. Participants were asked whether they had any religious beliefs that affected their use of contraception, then, they were asked to indicate whether they had a) never had sex, b) had sex but not during the previous six months or c) had sex within the last 6 months. This information was then used to guide participants either to complete section 2 (non-contraception users only), or to indicate which contraceptive methods they had ever used and proceed to section 3 (all contraception users).

Section 2: non-contraception users only

Anyone who had not used contraception within the last 6 months was asked to fill in section 2. The questions firstly asked whether participants had either a) never had sex; b) had sex but never used contraception; c) had sex and had sometimes used contraception; or d) had sex and always used contraception. Responses given to this item directed participants to the next appropriate question for them to consider.

Anyone who had engaged in sexual intercourse in the past, and used contraception at

least sometimes, was then asked which methods they had used, and whether they had ever experienced any problems with their method(s). All participants completing this section were then asked whether they were planning to have sex in the next six months, and if yes, whether they were planning to have sex in the next month. If they were not planning on having sex in the next six months then they were guided to section 4 of the questionnaire and recorded as precontemplators in the SOC. If they were planning to have sex either in the next six months or next month, then they were asked whether they were planning to start using contraception during the same timescales. Anyone planning on starting to have sex but not planning on starting to use contraception was recorded as precontemplation in the SOC, anyone planning on starting to use contraception within the next 6 months was recorded as contemplation within the SOC, and anyone planning on starting to use contraception within the next month was recorded as preparation in the SOC. Participants were also asked which particular method or methods they were considering using, if any, and why. The final question from the previous study's questionnaire, which asked whether the participant had performed any of a set of listed behaviours in preparation for using contraception, was excluded from this questionnaire as it was deemed unnecessary for effective allocation to one of the SOC. Once non-contraception users had completed the relevant questions from Section 2 they were asked to turn to Section 4 and continue answering the questionnaire from there.

Section 3; for all contraception users

Participants were required to complete section 3 if they had used contraception within the preceding 6 months. They were firstly asked to name the method of contraception they considered their main method. They were then asked to indicate how long they had been using their main method, and how often it was used. Participants were then asked to indicate whether they ever used another method of contraception as well as their main method, and to say what that method (or methods) was, and how long they

had been using it/them. They were also asked how often the other method(s) was used. Depending on answers to these questions it was possible to ascertain whether a person consistently used contraception, and had done so for six months or more (maintenance), consistently used contraception but for fewer than six months (action), or did not consistently use contraception (preparation). In order to try and avoid participants conforming to socially desirable responses with regard to frequency of effective contraceptive use, three further questions were asked. They were asked to write down the number of times they estimated they had had sex and effectively used a method of contraception within the last six months, then the number of times they had had sex and not used a method of contraception effectively, either through non-use or misuse. They were also asked to write down the number of times emergency contraception (EC) had been used within the last six months. If EC had been used as often as the number of occasions that contraceptives had not been used effectively during sex, then the participant was still considered to have used contraception effectively.

A final item included in this questionnaire was a measure of behaviour that complied with standard TPB measures (e.g. Conner & Sparks, 2005), and was included in addition to the updated SOC algorithm. This asked participants to indicate on a Likert-type scale, how much they agreed with the statement, 'I have used contraception properly every time I have had sex in the last 6 months' (1 = strongly disagree to 7 = strongly agree).

Psychological measures

All psychological measures utilised seven point Likert scales in order to provide identical measures to those used in the previous study, so that the psychological data collected within this Chapter would be directly comparable to that presented in Chapter 4. Measures included in the present study were intention (see Intention (and self-

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predictions), on page 123), self-efficacy (see Self-efficacy, on page 122), anticipated regret (see Anticipated regret, on page 127), control beliefs (see Perceived behavioural control (PBC), on page 126), negativity towards withdrawal and positivity to condom use and STI prevention, positivity towards the pill and pregnancy prevention, negativity towards the condom (see Attitudes, on page 123), and normative beliefs (see Subjective norms, on page 126). These measures were presented in sections 4 to 9 of the baseline (T1) intervention study questionnaire (see appendix 15a on page CXXVII).

It was important to measure self-efficacy, control beliefs and anticipated regret because those were the psychological variables that the intervention aimed to target, thus measuring changes to these variables was key to understanding the impact of the intervention. In addition, the two other psychological constructs from the TPB (behavioural beliefs represented by negativity to withdrawal and positivity to condom use and STI prevention, positivity toward the pill and pregnancy prevention, negativity toward condoms, and normative beliefs) were included so that the impact of the intervention in relation to this theory could be evaluated (see 6.2.2 above, on page 199). Finally intention was included as an outcome measure critical to understanding the impact of the intervention on virgins, and because of the need to understand the intervention in relation to the TPB.

Time 2 immediate post-intervention questionnaire

The questionnaire used to collect data immediately after participants had completed their intervention tasks did not contain the questions from sections 1, 2 or 3 pertaining to general information, the staging algorithm or behaviour as described above. It simply measured the variables intention, self-efficacy, anticipated regret, control beliefs, negativity to withdrawal and positivity to condoms and STI prevention, positivity toward the pill and pregnancy prevention, negativity towards condoms and normative beliefs, in order that any immediate shifts in these variables could be recorded.

Time 3 four-week post-intervention follow-up

The T3 questionnaire differed from that at T1 only slightly. Section 3 at T3 asked about contraceptive use, contraceptive failures, and emergency contraceptive use during the last month, rather than the last 6 months, enabling only the behaviour since the implementation of the intervention to be used to categorise participants into the SOC. In a similar manner, the final question in this section asked participants to respond to the item, 'I have used contraception properly every time I have had sex in the last month', rather than the last 6 months.

Participant information sheets

Each participant was provided with a participant information sheet to read through before taking part in the research. A copy of this sheet can be found in appendix 16 page CLXII. As well as providing information about the study, the sheet contained contact details for the researcher, so that participants could get in touch after data had been collected to ask questions or withdraw from the study. Participants were able to keep the information sheets.

Sources of help and advice post intervention

After participants had completed the intervention part of the study, they were provided with a sheet containing web addresses, telephone numbers and addresses of sources of help and advice regarding contraception and sex. A copy of this sheet can be found in appendix 17 page CLXV.

Consent forms

In loco parentis consent forms were provided to all schools whose pupils took part in the research. An appropriate member of staff¹⁹ from each school was asked to read and sign two copies of this form before their pupils took part. The researcher also signed both copies. In each instance, one copy was kept by the school and one was returned to the researcher. Where the school was happy to provide this kind of consent, and not inform parents/guardians about the research, *in loco parentis* consent was deemed sufficient. However, in two instances where the school was not happy to provide *in loco parentis* consent without informing parents/guardians, an additional parental consent form was used for all participants aged under 16 years. A copy of this can be found in appendix 18 page CLXVII. As for the questionnaire study, this form provided parents/guardians with a brief outline of what the research involved, and asked them to return the reply slip only if they did not wish their child or children to take part.

6.3.4. Ethics

The study was designed in accordance with the BPS code of ethics for research with human participants, and an ethics proposal was submitted to the ethics committee of the School of Social Science and Law at Sheffield Hallam University. Ethical approval was granted before data collection began.

6.3.5. Procedure

Time 1 - baseline data collection

The intervention was administered to both school and university students, in each case, by a researcher. The procedure followed was the same as that for the

¹⁹ i.e. a head teacher or another teacher with appropriate authority such as head of year or head of sixth form.

questionnaire study detailed in Chapter 4 (see 4.6.1 above, on page 135). On this occasion participants took between 10 and 20 minutes to complete the questionnaire.

Time 2 - Intervention implementation

One week after the baseline questionnaire was administered, participants received the intervention. Within each group of participants, the four conditions (IOC; AR; SE and SE & AR combined) were randomly distributed. Each booklet was presented inside an envelope with a marker pen and post-intervention questionnaire. Participants were told to complete the laminated 'workbook' first, ensuring they used the pen provided, and then complete the questionnaire. When they had completed both items they were required to place them back inside the envelope and seal it. Envelopes were collected and participants were thanked for their time and participation.

Time 3 - Four-week follow-up

Four weeks after T2, a final session of data collection took place. Participants were required to complete a T3 questionnaire. On completion of this participants were given a full debrief regarding the aims of the research and any questions were answered. Participants were again thanked for their time and co-operation.

6.4. Results

6.4.1. Missing Value Analysis (MVA)

Missing Value Analysis was carried out on the data to assess the percentage of items missing on each variable, and whether there was a significant level of missing data. Analysis revealed that negativity towards condoms, and normative beliefs at T1, and all of the variables measured at T2 and T3 had more than 5% of data points missing (see Tabachnik & Fidell, 2001; pp58-62). Separate variance t-tests showed that there was a significant relationship between missingness on those variables and other variables in

the data set. However, consultation of the Missing Patterns²⁰ table showed that much of the missing data occurred on items that appeared towards the end of the questionnaire (i.e. negativity towards condoms and normative beliefs), and that other missing data corresponded with participants being absent for one of the data collection sessions (either T2, T3 or both). Therefore, although data was not missing at random, it was deemed highly unlikely that data was missing because of participants having issues with questionnaire items *per se*. Rather, this was likely due to the position of question items and boredom effects, or to participants being absent.

Those participants who only completed a baseline questionnaire were removed from further analysis (N=68). In addition, those participants who had not completed a questionnaire at time 2, and therefore not completed an intervention booklet were also removed from initial analyses (N=31)²¹. A further 105 cases contained at least one missing variable score, so rather than lose these cases from further analysis, missing scores from baseline data were replaced with grand means (i.e. means for that variable based on all cases) and missing scores from T2 and T3 data were replaced with group means (i.e. means for the score on a variable by condition of the intervention) in line with suggestions made by Tabachnik and Fidell (2001; p62). It should be noted however, that no replacements were made where there were missing data on scores for SOC or self-reports of behaviour, as it was felt inappropriate to estimate measures of behaviour.

6.4.2. Descriptive statistics for the whole sample

Table 6.3 shows the means and standard deviations for participants' scores for intention, self-efficacy, anticipated regret, negativity toward withdrawal and positivity to

²⁰ The Missing Patterns table is part of the output produced by SPSS MVA. It shows all cases with missing values and on which variables they are missing data. See appendix 19 page CLXIX.

²¹ Though dropped from initial analysis of the whole data set, these 31 participants comprise a separate control group that completed questionnaires but did not take part in the intervention itself (see section 6.4.4, on page 226 for analysis including these participants).

condoms and STI prevention, positivity to the pill and pregnancy prevention, negativity to condoms, control beliefs and normative beliefs across the three time points of the intervention, by condition of the intervention and by gender of participant²². It was decided that gender should be included as an additional between subjects IV in initial analyses in order to assess whether the intervention differentially affected males and females. In general, males appears to score less positively than females for all of the dependent variables, but the pattern of increases observed seems to be similar for males and females, as described below.

The mean scores for intention appear to show a gradual increase from T1 to T3, except within the combined SE/AR condition where, whilst there is an overall increase, the difference appears comparatively small, and a small decrease occurs between T1 and T2. A similar pattern of gradual increase in scores across time points can be seen for the measure of self-efficacy, with the exception of no change between T1 and T2 for the combined condition again.

There appears to be a small increase in mean scores across time points for anticipated regret in the IOC and the SE condition, whilst in the AR and combined conditions an increase between T1 and T2 is followed by a decrease at T3. For factor 1 (negative beliefs about the withdrawal method, and positive beliefs about condoms and STI prevention), there are some increases in mean scores across stages, but in both the SE and AR conditions, mean scores decrease to below their original levels by T3. The small increase for the combined condition is maintained at T3, and only the IOC appears to show a further increase by T3.

²² Behaviour and SOC are not included here because they are relevant only to non-virgins in the sample.

Table 6.3 Means and (standard deviations) for participants' scores on measures of the dependent variables across all three time points and by condition of the intervention and by gender of participant*

Variable (and score range; 1 = low)	Gender	Information Only Control N = 77			Self-Efficacy N = 71			Anticipated Regret N = 83			SE/AR N = 77		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
Intention (1 to 7)	males	5.72 (1.3)	5.65 (1.5)	6.22 (1.0)	5.55 (1.2)	5.56 (0.9)	5.86 (1.1)	5.1 (1.3)	5.52 (1.0)	5.93 (0.9)	5.73 (1.0)	5.82 (1.0)	5.92
	females	5.86 (1.1)	6.38 (0.8)	6.69 (0.5)	6.18 (1.0)	6.22 (0.8)	6.5 (0.6)	5.75 (1.1)	6.23 (0.9)	6.44 (0.7)	6.28 (0.9)	5.88 (1.0)	6.13
Self-efficacy (1 to 7)	males	5.66 (0.8)	5.85 (0.9)	5.95 (0.8)	5.22 (1.1)	5.27 (1.0)	5.51 (1.1)	5.17 (1.0)	5.23 (1.1)	5.7 (0.8)	5.45 (0.8)	5.51 (0.9)	5.75
	females	5.82 (0.8)	5.89 (0.8)	6.05 (0.6)	5.69 (1.3)	5.86 (0.9)	6 (0.9)	6.23 (0.8)	6.26 (0.8)	6.26 (0.7)	6.05 (0.9)	6.03 (1.0)	6.11
Ant. Regret (1 to 7)	males	5.89 (0.8)	5.97 (0.8)	5.99 (0.8)	5.69 (0.8)	5.72 (0.8)	5.87 (0.8)	5.84 (0.5)	5.79 (0.9)	5.78 (0.9)	5.77 (0.8)	5.93 (0.6)	5.77
	females	6.12 (0.6)	6.23 (0.5)	6.36 (0.4)	6.09 (0.6)	6.24 (0.6)	6.17 (0.5)	6.21 (0.7)	6.44 (0.5)	6.33 (0.6)	6.14 (0.6)	6.3 (0.5)	6.14
Factor 1* (1 to 49)	males	38.49 (9.0)	39.61 (9.1)	39.47 (8.4)	38.29 (5.4)	38.07 (6.6)	36.15 (7.9)	35.76 (8.2)	36.66 (8.1)	35.45 (9.8)	38.23 (7.6)	39.42 (7.9)	39.69
	females	41.24 (6.4)	40.22 (7.4)	41.99 (4.4)	40.22 (5.6)	41.17 (6.4)	39.87 (6.9)	39.41 (6.0)	38.75 (9.1)	39.34 (6.0)	41.24 (5.7)	41.31 (5.7)	40.95
Factor 2** (1 to 49)	males	34.91 (8.3)	37.87 (8.3)	38.07 (6.9)	34.63 (4.9)	35.56 (6.0)	33.64 (7.9)	33.78 (7.1)	36.02 (7.4)	36.45 (7.7)	33.3 (6.9)	34.48 (8.0)	35.4
	females	38.68 (6.7)	41.26 (6.4)	42.81 (4.9)	38.7 (6.2)	40.72 (6.1)	41 (5.3)	39.98 (7.0)	41.49 (6.0)	42.66 (5.2)	39.64 (7.9)	41.45 (6.9)	41.57
Factor 3*** (1 to 49)	males	8.66 (4.0)	8.84 (4.3)	8.36 (3.2)	9.46 (3.0)	8.79 (3.3)	9.43 (3.4)	8.4 (3.4)	8.28 (3.5)	7.96 (4.1)	7.78 (2.8)	8.19 (2.6)	8.06
	females	7.55 (3.2)	7.79 (3.1)	7.07 (2.1)	8.57 (3.4)	8.23 (2.6)	7.75 (2.3)	8.29 (4.0)	9.1 (6.2)	6.75 (3.6)	7.53 (3.4)	7.01 (2.5)	7.58
Cont. beliefs (1 to 49)	males	25.62 (9.8)	23.59 (9.0)	23.12 (7.9)	20.49 (6.8)	21.05 (7.8)	21.31 (7)	20.24 (5.8)	20.23 (6.5)	20.87 (6.3)	21.32 (7.4)	20.86 (8.1)	21.02
	females	24.28 (9.2)	24.76 (9.1)	24.22 (8.0)	27.38 (9.5)	27.17 (10)	29.48 (11)	28.01 (8.4)	26.84 (8.7)	27.69 (7.9)	25.91 (8.0)	26.28 (7.6)	25.51
Norm beliefs (1 to 49)	males	24.53 (11)	24.32 (9.4)	26.74 (7.4)	20.29 (8.7)	22.3 (8.1)	24.72 (7.2)	21.44 (1.0)	23.90 (10)	22.43 (7.8)	22.03 (8.7)	22.56 (8.0)	24.13
	females	25.10 (8.2)	26.11 (10)	27.53 (7.4)	26.22 (8.4)	25.52 (8.3)	27.28 (9.4)	27.28 (8.5)	26.73 (9.4)	28.84 (7.6)	22.5 (9.2)	24.59 (8.8)	25.79

*A higher score represents a more positive response towards contraceptive use.

Negativity towards withdrawal and positivity towards condoms and STI prevention

Positivity towards the pill and pregnancy prevention ### Negativity towards condoms

Factor 2 (positive beliefs about the pill and pregnancy prevention) appears to show increases in mean scores over the three time points in all conditions except the efficacy condition. Here, an increase is seen between T1 and T2, but is followed by a decrease at T3. The score still remains higher than at baseline.

The final measure representing outcome beliefs, factor 3 (negative beliefs relating to condoms), shows overall decreases in scores by T3. The combined condition is the only one that shows an overall increase and the difference here is small. Control beliefs appear to vary dependent on condition. There is little change in scores across the time points for the combined condition, in the AR condition there is an initial decrease followed by an increase at T3, in the SE condition scores appear to rise gradually across time points, and in the IOC measures of control beliefs decrease. Measures of normative beliefs show a consistent and comparatively large increase in scores across all conditions of the intervention.

6.4.3. Inferential statistics for the whole sample

Assessing random allocation of participants to conditions of the intervention

A univariate ANOVA was used to see if participants differed by age across the conditions of the intervention at baseline (T1). Participants did not differ in age by intervention condition at T1 ($F [3, 311] = .62, p = .97$). Chi-square analyses were used to see if there was an association between gender of participant and condition of the intervention at T1, and between virgin status of participants and condition at T1. No significant association was found between gender and condition of the intervention ($\chi^2 [3] = .615, p = .893$). No significant association was found between virgin status and condition of the intervention ($\chi^2 [3] = 1.973, p = .578$).

A between-subjects MANOVA was carried out on the T1 dependent variables (see table 6.2), with intervention condition as the between-subjects IV, to see if there were

differences in these measures at baseline by later allocation to condition of the intervention. Multivariate analyses showed that there were significant differences between conditions at T1 ($F [24, 870.69] = 1.77, p = .014$). Univariate analyses suggested that the differences occurred only on the baseline measure of intention ($F [3, 307] = 3.17, p = .025$). Bonferroni post-hoc comparisons suggest that these baseline differences can be attributed to a difference between the measure of intention for the AR condition and the SE/AR condition (see table 6.2). This difference at baseline was adjusted for, by following the MANOVA (section 6.4.3.2) with ANCOVA on intention, using the baseline measure of intention as a covariate (see section Summary of MANOVA on virgins, on page 232).

Multivariate analysis of variance (MANOVA) for the whole sample

In order to ensure that males and females did not respond differently to the intervention it was decided that for MANOVA on the whole sample, gender should be incorporated as an additional between-subjects variable. Therefore a $4 \times 2 \times 3$ mixed MANOVA was performed on eight dependent variables: Intention, self-efficacy, anticipated regret, negativity to withdrawal and positivity to condoms and STI prevention (factor 1), positivity to the pill and pregnancy prevention (factor 2), negativity to condoms (factor 3), control beliefs, and normative beliefs. There was a within-subjects independent variable of time with three levels (T1, T2 and T3), and a between-subjects independent variable of condition with four levels (IOC, SE, AR and SE/AR combined) and a between-subjects independent variable of gender with two levels (male and female). In addition to the following analysis and the MANOVA presented above (Assessing random allocation of participants to conditions of the intervention, on page 218), four further sets of multivariate analysis were carried out on this data (see Multivariate analysis of variance (MANOVA) on virgins, on page 229, Multivariate analysis of variance (MANOVA) for non-virgins, on page 235, Inferential statistics, on page 240 and 6.4.6 below, on page 243), and so a Bonferroni correction was applied to the

significance of the multivariate F in each case, to deal with family-wise error, adjusting α to 0.008.

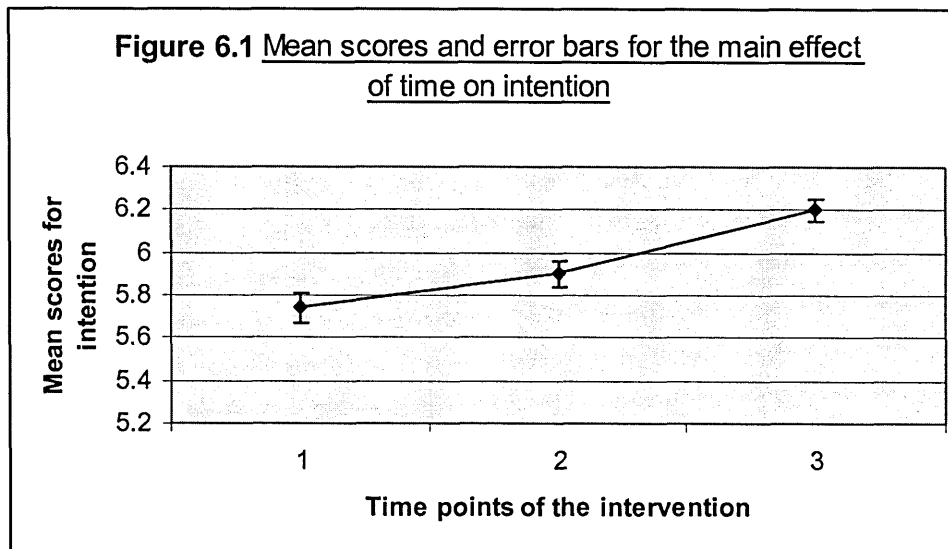
Multivariate analysis suggested that there was a significant main effect of gender ($F [24, 850.39] = 1.96, p = .004$), condition ($F [24, 861.99] = 1.97, p = .004$), and time ($F [16, 289] = 8.04, p < .001$). There was no significant interaction of time by condition ($F [48, 860.35] = 1.4, p = .039$), or time by gender ($F [16, 285] = 1.01, p = .445$) or time by condition by gender ($F [48, 848.46] = 1.04, p = .401$).

Because there were eight DVs, a Bonferroni correction of $\alpha \leq .006$ was applied to univariate tests. Even at this adjusted level of α there was a main effect of time for intention ($F [2, 608] = 26.25, p < .001$), self-efficacy ($F [2, 608] = 17.74, p < .001$), anticipated regret ($F [2, 608] = 5.13, p = .006$), positivity toward the pill and pregnancy prevention ($F [2, 608] = 21.4, p < .001$), and normative beliefs ($F [2, 608] = 8.93, p < .001$). Univariate tests of the between-subjects IVs showed that none of the DVs differed significantly by intervention condition despite the significant multivariate F (all ps between .017 and .850). However, univariate tests showed that the main effect of gender existed for all of the DVs except negativity towards condoms ($F[1, 300]=5.71, p=.017$). All significant F s fell between 13.82 and 69.34 and all p values were less than .001.

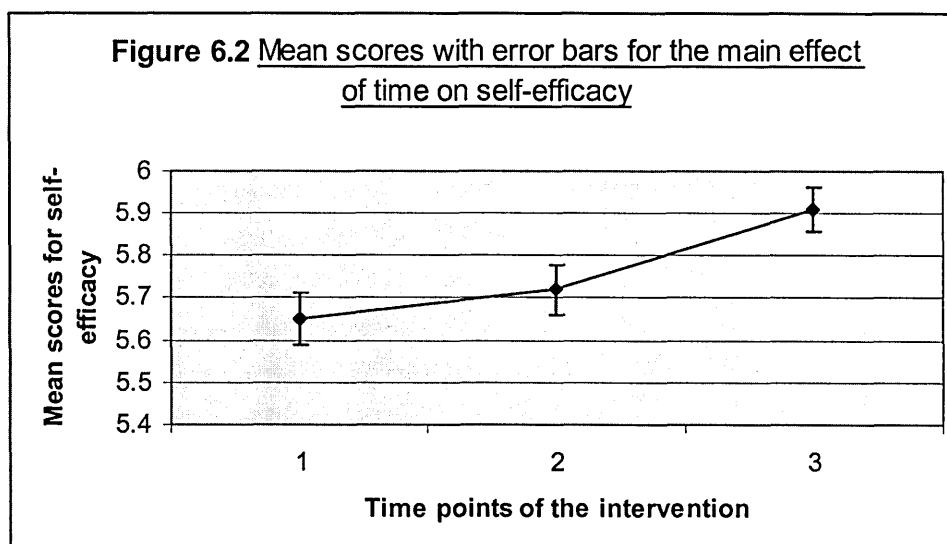
Effect of time

Consultation of estimated marginal means for intention, self-efficacy, anticipated regret, positivity to the pill and pregnancy prevention and normative beliefs by time suggested that in each case an increase in mean score occurred between T1 and T2 and between T2 and T3. Pairwise comparisons suggested that for intention the increase between T1 and T2 was significant ($p = .032$), as was the increase between T2 and T3 and between T1 and T3 ($ps < .001$). See figure 6.1 below. This suggests that the

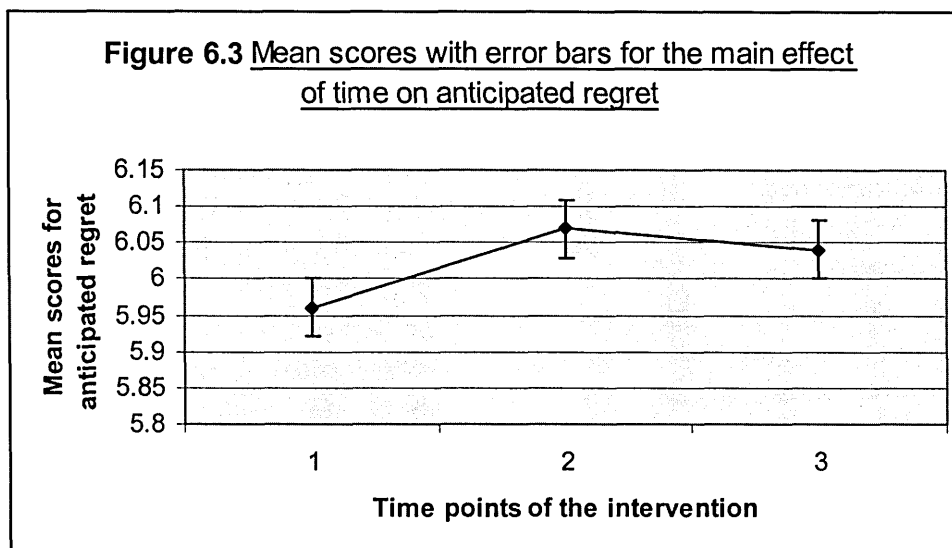
intervention had an immediate positive impact and that further increases occurred over the following weeks.



For self-efficacy, the increase between T1 and T2 did not achieve significance ($p = .072$), but the increases between T2 and T3 and between T1 and T3 did ($ps < .001$). See figure 6.2 below. This suggests that the intervention did not have an immediate impact, but that over the following weeks the intervention improved feelings of self-efficacy.

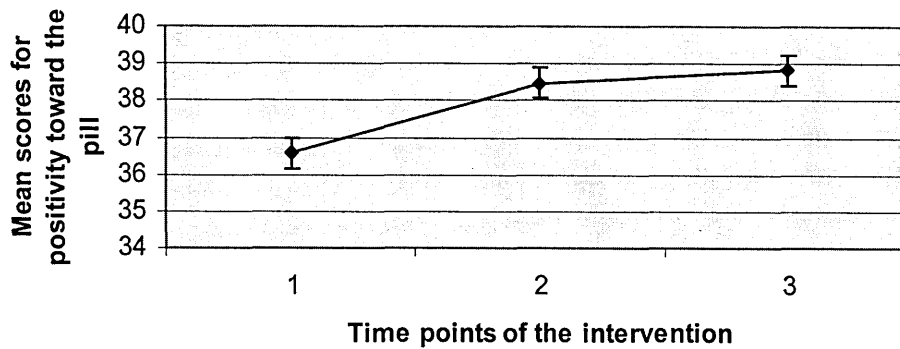


For anticipated regret, there was a significant increase between T1 and T2 ($p = .001$) and between T1 and T3 ($p = .03$), but not between T2 and T3 ($p = .519$). See figure 6.3 below. This suggests that there was an immediate impact of the intervention, and that while no further increases occurred the initial increase was maintained over the following weeks.



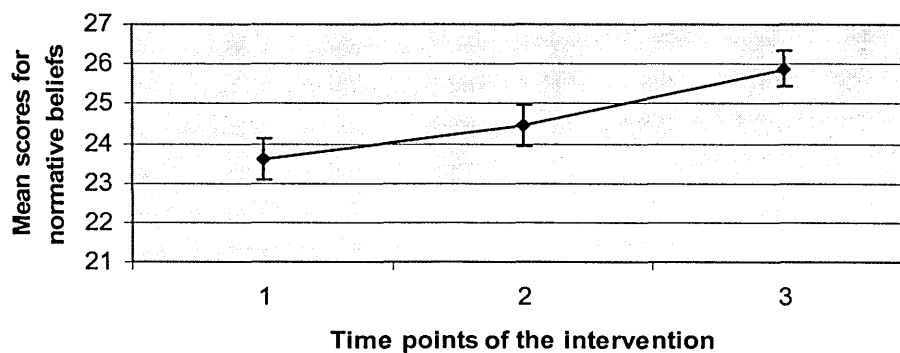
For positivity towards the pill and pregnancy prevention, there was a significant increase between T1 and T2 and between T1 and T3 ($ps < .001$), but not between T2 and T3 ($p = .381$). See figure 6.4 below. This again suggests that the initial positive impact of the intervention was maintained over the following weeks.

Figure 6.4 Mean scores and error bars for the main effect of time on positivity toward the pill and pregnancy prevention



For normative beliefs, whilst no significant increase was detected between T1 and T2 ($p = .152$), there were significant increases between T1 and T3 ($p < .001$), and between T2 and T3 ($p = .004$). See figure 6.5 below. This suggests that, after no initial impact, the intervention may have resulted in increases in normative beliefs over the following four weeks.

Figure 6.5 Mean scores and error bars for the main effect of time on normative beliefs



Effect of gender

Although there was a significant main effect of gender, the fact that there were no significant interactions between gender and the other IVs suggests that whilst there were differences between males and females on scores achieved on each of the DVs, the impact of the intervention on participants did not differ because of their gender. Consideration of the estimated marginal means for gender of participants indicates that for each of the DVs, where a significant difference was found between males and females, males score lower than females (please refer to table 6.3 above).

Summary of MANOVA on the whole sample

Investigation of the significant main effect of time suggests that taking part in the this study significantly increased participants' intentions to use contraception, their self-efficacy regarding use of contraception, their levels of anticipated regret regarding not using contraception, their positive beliefs about pill use and pregnancy prevention, and the strength of their normative beliefs regarding use of contraception. These increases appear to have occurred regardless of condition of the intervention. The main effect found for gender would appear to demonstrate that females tend to have more positive beliefs, thoughts and intentions regarding contraception generally but that gender does not affect the impact of the intervention.

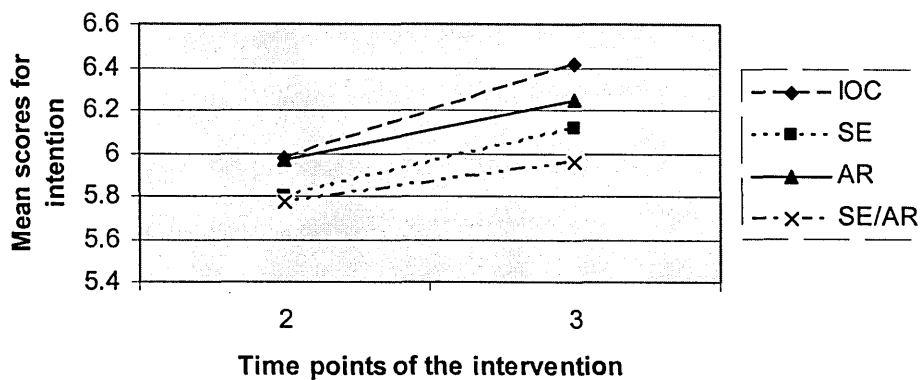
Analysis of Covariance (ANCOVA) for the DV intention

Because the dependent variable intention was found to differ by condition at T1 of the study, further analysis of this variable was required to control for those differences during interpretation of the post-intervention measures. A 2 x 4 ANCOVA was performed on intention. Adjustment was made for baseline differences in intention by condition by including intention at T1 as a covariate. Independent variables were the within-subjects variable of time with two levels (T2 and T3), and the between-subjects variable of condition with four levels (IOC, SE, AR and combined SE/AR).

Analysis revealed that intention was still significantly affected by time ($F [1, 310] = 13.82, p < .001$), but there was no significant interaction between time and condition ($F [3, 310] = .72, p = .541$). Tests of between-subjects effects showed that intention also differed significantly by condition ($F [3, 310] = 3.16, p = .025$).

Estimated marginal means of intention, across all factor levels show that intention increased between immediate post-intervention measurement and four-week follow-up across all conditions. After accounting for differences between conditions at baseline, the IOC condition had the highest mean score for intention ($m = 6.19$), followed by AR ($m = 6.12$), followed by SE ($m = 5.97$), and the combined condition had the lowest mean score ($m = 5.87$; see figure 6.6 below). Bonferroni pairwise comparisons however, suggested that there was in fact no significant difference between the IOC condition and the AR condition ($p = .505$), and no significant difference between the IOC condition and the efficacy condition ($p = .057$). There was a significant difference between the IOC condition and the combined condition ($p = .005$). This suggests therefore that while all conditions of the intervention significantly increased levels of intention, the combined condition was not as effective in achieving this as the other three conditions.

Figure 6.6 Mean scores for intention at time 2 and time 3 for each condition of the intervention when time 1 differences have been factored out



6.4.4. Splitting the sample on the basis of virginity status

In order to determine whether there had been a differential effect of the intervention upon participants depending on their virginity status, it was necessary to examine these two sets of participants separately regarding the outcome measure of intention. Additionally, the non-virgins needed to be examined to establish whether their behaviour had changed at T3. As explained above, a Bonferroni correction was applied to these multivariate analyses to safeguard against family-wise error, placing $\alpha \leq 0.01$.

Descriptive statistics for virgins in the sample

Table 6.3 shows the mean and standard deviations for virgins' scores on measures of the dependent variables across all factor levels. For intention, an increase in mean scores was apparent in each of the conditions across the three time points, the only exception being in the combined condition, where a slight decrease occurred between T1 and T2, before an increase between T2 and T3 to above the baseline measure.

For the measure of self-efficacy, levels can clearly be seen to have increased consistently across the time points in all four conditions of the intervention. Anticipated regret also showed an increase in mean scores between T1 and T2 in all conditions, but this was followed by very small decreases in the AR and combined conditions at T3. The IOC and SE conditions saw a further rise.

Negativity towards withdrawal and positivity towards condoms and STI prevention appeared to vary depending on condition. In the IOC condition scores decreased at T2 but increased to above the T1 rate by T3. In the SE condition, there was a small increase at time 2 followed by a decrease to below the T1 level by T3. In the AR condition, a small decrease at T2 was followed by an increase to above the T1 level at T3. In the combined AR and SE condition, there was an increase at T2 followed by a very small further increase at T3.

Positivity toward pregnancy prevention and the pill showed an increase across time points in all conditions except the efficacy condition. Here, an initial rise in mean score was seen at T2 but this was followed by a decrease to below that of baseline by T3.

Negativity towards condoms appears to differ across time points dependent on condition of the intervention. In the IOC condition, there was a consistent decrease in mean scores across the three time points. In the SE condition, after an initial decrease in score at T2, mean score rose again at T3, but remained below the T1 rate. In the AR condition, an initial rise at T2, was followed by a decrease to below that of the T1 score, and in the combined condition, an initial dip immediately post-intervention was followed by a rise to above the T1 score.

Table 6.4 Means and (standard deviations) for virgins' scores on measures of the dependent variables across all three time points and by condition of the intervention*

Variable (and score range; 1 = low)	Information Only Control			Self-Efficacy			Anticipated Regret			SE/AR		
	T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
Intention (1 to 7)	5.54 (1.4)	5.83 (1.4)	6.14 (1.0)	5.57 (1.1)	5.60 (0.9)	5.96 (1.1)	5.14 (1.2)	5.51 (1.0)	5.92 (0.8)	5.69 (1.0)	5.52 (1.0)	5.82 (0.8)
Self-efficacy (1 to 7)	5.49 (0.8)	5.68 (1.0)	5.88 (0.8)	5.10 (1.0)	5.24 (0.9)	5.49 (1.0)	5.24 (1.1)	5.36 (1.2)	5.7 (0.8)	5.38 (0.9)	5.45 (1.0)	5.74 (0.8)
Ant. Regret (1 to 7)	5.78 (0.7)	5.96 (0.8)	6.00 (0.8)	5.74 (0.7)	5.90 (0.7)	5.99 (0.7)	5.88 (0.5)	5.94 (0.8)	5.91 (0.7)	5.85 (0.7)	5.98 (0.7)	5.93 (0.7)
Factor 1 [#] (1 to 49)	38.09 (9.5)	37.78 (9.9)	40.03 (8.4)	37.32 (6.3)	37.83 (7.0)	36.76 (8.4)	35.78 (8.0)	35.15 (9.2)	36.17 (9.8)	38.88 (6.7)	40.13 (7.2)	40.32 (7.3)
Factor 2 ^{##} (1 to 49)	32.57 (7.1)	35.96 (8.1)	38.25 (7.1)	33.77 (5.6)	35.11 (6.6)	33.47 (8.4)	33.43 (7.4)	36.37 (7.3)	36.51 (7.6)	33.16 (6.4)	35.32 (8.1)	36.71 (6.9)
Factor 3 ^{###} (1 to 49)	9.42 (4.3)	9.29 (4.7)	8.36 (3.3)	9.71 (3.4)	8.77 (2.9)	9.27 (3.4)	8.56 (3.8)	9.19 (6.0)	7.29 (3.8)	8.63 (3.3)	8.42 (2.8)	8.78 (3.7)
Cont. beliefs (1 to 49)	21.72 (9.6)	21.88 (9.5)	22.39 (7.6)	20.47 (6.8)	20.89 (8.4)	21.04 (8.1)	20.54 (7.5)	20.89 (7.3)	21.94 (7.5)	20.32 (6.5)	20.95 (7.6)	22.2 (6.1)
Norm. beliefs (1 to 49)	22.2 (11.7)	24.85 (8.9)	26.75 (7.7)	20.92 (8.5)	22.06 (7.1)	24.65 (7.2)	21.47 (9.3)	23.86 (10)	22.29 (7.5)	22.62 (8.2)	23.39 (7.3)	25.55 (8.3)

*A higher score represents a more positive response towards contraceptive use.

Negativity towards withdrawal and positivity towards condoms and STI prevention

Positivity toward the pill and pregnancy prevention

Negativity towards condoms

For control belief scores, an increase across time points was seen for all conditions of the intervention. Finally, for the measure of normative beliefs, an increase in scores across the time points can be seen for all conditions except the AR condition. Here, there was a rise at T2 but this was followed by a small decrease at T3, though it remained above the T1 rate.

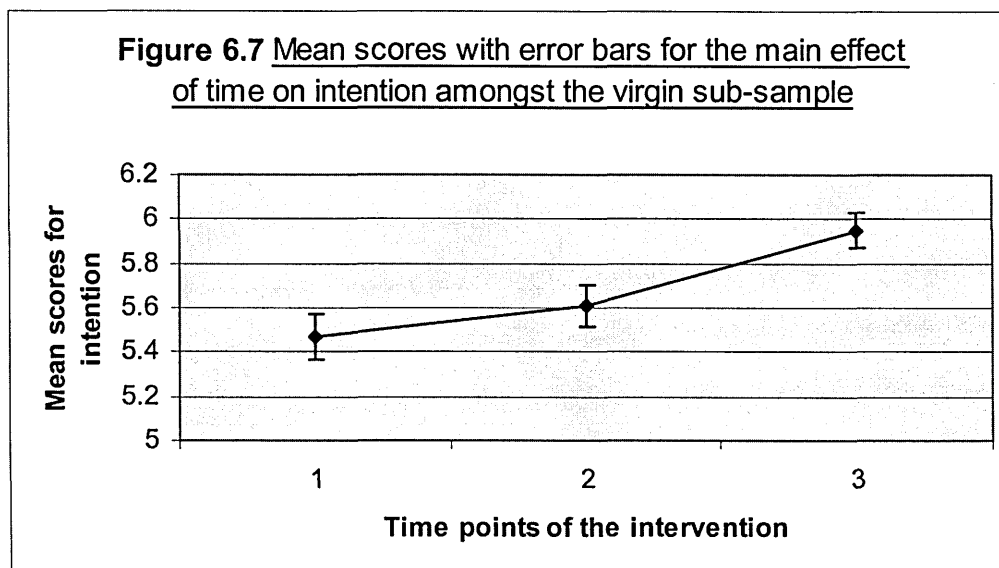
Multivariate analysis of variance (MANOVA) on virgins

A 4 x 3 MANOVA was performed on the eight dependent variables in table 6.3. There was a within-subjects independent variable of time with three levels (T1, T2 and T3), and a between-subjects independent variable of condition with four levels (IOC, SE, AR and SE/AR combined).

Multivariate analyses showed a main effect of time ($F [16, 129] = .66, p < .001$), but not condition ($F [24, 397.94] = 1.21, p = .231$). There was no significant interaction of time by condition ($F [48, 384.47] = .92, p = .620$). Due to there being no significant main effect of condition or condition by time interaction, no covariate analysis was required for intention on this sub-sample of virgins.

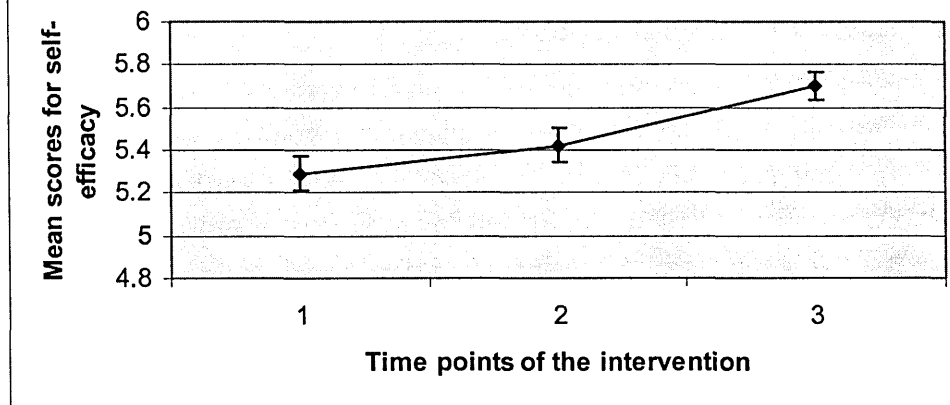
Univariate tests with a Bonferroni correction adjusting α to .006, show a main effect of time for intention ($F [2, 288] = 14.89, p < .001$), self-efficacy ($F [2, 288] = 17.81, p < .001$), positivity toward the pill and pregnancy prevention ($F [2, 288] = 14.39, p < .001$), and normative beliefs ($F [2, 288] = 7.72, p = .001$). Consultation of estimated marginal means for intention, self-efficacy, positivity towards the pill and pregnancy prevention and normative beliefs by time suggested that in each case an increase in mean score occurred between T1 and T2 and between T2 and T3.

Pairwise comparisons show that, for intention, the increase between T1 and T2 was not significant ($p = .159$), but the increases between T2 and T3 and between T1 and T3 were ($ps < .001$; see figure 6.7 below). This suggests that for virgins, there was no initial impact, but that over the following weeks an increase in intentions to use contraception in the future occurred.



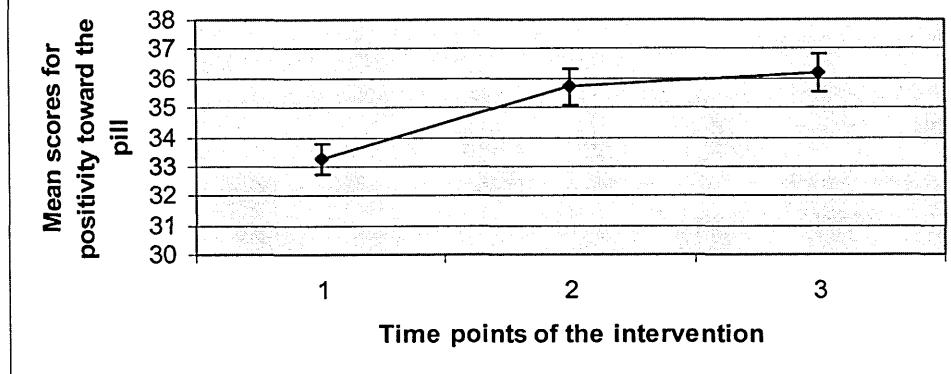
For self-efficacy, the increase between T1 and T2 achieved significance ($p = .024$), as did the increases between T2 and T3 and between T1 and T3 ($ps < .001$; see figure 6.8 below). This suggests that, amongst virgins, the intervention had an initial positive impact on self-efficacy that continued to have an impact over the following weeks.

Figure 6.8 Mean scores with error bars for the main effect of time on self-efficacy amongst the virgin sub-sample

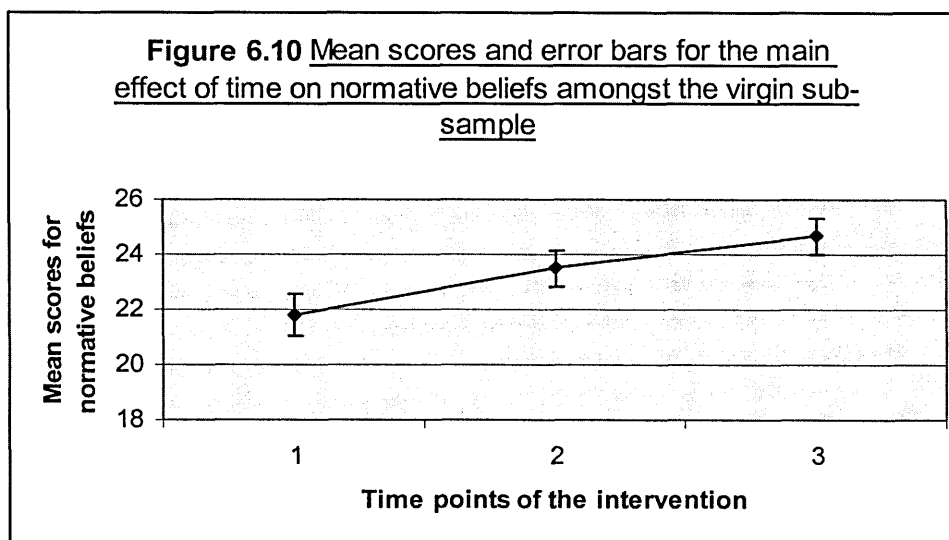


For positivity towards the pill and pregnancy prevention, there was a significant increase between T1 and T2 and between T1 and T3 ($p < .001$), but not between T2 and T3 ($p = .38$; see figure 6.9 below). Again, this suggested that an initial positive impact of the intervention was maintained at four-week follow-up.

Figure 6.9 Mean scores and error bars for the main effect of time on positivity towards the pill and pregnancy prevention amongst the virgin sub-sample



Finally, for normative beliefs, whilst no significant difference was detected between T1 and T2 ($p = .03$), or between T2 and T3 ($p = .063$), there was a significant increase between T1 and T3 ($p < .001$; see figure 6.10 below). This suggested that, overall, taking part in the study had a positive impact on levels of normative beliefs.



Summary of MANOVA on virgins

Investigation of the significant main effect of the within-subjects variable, time, suggests that while taking part in this study, significant increases were observed in virgins' intentions to use contraception; their self-efficacy regarding use of contraception; their levels of anticipated regret regarding not using contraception; their positive beliefs about pill use and pregnancy prevention; and the strength of their normative beliefs regarding use of contraception. These increases across time replicate those found for the whole sample, in that they occurred regardless of condition.

Descriptive statistics for non-virgins in the sample

Table 6.4 shows the means and standard deviations for non-virgins scores on measures of the dependent variables across all time points and by condition of the intervention. Non-virgins' self-report measures of behaviour, taken at baseline and four-week follow-up, were included alongside the other dependent variables for this section of the sample.

For the measure of behaviour, a small increase was shown between baseline (T1) and T3 in the IOC condition, and a slightly larger increase was shown for the SE condition.

There was a very small decrease within the AR condition, and a small increase in the combined condition. For intention, both the IOC and AR conditions showed an increase across all three time points, whilst in the SE condition scores appeared to stay the same at immediate post-intervention, and then increase by four-week follow-up. For the combined condition, there was a decrease at T2 followed by an increase at T3, though the score did not exceed the original baseline measure.

For self-efficacy, small increases were shown across the time points for the IOC condition, and likewise in the SE condition. There was a small decrease in scores at T2 for AR, but this was followed by an increase at T3 that was greater than the T1 measure. For the combined condition, there was barely a decrease between scores at T1 and T2, followed by an increase at T3. In relation to measures of anticipated regret, all conditions except the IOC showed a rise at T2 followed by a decrease at T3. Only in the case of the SE condition did the measure fall to below baseline at T3. The IOC condition showed an increase across all three time points.

Table 6.5 Means and (standard deviations) for non-virgins' scores on measures of the dependent variables across all three time points and by condition of the intervention*

Variable (and score range; 1 = low)	Information Only Control			Self-Efficacy			Anticipated Regret			SE/AR	
	T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2
Behaviour	6.36 (1.0)	N/A	6.46 (0.9)	6.00 (1.6)	N/A	6.64 (0.7)	6.63 (0.6)	N/A	6.60 (0.8)	6.04 (1.6)	N/A
Intention (1 to 7)	6.02 (1.2)	6.55 (0.7)	6.88 (0.3)	6.27 (1.3)	6.26 (1.0)	6.50 (1.0)	5.73 (1.1)	6.28 (0.8)	6.61 (0.7)	6.35 (0.9)	6.02 (1.0)
Self-efficacy (1 to 7)	6.07 (0.7)	6.12 (0.7)	6.16 (0.6)	5.99 (1.3)	6.19 (0.9)	6.34 (1.0)	6.37 (0.6)	6.33 (0.7)	6.48 (0.6)	6.09 (0.7)	6.07 (1.0)
Ant. Regret (1 to 7)	6.24 (0.5)	6.32 (0.5)	6.40 (0.5)	6.17 (0.7)	6.31 (0.7)	6.13 (0.7)	6.16 (0.8)	6.37 (0.7)	6.34 (0.7)	6.01 (0.6)	6.15 (0.5)
Factor 1 (1 to 49)	43.51 (4.2)	43.20 (4.6)	42.61 (5.1)	41.02 (3.5)	42.26 (5.3)	39.81 (7.3)	40.14 (6.0)	41.58 (6.0)	39.38 (5.6)	41.09 (6.9)	40.66 (6.4)
Factor 2 (1 to 49)	41.64 (4.3)	43.35 (4.7)	43.54 (5.5)	40.44 (4.1)	43.10 (3.1)	42.66 (4.3)	41.13 (6.1)	42.54 (4.9)	44.15 (4.1)	41.07 (6.5)	41.69 (6.0)
Factor 3 (1 to 49)	7.46 (2.6)	7.07 (2.4)	7.03 (2.7)	8.84 (3.3)	8.06 (3.2)	7.82 (3.2)	7.93 (3.7)	7.66 (3.5)	6.89 (3.8)	6.99 (2.7)	6.96 (2.4)
Cont. beliefs (1 to 49)	28.59 (8.5)	26.64 (9.0)	25.28 (8.7)	30.06 (9.2)	29.62 (9.7)	33.04 (11.4)	29.15 (6.2)	26.62 (8.2)	28.09 (7.7)	25.53 (6.7)	24.20 (7.4)
Norm. beliefs (1 to 49)	28.05 (7.9)	27.38 (10.4)	27.29 (8.4)	27.18 (9.3)	27.66 (10.2)	28.99 (10.6)	29.31 (9.7)	26.06 (9.8)	30.50 (7.6)	22.10 (8.9)	24.05 (8.9)

*A higher score represents a more positive response towards contraceptive use.

Negativity towards withdrawal and positivity towards condoms and STI prevention, showed overall decreases in mean scores at T3 compared to baseline. In the case of the SE and AR conditions, this decrease was preceded by a small increase at T2. For positivity towards the pill and pregnancy prevention, increases in scores between T1 and T3 were shown for all conditions of the intervention. However, for the SE condition the increase at T2 was followed by a small decrease at T3, but to a level that remained above that of the baseline score. For negativity towards condoms, there were consistent decreases across the three time points in each condition.

For the measure of control beliefs, a decrease in scores was shown in the IOC condition across the three time points. In the other three conditions however, an initial decrease at T2 was followed by an increase at T3. Despite this, the only increase to a level above that of baseline was in the SE condition. For the final DV, normative beliefs, increases across the three time points were shown for the SE and combined condition, whilst the AR condition showed an initial decrease at T2, followed by an increase to above baseline at T3. The IOC condition showed a decrease in scores across the three time points.

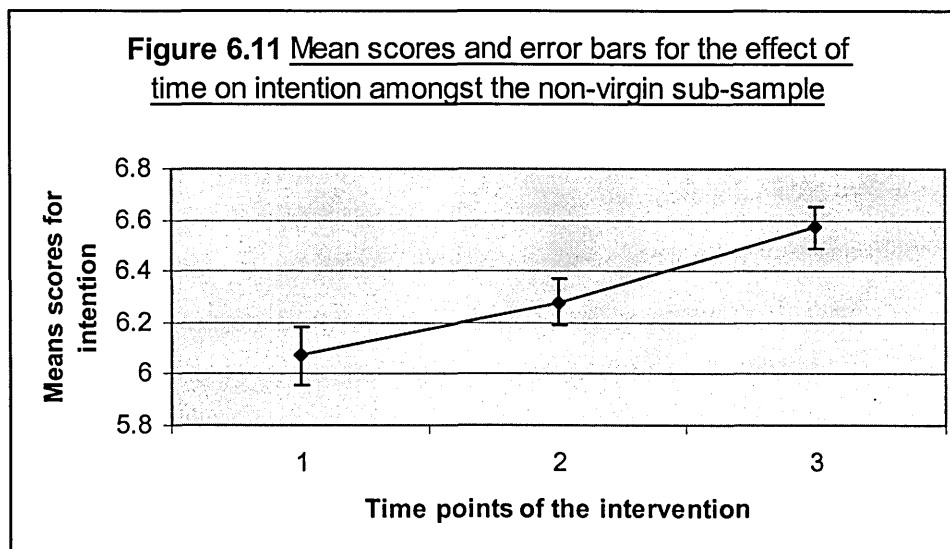
Multivariate analysis of variance (MANOVA) for non-virgins

A 4 x 3 MANOVA was performed on nine dependent variables: Behaviour, intention, self-efficacy, anticipated regret, negativity to withdrawal and positivity to condoms and STI prevention (factor 1), positivity toward the pill and pregnancy prevention (factor 2), negativity to condoms (factor 3), control beliefs, and normative beliefs. There was a within-participants independent variable of time with three levels (T1, T 2 and T3), and a between-participants independent variable of condition with four levels (IOC, SE, AR and SE/AR combined). Again the Bonferroni correction to control for familywise error was applied adjusting α to 0.01.

Multivariate analyses revealed a significant main effect of time ($F [17, 87] = 4.24, p < .001$), but not condition ($F [27, 278.09] = 1.44, p = .079$). There was no significant interaction between time and condition ($F [51, 259.82] = 4.24, p = .168$).

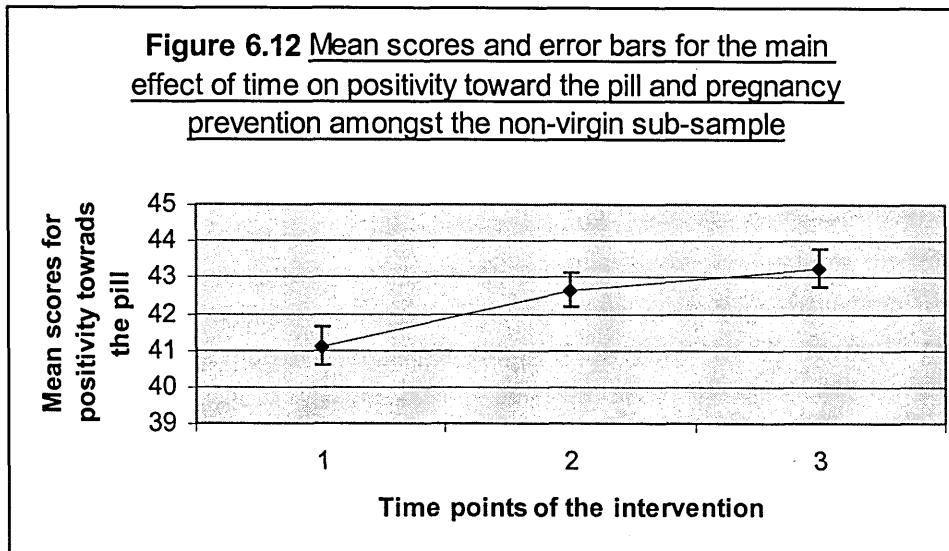
Univariate tests, applied using Bonferroni's correction adjusting α to .006, revealed differences in intention ($F [2, 206] = 10.01, p < .001$), and positivity toward the pill and pregnancy prevention ($F [2, 206] = 13.96, p < .001$).

Consultation of estimated marginal means for intention, and positivity towards the pill and pregnancy prevention by time suggested that in each case an increase in mean score occurred between T1 and T2 and between T2 and T3, except for control beliefs. In this case, there was a decrease between T1 and T2, and an increase between T2 and T3. Pairwise comparisons show that, for intention, the increase between T1 and T2 was not significant ($p = .089$), but that the increase between T2 and T3 was ($p = .002$) and between T1 and T3 ($p < .001$; see figure 6.11 below). This suggests that the impact of the intervention appears to have been delayed so that effects were only seen by four-week follow-up.



For positivity towards the pill and pregnancy prevention, there was a significant increase between T1 and T2 and between T1 and T3 ($ps < .001$), but not between T2

and T3 ($p = .201$; see figure 6.12 below). This suggests the intervention had an initial positive impact that was maintained by four-week follow-up.



Summary of MANOVA on non-virgins

Investigation of the significant main effect of the within-subjects variable, time, suggests that taking part in this study significantly increased participants' intentions to use contraception, and their positive beliefs about pill use and pregnancy prevention.

6.4.5. Looking at the 'no intervention' control

A small sample of participants completed a questionnaire at T1, then missed the intervention implementation and follow-up questionnaire at T2, but completed a questionnaire again at T3 ($N=31$). Although this group was small, it was felt further analysis which included this sample as an additional control group would allow an investigation of whether the interventions were equally responsible for increases in levels of the psychological constructs or if these increases were occurring regardless of whether an intervention booklet was received or not. The reason that such a condition was not incorporated in the original intervention study design was because the target population for this research receive information based sex education within school as part of their standard curriculum. It was therefore felt that an information-only control

rather than a no intervention control would more realistically represent pre-intervention norms and would also allow for standardisation of information received amongst control group participants.

Descriptive statistics

Table 6.5 below shows the means and standard deviations for scores on each of the eight psychological variables measured at T1 and T3 across five conditions of the intervention (IOC, SE, AR, SE/AR and no intervention).

The participants who did not receive the intervention displayed similar increases in intention to use contraception as those who did receive an intervention booklet. However, levels of self-efficacy and anticipated regret, appeared to remain at baseline rates, and not increase as they had done in other intervention conditions. Negativity towards withdrawal and positivity to condoms and STI prevention increased more for those who did not receive an intervention compared to those who did, and positivity towards the pill and pregnancy prevention increased only slightly relative to most other conditions. Negativity towards condoms had decreased in all conditions except the combined condition, and those who did not receive an intervention showed a small increase on this variable. Control beliefs showed a small decrease amongst the no intervention group, similar to findings amongst the IOC and combined groups, and lastly, normative beliefs, which had increased amongst all conditions, showed a relatively large increase amongst the no intervention group.

Table 6.6 Means and (standard deviations) for participants' scores on measures of the dependent variables at T1 and T3 across five conditions of the intervention*

Variable (and score range; 1 = low)	Info. Only Control N = 78 No. of males = 40 Mean age = 16.77 (1.6) yrs No. of virgins = 33		Self-Efficacy N = 71 No. of males = 40 Mean age = 16.88 (1.5) yrs No. of virgins = 38		Anticipated Regret N = 84 No. of males = 44 Mean age = 16.78 (1.5) yrs No. of virgins = 44		SE/AR N = 78 No. of males = 44 Mean age = 16.85 (1.4) yrs No. of virgins = 39		No intervention N = 31 No. of males = 20 Mean age = 16.28 (1.4) yrs No. of virgins = 15	
	T1	T3	T1	T3	T1	T3	T1	T3	T1	T3
Intention (1 to 7)	5.80 (1.22)	6.43 (0.82)	5.83 (1.16)	6.15 (0.98)	5.44 (1.25)	6.18 (0.86)	5.97 (0.96)	6.03 (0.86)	5.79 (0.92)	6.25 (1.03)
Self-efficacy (1 to 7)	5.73 (0.78)	6.01 (0.69)	5.43 (1.23)	5.73 (1.03)	5.70 (1.07)	5.97 (0.81)	5.72 (0.85)	5.91 (0.71)	5.68 (0.95)	5.67 (0.96)
Ant. Regret (1 to 7)	5.99 (0.68)	6.17 (0.66)	5.87 (0.73)	6.00 (0.65)	6.02 (0.66)	6.04 (0.78)	5.93 (0.70)	5.95 (0.68)	5.99 (0.78)	6.03 (0.80)
Factor 1 [#] (1 to 49)	39.89 (7.86)	40.45 (7.14)	39.16 (5.55)	37.83 (7.66)	37.55 (7.37)	37.17 (8.48)	39.64 (6.90)	40.30 (6.80)	37.48 (8.28)	40.72 (6.65)
Factor 2 ^{##} (1 to 49)	36.78 (7.68)	40.08 (6.97)	36.47 (5.88)	36.95 (7.73)	36.82 (7.63)	39.28 (7.55)	36.21 (7.93)	38.25 (7.49)	37.63 (7.91)	38.80 (6.69)
Factor 3 ^{###} (1 to 49)	8.07 (3.64)	7.74 (2.77)	9.06 (3.22)	8.67 (3.08)	8.32 (3.67)	7.45 (3.93)	7.64 (3.04)	7.83 (3.64)	8.49 (3.37)	8.85 (4.46)
Cont. beliefs (1 to 49)	24.77 (9.58)	23.58 (7.94)	23.59 (8.79)	24.99 (10.3)	23.95 (8.22)	24.14 (7.90)	23.31 (7.95)	23.02 (6.60)	23.19 (8.53)	23.04 (8.05)
Norm. beliefs (1 to 49)	24.65 (9.58)	27.23 (7.36)	22.96 (9.00)	25.88 (8.28)	24.36 (9.62)	25.48 (8.33)	22.14 (8.87)	24.83 (7.74)	19.35 (9.03)	24.57 (8.23)

*A higher score represents a more positive response towards contraceptive use.

Negativity towards withdrawal and positivity towards condoms and STI prevention

Positivity towards the pill and pregnancy prevention

Negativity towards condoms

Inferential statistics

Firstly, ANOVA results confirmed that there were no differences in age of participants between the five intervention conditions at T1 ($F [4, 2.292] = .97, p = .427$). Chi-square analyses show that there was no significant association between gender and condition of the intervention at T1 ($\chi^2 = 2.514, df = 4, p = .642$) and no significant association between virgin status and intervention condition at T1 ($\chi^2 = 1.678, df = 4, p = .795$). MANOVA on the eight T1 DVs indicate some differences at T1 by condition with a standard alpha level ($F [32, 1064] = 1.59, p = .021$), although these differences were not significant amongst the univariate analyses when the Bonferroni correction of .006 was applied (all ps between .898 and .009). Thus, it was deemed unnecessary to follow the MANOVA with ANCOVA for these variables.

A 5×2 MANOVA was performed on the eight dependent variables presented in table 6.5. There was a within-subjects independent variable of time with two levels (T1 and T3), and a between-subjects independent variable of condition with five levels (IOC, SE, AR, SE/AR and no intervention). The Bonferroni correction was applied adjusting α to 0.01.

Multivariate analysis demonstrated significant main effects of condition ($F [32, 1203.82] = 1.91, p = .002$), and time ($F [8, 326] = 9.44, p < .001$). There was also a significant interaction of time by condition ($F [32, 1203.82] = 1.816, p = .004$).

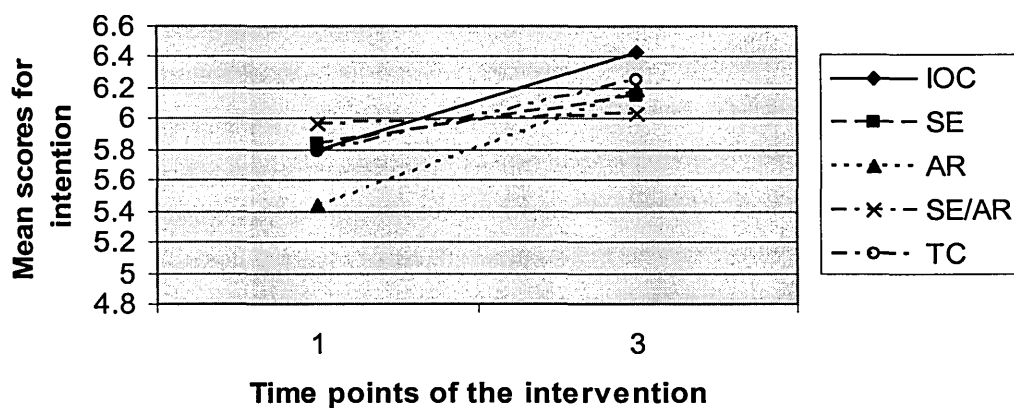
Univariate tests, applied using a Bonferroni correction of $\alpha \leq .006$, show that there was a main effect of time for intention ($F [1, 333] = 41.86, p < .001$), self-efficacy ($F [1, 333] = 16.53, p < .001$), positivity towards the pill and pregnancy prevention ($F [1, 333] = 20.74, p < .001$) and normative beliefs ($F [1, 333] = 24.70, p < .001$). Univariate tests also show that only intention had a significant time by condition interaction ($F [4, 333] =$

4.37, $p = .002$). Univariate tests also showed that despite the significant multivariate F , there were no significant differences for condition amongst any of the DVs (all ps between .854 and .022).

These findings closely reflect the main analysis reported in section Multivariate analysis of variance (MANOVA) for the whole sample, on page 219. Consideration of mean values for intention, self-efficacy, positivity towards the pill and pregnancy prevention and normative beliefs for the significant main effect of time indicated that in each case an increase in mean score occurred between T1 and T3. Pairwise comparisons showed that for each of the DVs these increases were significant (all $ps < .001$). Of particular importance for the effect of condition was the finding that none of the univariate F s achieved significance at $\alpha \leq .006$. This suggested that the 'no intervention' condition, or true control group, did not differ from any of the other intervention conditions.

There is however, one important difference. A significant interaction between time and condition has been found that cannot be explained by significant differences in intention at baseline when the true control group (TC) are included in analysis. The interaction is illustrated in figure 6.13 below.

Figure 6.13 The interaction between time and condition for the DV intention when the true control group is included in analysis



Interpretation of analysis of data with a 'no intervention' control

These findings have shown that significant increases are still seen for intention, self-efficacy, positivity towards the pill and pregnancy prevention, and normative beliefs when the data from participants who did not receive an intervention is taken into account, and that these increases occurred regardless of condition of the intervention including receiving no intervention. This suggests that increases in the scores were due to either a developmental effect, or the impact of the questionnaires themselves acting as a form of intervention. Furthermore, analysis of the significant interaction between time and condition for intention indicates that participants in the combined SE/AR condition did not increase in levels of intention between T1 and T3 whilst all other conditions, including the true control condition, did. This suggests that the questionnaires were responsible for increases in intention observed, but that receiving the combined intervention materials at T2 has interfered with the ability of the questionnaires to increase intentions to use contraception.

6.4.6. Additional analyses of sub-groups

Means from time 1 measures shown in tables 6.2, 6.3, 6.4 and 6.5 show that participants had high levels of intention to use contraception from the outset of the research (overall T1 mean = 5.69 on a scale of 1 to 7, where 7 is high). Although findings suggest that the intervention was effective in increasing levels of intention to use contraceptive use amongst all participants, it is possible that a sub-group of participants who had lower levels of intention at the outset of the study showed significant improvements in self-reported contraceptive behaviour as well as intention that are masked by the inclusion of all non-virgins in the analysis above (see Descriptive statistics for non-virgins in the sample, on page 232 to Summary of MANOVA on non-virgins, on page 237). To address this issue, frequency data for the 177 non-virgins in the sample who had been engaging in sexual intercourse in the six months preceding the intervention study were analysed. A total of 84 of them had levels of intention that fell at the mean (6.01) or below. One participant had data missing and the remaining 92 participants had levels of intention that fell above the mean. This distinction split the sexually active non-virgins roughly in half and so a sub-sample of low intending sexually active non-virgins was identified (N=84). In addition, to address the issue that differences may exist between males and females in relation to the impact of the intervention on intentions and behaviour amongst these low intenders, it was decided gender should be included as a between-subjects variable in further analysis.

Table 6.7 below shows descriptive statistics for the additional analysis of low intending virgins looking at the two outcome variables of interest, intention and behaviour.

There were no male participants in the sub-group of low intending non-virgins in the information-only control group, so means are only available for females here. In addition, behaviour was only recorded at baseline and four-week follow-up, so no data are presented for behaviour at T2.

Table 6.7 Means and (standard deviations) for low-intending non-virgins' scores across the three time points, by condition of the intervention and by gender

Variable (and score range; 1 = low)		Information Only Control			Self-Efficacy			Anticipated Regret			SE/AR		
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
Intention (1 to 7)	males	N/A	N/A	N/A	4.44 (1.5)	4.56 (0.38)	4.89 (1.9)	5.13 (0.9)	5.4 (0.43)	6.47 (0.61)	5.33 (0.58)	6.51 (0.59)	6.0 (0.59)
	females	4.63 (1.01)	6.07 (0.97)	6.9 (0.32)	4.78 (1.58)	6.67 (0.58)	6.78 (0.38)	5.0 (0.68)	6.24 (0.78)	6.64 (0.74)	5.22 (0.66)	5.17 (1.17)	5.44 (1.17)
Behaviour (1 to 7)	males	N/A	N/A	N/A	5.0 (2.65)	N/A	7.0 (0)	6.6 (0.55)	N/A	6.2 (1.3)	5.33 (2.08)	N/A	7.0 (2.08)
	females	6.1 (1.52)	N/A	6.4 (0.97)	5.67 (2.31)	N/A	6.0 (1)	6.57 (0.65)	N/A	6.79 (0.43)	4.83 (2.23)	N/A	5.33 (2.23)

In relation to the DV intention, the descriptive statistics appear to show an increase in scores generally from T1 to T3. Where data is available for males and females, females tend to score more positively than males, except in the combined SE/AR condition, where the opposite appears to be the case. For self-reported measures of behaviour, mean scores would appear to show increases generally between T1 and T3, although males' scores in the anticipated regret condition decrease slightly. Where data is available for both males and females, there is a tendency for females to score more positively than males, except in the combined SE/Ar condition where males score more positively.

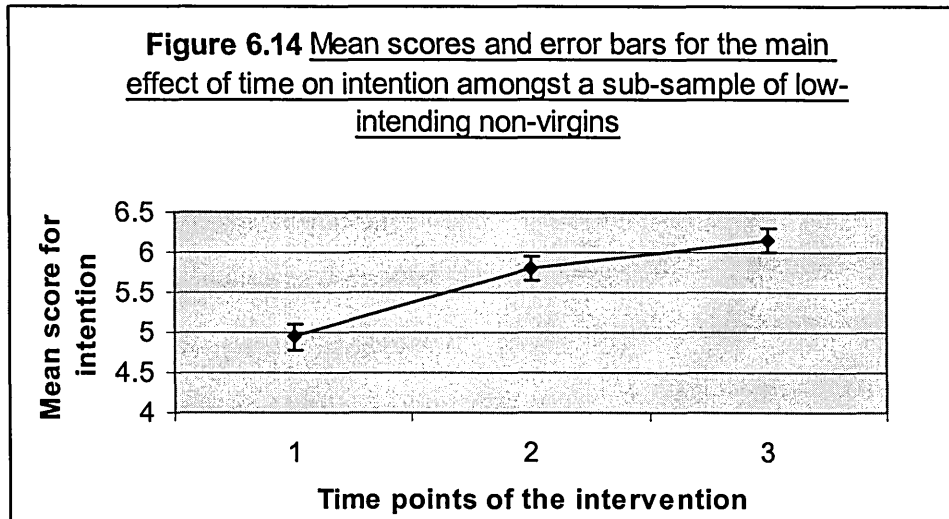
A 4 (condition) x 2 (gender) x 3 (time) mixed MANOVA was conducted on the sub-sample of low intending non-virgins identified, with the dependent variables intention and behaviour only, since these were the variables of most interest in relation to this sub-sample.

Multivariate analyses demonstrated that there was no significant main effect of condition ($F[6, 72]=1.57, p=0.169$) or gender ($F[2, 36]=1.40, p=0.26$). There was no significant interaction of time by condition ($F[12, 146]=1.34, p=0.202$) or time by gender ($F[4, 146]=0.94, p=0.444$) or time by condition by gender ($F[8, 146]=1.54, p=0.149$). There was however, a highly significant main effect of time ($F[4, 146]=10, p<0.001$).

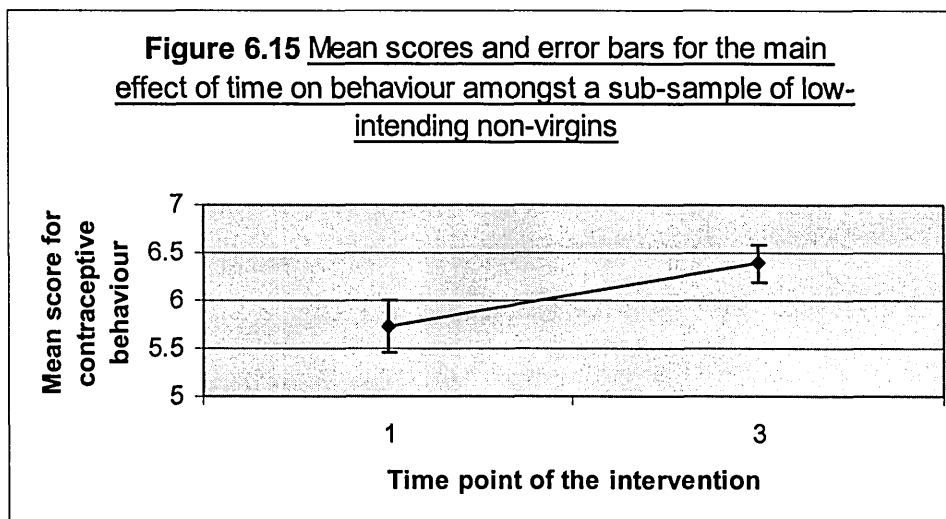
Univariate tests, applied using a Bonferroni correction of $\alpha \leq 0.025$ because only two DVs were entered in the analysis, suggest that the main effect of time was due to both intention ($F[2, 74]=18.17, p<0.001$) and behaviour ($F[2, 74]=4.76, p=0.011$).

Consideration of estimated marginal means for the main effect of time suggested that intention increased from T1 ($m=4.94$) to T2 ($m=5.80$) and increased again by T3 ($m=6.16$). Pairwise comparisons for intention show that the increase between T1 and

T2 was significant ($p<0.001$), as was the increase between T2 and T3 ($p<0.001$). This is illustrated in Figure 6.14 below.



Behaviour was only measured at baseline and four-week follow-up, but estimated marginal means suggest that effective contraceptive behaviour increased from T1 ($m=5.73$) to T3 ($m=6.39$). Pairwise comparisons suggest that this increase is significant. The increase is illustrated in Figure 6.15 below.



Interpretation of additional analysis of sub-groups

The non-significant effects for condition and condition by time reflect findings reported in relation to the main analyses above (see 6.4.2 above, on page 215 to 6.4.5 above, on page 237) and suggest that condition of the intervention did not impact differentially on the dependent measures. The non-significant effects for gender, gender by time and gender by time by condition suggest that the intervention did not effect males and females differently amongst this sub-sample of low intending non-virgins. However, as in main analyses above (see 6.4.2 above, on page 215 to 6.4.5 above, on page 237) a highly significant main effect of time was found, suggesting that participating in the intervention study had had an impact. The univariate analyses show that crucially, this impact was to increase not only intention to use contraception across the three time points as previous analyses have shown (see 6.4.2 above, on page 215 to 6.4.5 above, on page 237), but also self-reported contraceptive behaviour.

6.4.7. Chi-square for analysis of stages of change by condition of the intervention

Because stage of change for contraceptive use is a categorical variable, it could not be included as a dependent variable in MANOVA tests applied to the data earlier. Stage of change was measured, using the staging algorithm described in Time 1 (Baseline) questionnaire, on page 208, at T1 and T3. In order to assess whether shifts in stage of change were associated with condition of the intervention, a 4 x 3 Chi-square analysis was conducted. Shift in stage of change (SOC) was established by creating a new categorical variable called change of stage (COS). Participants who had remained in the same stage were coded as 1 on COS, participants who had progressed one or more stages were categorised as 2 on COS, and participants who had regressed by one or more stages were categorised as 3. Participants who had changed stage due to the fact that they had begun having sex between baseline and time 3 were excluded

from the analysis ($N=6$). No significant differences were found between observed and expected frequencies for COS by condition of the intervention, $\chi^2(6) = 3.39, p = .76$.

This finding is unsurprising given that there is no significant difference in self-reports of behaviour by condition of the intervention. However, out of 237 participants included in this analysis, more than twice as many progressed as regressed. One hundred and seventy stayed in the same SOC, 22 regressed, and 45 progressed.

6.5. Discussion

6.5.1. Summary of findings for the whole sample, for virgins, and for non-virgins

It was predicted that there would be a main effect of time within this study, in that significant differences between baseline measures of DVs and immediate post-intervention measures would be found. A significant main effect of time was found, and significant increases between T1 measures and T2 were found for intention, anticipated regret, and positivity towards the pill and pregnancy prevention (factor 2) amongst the sample as a whole. For non-virgins, positivity towards the pill and pregnancy prevention showed an increase by T2, and for virgins, self-efficacy and positivity towards the pill and pregnancy prevention both showed increases. It was also predicted that any significant shifts in levels of the DVs found between baseline and T2, would either be maintained, or shifted further by T3 (four-week follow-up). This prediction was also supported for intention, which increased further, anticipated regret, which maintained its initial increase, and positivity toward the pill and pregnancy prevention, which also maintained its initial increase amongst the sample as a whole. For non-virgins, positivity towards the pill maintained its initial increase, and, for virgins, self-efficacy increased further.

Two further DVs, self-efficacy and normative beliefs, showed significant increases amongst the whole sample. In these cases, no significant initial shift was detected between baseline and immediate post-intervention measures, but significant increases did occur by four-week follow-up. For non-virgins, this pattern was observed for intention, and amongst the virgins, both intention and normative beliefs were shown to do this. Overall then, significant increases were found in scores on five of the eight DVs analysed for the whole sample between baseline and T3 (four-week follow-up). The same was true for four variables amongst virgins within the sample, and for non-virgins, two out of nine DVs showed significant increases over time. Table 6.8 below illustrates which variables saw significant increases amongst the sample as a whole and amongst each of the two sub-samples; virgins and non-virgins.

Table 6.8 Significant increases on each of the DVs by time amongst the sample as a whole and amongst virgins and non-virgins

	Whole sample	Virgins only	Non-virgins only
Behaviour	N/A	N/A	
Intention	✓	✓	✓
Self-efficacy	✓	✓	
Anticipated regret	✓		
Factor 1			
Factor 2	✓	✓	✓
Factor 3			
Control beliefs			
Normative beliefs	✓	✓	

When analysis compared T1 and T3 data amongst the whole sample, including the 'no intervention' control, a main effect of time was found for intention, self-efficacy, positivity toward the pill and pregnancy prevention and normative beliefs. This suggests that even those who had not received an intervention condition had seen increases in those variables over the duration of the study.

It was also predicted that there would be a significant main effect of condition within this study. Specifically, it was hypothesised that there would be significant differences between conditions of the intervention on measures of the DVs. A significant main effect of condition was found for the sample as a whole, but no differences were found to achieve significance at the level of the Bonferroni correction of .006 in follow-up univariate analyses for any of the eight DVs. When the sample was split into virgins and non-virgins, no significant main effect of condition was found. When the 'no intervention' control data was included in analysis of the whole sample, a main effect of condition was found; however, univariate tests did not achieve significance at the adjusted alpha level ($\alpha \leq 0.006$).

Research predictions were made in relation to a significant interaction between the within-subject IV of time and the between-subject IV of condition. It was predicted that a significant interaction would be due to differences occurring on DVs across time for some conditions but not others, thus identifying one or more conditions as more successful than the others. A significant interaction was found for the sample as a whole, but only when the true control condition was included, and this was due to differences on intention only. Preliminary analyses (see Assessing random allocation of participants to conditions of the intervention, on page 218) had shown intention to differ by condition at T1 without the inclusion of the true control data, so MANOVA on the whole sample was followed up by ANCOVA with intention alone as the DV. The baseline measure of intention was used as a covariate to factor out differences from

that time point by condition (see Analysis of Covariance (ANCOVA) for the DV intention, on page 224). However, when the true control condition was included in analysis intention did not differ by condition at T1, and an interaction effect was detected.

ANCOVA showed that once differences in intention by condition at T1 (without true control) were factored out there was evidence that the SE/AR combined condition was not as effective as the other three conditions at increasing levels of intention to use contraception. When the true control group were included in analysis, the significant interaction also provided evidence that the SE/AR condition was not as effective as the other four at increasing levels of intention to use contraception. For virgins and non-virgins within the sample, no significant interaction was found. These findings suggest that the impact of the study was equally positive for participants in all conditions, except that those participants who received a combined intervention booklet at T2 did not achieve an increase in intention as great as participants in other conditions of the intervention.

Overall then, there has been a statistically significant positive effect of the intervention study for all of the participants. For the whole sample, significant increases were found in levels of intention to use contraception, self-efficacy regarding contraceptive use, anticipated regret over not using contraception, positive beliefs regarding pill use and pregnancy prevention, and normative beliefs regarding contraceptive use, have been found. Amongst virgins, increases were found in intention, self-efficacy, positivity towards the pill and pregnancy prevention, and normative beliefs. For the sub-sample of non-virgins, significant increases were found in levels of intention to use contraception, and positive beliefs regarding pill use and pregnancy prevention. Whilst behaviour, the outcome measure most pertinent to participants who have had sex, has not been found to increase significantly over the course of the intervention study, mean

scores still show an increase between T1 and T3. Please refer to section 6.5.5 below, on page 259 for discussion of these findings.

Further analysis of the data, including participants who completed the questionnaires only, and not the intervention, has provided evidence that it is perhaps the act of completing the questionnaires themselves that has influenced participants' changing responses to those questionnaires over time, rather than the intervention materials themselves. In addition however, there is evidence that receiving the combined condition at T2 may have hampered the ability of the questionnaires to increase levels of intention. It is therefore argued that the completion of the questionnaires themselves within the space of five to six weeks has been enough to increase levels of several of the *psychological* constructs measured, but that there was something about the combined intervention booklet that detracted from the impact in relation to intention. This could be construed as somewhat disappointing in relation to purely theory-driven intervention design, but the findings hold importance in relation to applied health promotion, since there is *clear evidence* that the intervention study has had a significant positive impact on psychological antecedents of behaviour. Discussion of these findings in relation to theory and application is provided below.

6.5.2. Summary of findings for the sub-sample of low-intending non-virgins

Analysis of the sample as a whole, and separate analyses of sub-samples of virgins and non-virgins showed that whilst the intervention study had a significant impact on psychological antecedents of behaviour, including intention to use contraception effectively, no significant impact on behaviour was found. It was felt that this may be because mean scores for intention to use contraception were high amongst the sample to begin with, and therefore any increases in intention were not being translated into behavioural change (see section 1.8.4 above, on page 60). To address this possibility,

a sub-sample of non-virgins whose levels of intention to use contraception were comparatively low at the outset of the study was identified. Analysis of this sub-sample has shown that, as before, condition of the intervention and gender of participant did not differentially affect the impact of the intervention. However, over the five week period of the intervention study, these significant increases in intention to use contraception, were found to be occurring alongside significant increases in reported effective contraceptive use. This suggests that providing the intervention to a person with relatively low intentions to use contraception effectively every time they have sex, further motivates them to use contraception to an extent that they actually report an increase in effective contraceptive use.

6.5.3. Summary of findings for Chi-square assessing change in stage

Because stage of change (SOC) is a categorical variable, it could not be included as a DV within MANOVA, as the other variables were. Instead, Chi-square analysis was used to see if change of stage (COS), a categorical variable created to represent the numbers of participants who had remained static, regressed or progressed between T1 and T3, was associated with intervention condition. Unsurprisingly, given that a time by condition interaction was not found in the main analysis, there was no significant association between COS and condition. It is a positive finding, however, that twice as many participants progressed as regressed in the SOC.

6.5.4. Consideration of findings in respect of condition manipulation

It can be seen that the intervention study has clearly led to some positive findings from this intervention study, but before the significant main effect of time, and the implications of this finding are more fully explored, there is a need to consider further the intervention study's outcomes in respect of the attempted condition manipulation and the observed interaction effects.

When the sample was split into virgins and non-virgins, and MANOVA performed, no significant main effect for condition or for an interaction between condition and time was found. There were significant findings in relation to a main effect for condition and a condition by time interaction when analyses were conducted on the whole sample and/or the whole sample including the true control, and these significant findings have already been discussed (see Multivariate analysis of variance (MANOVA) for the whole sample, on page 219, Analysis of Covariance (ANCOVA) for the DV intention, on page 224, Inferential statistics, on page 240 & Interpretation of analysis of data with a 'no intervention' control, on page 242 above). The interaction effect would appear to be due to smaller increases in the combined SE/AR condition on intention between T1 and T3, suggesting that this condition, with its greater amount of intervention material, was not as effective in bringing about the increases in intention that were found in the other conditions (including no intervention materials, just questionnaires). The main effect of condition was found when the whole sample was analysed, both with and without the true control condition, though univariate follow-up analyses did not show significance for this effect at the corrected α of .006.

Because of these findings, there is a need to explore the possible reasons why manipulation of the variables SE/CB and AR did not differ by condition of the intervention as expected. Firstly, it is important to consider that whilst some theory-based interventions have revealed positive findings in relation to manipulation of targeted variables and behaviour change, others have met with more limited success. For example, in the wider field of health behaviour change, Quine et al. (2002) reported successful manipulation of behavioural and normative beliefs in their intervention condition, designed to persuade school-age cyclists to wear a helmet. They also reported significant increases in intentions and behaviour for the intervention group compared to the control. Behaviour change was reported to remain evident at five months post intervention. In contrast, Armitage and Conner (2002), in their TPB based

intervention designed to reduce fat intake by hospital workers, reported that their intervention conditions were no more effective than the information-only control (see also Brubacker & Fowler, 1990; Parker, 2002). Despite this, in findings similar to those presented in the current chapter, Armitage and Conner (2002) report a main effect of time, and argue that their 1 per cent decrease in fat consumed by baseline high-fat consumers, could result in important reductions in morbidity and mortality at a population level (Armitage & Conner, 2002). This finding is returned to in a discussion of the present study's significant main effect of time in the General Discussion (see The absence of differences between conditions, on page 282).

Given that findings relating to the effectiveness of theory-driven research have met with mixed success in the wider field of health psychology, it is understandable that this should extend to research that addresses a behaviour as complex as contraceptive use. Indeed, similar examples of little or no impact of intervention manipulation have been reported in a number of studies aiming to increase safer sex behaviours. Such findings have been reported amongst adolescents at a youth detention centre and an STI clinic in attempts to promote condom use (Gillmore, Morrison, Richey et al., 1997) amongst black males and STI clinic patients in the US (Branson, Ransom, Peterman & Zaidi, 1996), amongst STI clinic patients in the UK (Parker, 1996), and with adolescent school children in Scotland (Wight et al., 2002). In one study, participation in a waiting-list control group was associated with more frequent condom use at three-month follow-up than either of the intervention groups amongst participants in 'a steady dating relationship' (Sanderson & Jemmott, 1996, p2090).

Congruent with assertions of Gillmore et al. (1997), it may be that the relatively short nature of the intervention materials in the present study can partly account for the lack of differentiation in findings between the intervention conditions employed. The materials designed for this intervention were purposefully made succinct so that they

could be given to participants in schools, in a timely and efficient manner. However, it may be the case that this desire to minimise disruption has been at the expense of demonstrating differences between conditions. Indeed, Armitage and Conner (2002) report a similar limitation of intervention leaflets within their study, and suggest that a more effective medium might involve audio-visual stimuli such as those utilised by Parker et al. (1996). Associated higher costs of developing such an intervention must however be taken into account, and it is likely that greater certainty regarding the effectiveness of this medium over reading and writing-based interventions needs to be attained before future research can accept such an assertion.

Further issues that may be linked to the findings in relation to condition manipulation are firstly, that despite using a tick box response format for answering questions, in order to promote re-reading and rehearsal of the information, there is no guarantee that participants read and engaged sufficiently with the material, such that it could effect change. It is possible that greater rehearsal of the information and consideration of the materials was needed to effect change (Caccioppo & Petty, 1989). Again, more intense, longer versions of these interventions, not necessarily relying on participants reading the information for themselves may have provided an effect (Armitage & Conner, 2002). Alternatively, recent research published by Krahé, Abraham and Scheinberger-Olwig (2005) suggests that there is a need to provide adolescents with an incentive to engage with written intervention material when attempting to promote effective condom use. In their study, increases in levels of cognitive antecedents of condom use occurred only in a condition where a prize draw incentive was provided compared to a no incentive condition and a no intervention condition.

Secondly, the population under investigation, and the settings within which data collection was undertaken, may have contributed to the findings. Whilst examination conditions were maintained as far as was possible during data collection sessions, it is

not always possible to gain the uninterrupted concentration and co-operation of groups of teenagers in classroom settings (Greenwood, 1991). Such disruptions, where they occurred, may have affected participants' processing of intervention materials, potentially reducing the persuasive impact for participants whose elaboration of the message would have been high and favourable without distraction (Petty & Cacioppo, 1986). It is arguably the case however, that participants who were most distracted from the intervention materials would equally have not completed questionnaires fully enough for their data to have been included in the study.

Further explanations for the findings in relation to condition manipulation within this study may also be sought in relation to the fact that there was a significant main effect of time. The effect of time was found when analysis was carried out on the whole sample or on sub-samples. Taking part in this study appears to have been effective in terms of increasing participants' levels of a number of DVs, despite there being no main effect of condition or condition by time interaction supporting the theory-driven conditions. This must be viewed as a positive finding. If it is taken that the intervention study was responsible for any changes²³ then there are two possible explanations for the non-significant effects. Firstly, it is possible that the questionnaires themselves have acted as an intervention within this study, subsuming any effect of condition. In other words, whilst the conditions may have had an effect, because all participants received the same set of questions pertaining to constructs such as anticipated regret and self-efficacy, on three separate occasions, it is possible that the impact of these questionnaires has overrun any differential impact of conditions. A similar effect may have occurred in Armitage & Conner's (2002) intervention study aiming to reduce fat intake, whereby no significant interaction of condition by time was found, but a main effect of time was. Thus, though they do not specifically discuss it themselves, it is possible that the questionnaires, which were received by all participants in the study,

had an impact on TPB variables that subsumed any effect of the theory-based intervention condition. To overcome such issues in future research it is suggested that manipulations of between-participant intervention conditions need to at least match the frequency, size and intensity of questionnaires used to measure within-participants psychological and behavioural DVs to reduce the likelihood that measures could subsume the impact of intervention manipulation. So, for example, if three questionnaires that take between ten and twenty minutes to complete are used to collect measures of DVs, then the intervention should run over three sessions lasting a total of at least one hour.

Secondly, further analysis of the data was carried out, including comparison of the four intervention conditions with participants who had not completed the intervention, but who had completed questionnaires at T1 and T3. The main effect of time still stood, and as with other analyses the main effect of condition was unsupported by follow-up univariate analyses. A significant condition by time interaction was explained in relation to the weak performance of the combined condition for intention. This supports an assertion that there was no effect of condition in the study, and that it is more likely that completing the questionnaires, regardless of the intervention, has increased levels of the DVs. There is evidence within the literature which suggests that questionnaire items can increase intentions to use condoms *and* subsequent condom use, at least in relation to being asked about anticipated regret (e.g. Richard et al., 1996). Where questions regarding anticipated regret were asked of participants, they required those participants to consider the regret they may feel about not using condoms in order to respond. It is potentially the case that asking participants about how confident they feel, for example, regarding performance of a behaviour (as with self-efficacy items in this thesis) may encourage them to consider how good they are at performing the behaviour in question. This may in turn, depending on how positively they evaluate

²³ The possibility that they are not is discussed below (see 6.5.5, on page 259)

themselves, incite greater feelings of confidence regarding performing the behaviour. There is also evidence within the literature that, the more a cognition is repeated, the more extreme it becomes (e.g. Judd & Brauer, 1995). Thus, if the questionnaire items, which were completed by most participants on three occasions, drew attention to the corresponding psychological constructs, this might explain the increases found in relation to them.

The findings also suggest however, that whilst the intervention booklets received at T2 may not have been responsible for the increases observed in psychological constructs, receiving no intervention, the IOC, the SE or the AR condition was better than receiving both the SE and the AR material in relation to intention to use contraception. A possible reason for this might be that the greater amount of information to read and engage with provided within the combined SE/AR condition provided too much distraction from the questionnaires themselves, and interfered with their impact on intention to use contraception (Petty & Cacioppo, 1986). Alternatively, the additional information the SE/AR group were given may have caused them to disengage altogether from the messages being provided, because it involved too much effort. Only those high in need for cognition within this condition are perhaps likely to have engaged with the questionnaire and intervention materials at least as much as those in other conditions (see Cacioppo et al., 1996).

6.5.5. Exploration of the significant findings

As noted above, the significant main effect of time in this intervention study was found when analyses were carried out on the sample as a whole, when the sample was split into virgins and non-virgins, when analyses were conducted that included a no intervention control group, and when analyses were conducted on a sub-sample of sexually active non-virgins with low intentions to use contraception. This effect seems likely to have been due to the questionnaires themselves acting as an intervention

within this study. A possible counter-argument to this is that the improvements seen for behaviour, intention, self-efficacy, anticipated regret, positivity to the pill and pregnancy prevention, and normative beliefs, are due to a developmental effect; that is, participants are showing an improvement over time that cannot be attributed to the intervention materials *per se*, and rather, the changes may be a function of their chronological age and increasing experience. It *is* true that contraceptive use improves over time and is usually more consistent with older individuals and those who are more experienced (e.g. Ranjit, Bankole, Darroch & Singh, 2001). However, given the short period of time that elapsed between administration of the baseline questionnaire, and the combined intervention implementation, and immediate post-intervention questionnaire administration session (i.e. one week) it is unlikely that developmental effects alone could be responsible for the highly significant increases on these variables. In addition, the period of time that then elapsed between T2 (immediate post-intervention measures), and T3 (four-week follow-up), where further significant shifts and the maintenance of certain increases were observed, was less than the time between intervention and final follow-up in comparable theory-based studies within the literature (e.g. Armitage and Conner, 2002; Quine et al., 2002), and sexual health interventions (e.g. Jemmott et al., 1998; Sanderson & Jemmott, 1996; Van Devanter, Gonzales, Merzel et al., 2002). Thus, it is argued that a developmental effect is not sufficient to account for the changes over time observed in the data in this current study.

It could also be argued that the impact of the intervention was simply the 'Hawthorne effect' (Brenner, 2002; Roethlisberger & Dickson, 1939), whereby letting young people know they were being measured in some way, with questions pertaining to pregnancy prevention and effective contraceptive use, led to their responding by improving their efforts in relation to effective contraceptive use. However, analysis of the findings suggests that whilst there were increases in psychological constructs theorised to

precede behaviour for all sub-samples, significant changes in behaviour were only found amongst those non-virgins with low intentions to use contraception at the outset of the study. Given that the Hawthorne effect is about an observed change in behaviour because of participant knowledge that behaviour is being measured, it is arguably the case that had the Hawthorne effect been responsible for results within the present study, changes in behaviour might have occurred for all participants, without the corresponding shifts in psychological constructs.

The fact, however, that the significant effect of time within this intervention study was due to only *some* measures showing significant increases across the time points of the study whilst others did not, requires further exploration. Firstly, from the three factors representing outcome or behavioural beliefs, only positivity towards the pill and pregnancy prevention showed significant increases across the three time points of the intervention. These increases were found for everyone, and it is important to note that positivity towards the pill and pregnancy prevention was also the only one of the three factors found to significantly discriminate between the stages of change in Chapter 4 of this thesis (see section 4.7.5 above, on page 142). In the discussion section of Chapter 4, the importance of this variable was partially explained by the large proportion of females within the sample, and the high proportion of pill users among those participants. In the present study, numbers of males and females were equal, and pill use more equitable in its frequency of use with condom use. It is therefore suggested that the significance of positivity toward pill use and pregnancy prevention, over and above the other factors representing behavioural beliefs, may relate to two things. Firstly, the questionnaires themselves and the study in general focuses on pregnancy prevention rather than STI prevention, and although STI prevention and condom use were asked about throughout the questionnaires, the focus on pregnancy prevention is likely to have been noted, and to have had concomitant effects on participants. The focus on pregnancy prevention may therefore also have influenced

the nature of any increases in behavioural beliefs. Secondly, intervention material designed to manipulate one type of psychological construct can affect another that it was not specifically designed to manipulate. For example, Parker (2002) found that her manipulations of anticipated regret and subjective norm in relation to speeding in 30mph zones increased participants' negative attitudes towards speeding. It is therefore possible that within the current intervention study, questions pertaining specifically to unintended pregnancy rather than STI prevention, such as the anticipated regret items, may have enhanced behavioural beliefs relating to pill use and pregnancy prevention as well as levels of anticipated regret, without having a similar effect on behavioural beliefs about condom use and STI prevention.

The variables control beliefs and self-efficacy, which could be regarded as synonymous constructs (Ajzen, 1991), also revealed interesting differences in relation to the main effect of time. Control beliefs did not differ significantly across the time points for either the sample as a whole or the virgins or non-virgins within the sample. In contrast, the variable self-efficacy increased significantly across the three time points of the intervention for the sample as a whole, and for virgins, but not for non-virgins. A possible explanation for the absence of increases in self-efficacy amongst non-virgins might be that they already have fairly high levels of confidence in relation to contraceptive use (range of means for virgins at T1 = 5.10 to 5.49; range of means for non-virgins at T1 = 5.99 to 6.37), and the material provided in this study was only able to increase significantly levels of confidence in the less confident virgins. Further discussion of issues relating to virgin status and the implications for future research is raised in Chapter 7 (see section 7.3.1 below, on page 290).

The differences in the ways in which self-efficacy and control beliefs were affected within this intervention study, however, are likely to be due to the different approaches to asking questions that were adopted for each, as argued in Chapter 4 of this thesis.

There, it was suggested that the self-efficacy items, by their nature, elicit more positive responses than control belief items (see section Consideration of control beliefs and self-efficacy as possible targets for intervention, on page 153). Evidence in the extant literature has been found for differential participant responses to questionnaire items depending on whether items are rated on bipolar or unipolar scales (Armitage & Deeproose, 2004). Positive responses were most pronounced when abstract compared to concrete questions were asked (Armitage & Deeproose, 2004). Arguably, asking about how confident a participant feels about performing a behaviour (self-efficacy) is a more abstract form of question construction than asking about specific control beliefs. Thus, if self-efficacy items elicit more positive responses from participants, it is plausible that they should have a pronounced positive impact within an intervention setting compared to control beliefs. Indeed, although there were no negative findings in relation to control beliefs within the present study, Parker et al. (1996) found that participants showed decreases in levels of PBC after receiving an intervention designed to increase PBC in their study aiming to change drivers' attitudes towards speeding. They suggested that focusing participants' attention on the things that need to be overcome in order to perform a certain behaviour may serve to enhance the feeling of associated difficulty. Therefore, it may be the case that in terms of changing cognitive antecedents of behaviour at least, a focus on the more positive and abstract concept of confidence rather than control is important.

Like self-efficacy, normative beliefs revealed significant increases across the three time points of the study, for the sample as a whole, and for the sub-sample of virgins, but not for the sub-sample of non-virgins. Chapter 5 of this thesis showed that normative beliefs had the greatest effect size for significant differences between intenders and non-intenders amongst virgins (see section 5.2.5 above, on page 172). It was argued that young people who have not yet begun to have sex may place greater weight on the opinions and expectations of others with regard to their intentions to use

contraception, compared to their sexually active counterparts, since they do not have experience of their own on which to base behavioural intentions (see 5.3.2 above, on page 174). This would explain why normative beliefs were important for virgins but not for non-virgins. It may also explain why questionnaire items about normative beliefs may have acted as an intervention for and shown increases amongst virgins, but not for the non-virgins in the present study.

Anticipated regret was shown to increase for the sample as a whole, and for non-virgins and virgins within the sample, across the three time points of the study. Chapter 5 demonstrated that anticipated regret differed significantly between intenders and non-intenders amongst virgins, and between effective and less effective contraceptive users amongst non-virgins. This may explain why increases were seen for all participants. In addition, congruent with the argument presented, which states it is the questionnaires that have impacted upon levels of the DVs, the nature of the questionnaire items measuring anticipated regret means that they are amongst those most likely to elicit the feelings they are attempting to measure. The finding that questions can work as interventions and elicit changes in levels of anticipated regret has been asserted in the existing literature. For example, Sheeran & Orbell (1999b) found that asking participants to respond to questions about regretting not purchasing a lottery ticket led to increased intentions to purchase a lottery ticket compared to participants who had not responded to such questions. Furthermore, Richard et al. (1996) found that asking participants questions about the regret they would feel *after* having sex without condoms increased their intentions to use condoms *and* subsequent condom use compared to participants who were simply asked about feelings about having unprotected sex. This too, may explain increases in anticipated regret for all participants, since all participants completed items asking about such feelings on the questionnaires.

Intention was an important outcome variable for all participants, since although findings in relation to contraceptive use have tended to focus on the ability of the TPB constructs to predict intention, rather than intention to predict behaviour (e.g. Fekadu & Kraft, 2001; Kridli & Libbus, 2002), it has been shown that intention can predict behaviour across a variety of health behaviours (e.g. Conner & Armitage, 1998; Godin & Kok, 1996), including condom use (e.g. Albarracín et al., 2001). In particular, intention was an important outcome variable for virgins within the sample, since they were not yet having sex, and the most that can be expected of them is that they intend to use contraception effectively every time they have sex, at some point in the future. Because of this, it is particularly encouraging that significant increases in intention to use contraception were detected across the three time points of the study for the sample as a whole, and for the virgin and non-virgin sub-samples. For the sample as a whole, there was a significant increase at T2 and again at T3. The significant difference between T1 and T2 was not found in analysis of virgins alone, or non-virgins alone, but this may be due to a loss of power from decreased numbers, (given the significant increase when the samples are combined). Overall then, an important outcome of this intervention study is that it has achieved significant increases in intention to use contraception between baseline and final post-intervention follow-up amongst all participants.

In relation to self-report measures of behaviour taken from those who were either currently in sexual relationships or who had been in the six months preceding the study, findings were initially less encouraging than those relating to intention. Amongst the non-virgins as a whole, whilst there were increases in the mean score for agreement with the statement about using contraception effectively on every occasion of sex between baseline and four-week follow-up, the increase failed to achieve significance. A possible explanation for this may be that more time needed to pass before changes in behaviour could be detected as a result of the intervention. This

would be the case had a 'sleeper effect' occurred (e.g. Priester, Wegener, Petty & Fabrigar, 1999). This relates to situations where 'discounting cues', such as negative appraisal of the message source or communicator, have interfered with the persuasive effect of a message when it is received. Over time, the discounting cue, such as the message source, is forgotten, enabling the persuasive content of the message to have a delayed impact (Tarcn & Albarracín, 2004). If this were the case, further data collection would be needed from participants to establish whether contraceptive use improved by a later time point. This data would need to be compared with an additional group of matched control participants who had not taken part in data collection thus far.

A further possible explanation is that a larger-scale, more intensive intervention was needed to create a significant impact on behaviour. Indeed, Armitage and Conner (2002) argue that, even assuming near-perfect correlations between components of the TPB, interventions that focus on beliefs from the far left of the model can only be expected to have modest effects on behaviour at the far right of the model. Therefore, it is possible that much larger increases in normative and behavioural beliefs, and self-efficacy and anticipated regret were needed for an impact on behaviour for all of the non-virgins to occur.

Encouragingly however, when the non-virgins were further sub-divided, to create a sub-sample of initially low-intending sexually active participants, a significant main effect of time was found for contraceptive behaviour. This effect was due to a significant increase in self-reports of effective contraceptive use between T1 and T3 amongst the new sub-sample. It is therefore likely that an impact of the intervention study on behaviour was not found for all of the non-virgins because many already had high levels of intention to use contraception (see table 6.4). The largely motivational nature of the psychological variables that were the focus of the intervention materials

meant that they had the power to increase motivation or intention to use contraception amongst all participants, but this increase in intention could only translate into increased effective contraceptive behaviour amongst those who were initially less motivated to use contraception effectively (Gollwitzer, 1993; Gollwitzer & Brandstätter, 1997; Sheeran et al., 2005). For those who had higher initial levels of intention to use contraception, it is likely that motivational increases were not enough to further enhance their contraceptive behaviour, and combining their scores on behaviour with the low-intenders masked the significant effect of behaviour amongst the low-intending sub-sample of non-virgins.

Findings in relation to stages of change show that there was no significant difference in change of stage by condition. Although a large proportion of the sample remained static for SOC, it is also encouraging that more than twice as many participants in this study progressed through the SOC compared to those that regressed.

6.5.6. *Implications of the findings*

The findings of this study have shown that the manipulation of intervention conditions does not appear to have differentially affected the outcome measures of interest. Possible reasons for this were discussed above (see 6.5.4 above, on page 253). Despite this, the study *has* produced encouraging findings in that significant increases in a number of the variables associated with effective contraceptive use, including self-reports of effective contraceptive behaviour have been achieved. Furthermore, given that the analyses have provided evidence to suggest that the completion of the questionnaires may have acted as an intervention, the findings do provide some support for the efficacy of theory to promote changes in antecedents of contraceptive use and contraceptive use itself. This is because the questionnaire items were developed from psychological theory (see Chapter 4). If it is the case that questionnaire items can promote increases in cognitive antecedents of contraceptive

use and contraceptive use, then this research has important applied value, since potentially, getting young people to complete these kinds of questionnaires could have a positive impact in relation to contraceptive use. Further research is needed however, to establish more effective ways of changing behaviour amongst those who already have high intentions to use contraception.

If it was in fact the questionnaires within this study that have produced the observed increases in psychological constructs and behaviour, then these findings have important implications for the wider body of theory-based intervention research. This is because, even in studies where successful manipulation of intervention conditions is achieved, it is potentially the case that the questionnaires used to evaluate the effect of the interventions are also having an impact on the psychological constructs and/or behaviour that are being measured. Furthermore, it is a complex task to separate the impact of the questionnaires from the impact of intervention material, and it may even be the case that it is the questionnaires in combination with the intervention materials that are responsible for time by condition interactions. For example, it may be that completion of related questionnaires provides rehearsal, or deeper processing of intervention material that is not achieved through implementation of the intervention alone (Cacioppo & Petty, 1989). Further discussion of the implications of this research for theory and application are provided in the following Chapter (see 7.2.2 below, on page 277, 7.2.4 below, on page 286 & 7.4 below, on page 299).

Given the implications for theory and application outlined above, a possible design for future research which could usefully expand on the findings of the current study might involve a partial replication of what has been done here, but with some important modifications. It is suggested that the same intervention conditions be included, but that an extra control group be added that receives only a baseline and final follow-up questionnaire. In addition, so that the difference between those that are provided with

interventions and those that are not is maximised, the time period over which the study runs should be lengthened. This would allow, firstly, a greater number of data collection sessions to be incorporated to detect changes within the intervention groups (including further changes in behaviour), and secondly, greater repetition of the intervention messages, to promote persuasive effect. Further to this, in accordance with the recent findings of Krahé et al. (2005), it is suggested that an incentive or incentives for engaging with the materials is provided to see if this further enhances behaviour change.

6.5.7. Summary and Conclusions

Analysis of data from this intervention study has shown that whilst condition manipulation was not evidenced as expected, levels of five out of eight psychological constructs found to be associated with effective contraceptive use (see Chapters 4 and 5), including intention to use contraception have been significantly increased.

Significant increases in behaviour have also been achieved for a sub-sample of non-virgins who had lower levels of intention to engage in effective contraceptive use at the outset of the intervention study.

The non-significant findings in respect of manipulation of the intervention conditions have been explained in relation to other research that has also found a main effect for time, but not condition of the intervention (e.g. Armitage & Conner, 2002; Gillmore et al., 1997). Possible explanations provided included the brief nature of intervention materials, the possibility that more engaging media were required, and that greater rehearsal of the messages, and the need to provide motivation to engage with messages, could have had an impact. Distractions within the settings that data collection took place may also have reduced the impact of intervention messages. It was also suggested that the questionnaires themselves may have acted as intervention

materials and subsumed any impact of the manipulated IV, or acted either instead of, or in combination with, the interventions on psychological constructs.

The significant main effect of time within this intervention study has been explained as the impact of the questionnaires themselves acting as an intervention. The possibility that the effect was either a 'Hawthorne effect' or developmental, has been addressed and counter-argued, and the reasons for increases occurring on some variables but not others were explored and explained in relation to the existing literature and the findings from earlier analyses within this thesis. Following this, suggestions for the way future research could build on the present findings were made.

The implications of these findings are not wholly supportive of theory-driven intervention design, but have provided applied potential for increasing levels of psychological constructs related to effective contraceptive use and for improving contraceptive behaviour amongst those with relatively low intentions to use contraception effectively. In addition, the findings have raised important implications for the evaluation of all theory-driven interventions, since it is possible that questionnaires may be bringing about changes that have been attributed solely to intervention manipulation. Further discussion of this is provided within Chapter 7.

In conclusion then, it may well be the case that providing adolescents with materials that engage their attention with their beliefs, motivations, intentions and feelings regarding contraceptive use and pregnancy prevention is an effective way of achieving positive change in the British adolescent population. In particular, there is evidence that increasing levels of self-efficacy, normative beliefs, positive behavioural beliefs regarding the pill and pregnancy prevention and anticipated regret may be important and achievable. However, there is a need to build on present findings with further research, to clarify questions raised, and develop intervention strategies and theories

that relate to those who already have high levels of intention to use contraception but who do not achieve this. Chapter 7 reviews the aims of this thesis and the findings of the research reported throughout. The conclusions that can be drawn from these findings overall are then discussed in relation to the existing literature, along with implications for theory and future research.

Chapter 7

General Discussion

7.1. Summary

7.1.1. *Overall summary of thesis aims*

This thesis aimed to identify psychological variables associated with effective contraceptive use, and then to develop, implement and assess the efficacy of an intervention designed to improve adolescent contraceptive use based around those variables. The overall aim of implementing the intervention was to increase levels of intention to use contraception, levels of self-reported contraceptive use, and achieve progression along the stages of change for contraceptive use amongst participants. The thesis also aimed to provide evidence in relation to recent critiques (e.g. Conner & Armitage, 1998; Sutton, 2000a) of the two social cognition models of health behaviour that were central to the research, the theory of planned behaviour (TPB; Ajzen, 1985; 1991) and the transtheoretical model of behaviour change (TTM; Prochaska & DiClemente, 1982; 1983). Specifically, evidence relating to whether or not the TTM represents a pseudo-stage model was sought, as well as evidence pertaining to the ability of variables external to the TPB to be useful in terms of predicting and potentially changing contraceptive behaviour. Table 7.1 below summarises the aims, rationale, methodology and findings for the empirical chapters within this thesis that sought to address the aims outlined above.

Table 7.1 A summary of the aims, rationale, methodology and findings of the empirical studies reported in Chapters 3, 4, 5 and 6 of this thesis

Chapter	Aims	Rationale	Methodology	Main findings
3	To gain an understanding of British adolescents' beliefs and experiences of contraceptive use and to establish whether their experiences might uncover potential variables for targeting not prevalent in existing quantitative literature.	Relative paucity of qualitative research exploring this topic, particularly amongst the British population (see 3.3, on page 75), and social cognitive research focussing on general contraceptive use is relatively novel (see 3.2, on page 74).	Adaptation of interpretative phenomenological analysis applied to transcripts of interviews with 18 British adolescents about their beliefs and experiences concerning contraceptive use.	Support found for importance of behavioural beliefs and attitude in relation to contraceptive use. Also evidence of normative and control beliefs, optimistic bias, future aspirations and prototype similarity as being important.
4	To establish a) the variables, selected from existing literature and findings from Chapter 3, that provide the best discrimination between stages of change (SOC), for potential targeting in an intervention and b) whether those variables support original assumptions relating to the TPB and TTM.	Research within health psychology has found support for both the TTM and TPB in predicting many health behaviours including condom use (e.g. Godin & Kok, 1996; Grimley et al., 1997). Little research has applied this research to general contraceptive use and pregnancy prevention (see 1.6.6, on page 40).	A questionnaire, developed based on findings from Chapter 3 and using standardised measurements, administered to 291 adolescents. It measured SOC for contraceptive use and 17 predictor variables including constructs from the TPB and TTM.	DFA revealed that behavioural processes of change, self-efficacy and positivity to pill and pregnancy prevention provided best discrimination. There was support for the TTM as a pseudo-stage model, and variables external to the TPB discriminated between SOC. Problems identified with SOC as outcome measure for virgins meant further analysis needed.
5	To establish which variables, out of those identified in DFA differed significantly between virgins who intend/do not intend to use contraception and non-virgins who effectively/ineffectively use contraception.	SOC is not an appropriate outcome measure for virgins, since they can only ever achieve preparation, unless they begin having sex. Intention is a better outcome measure for virgins, and linearity of SOC suggests not discrete stages so DFA may not have been ideal analysis for finding variables to target - further analysis of data is therefore needed.	Uses the same data as Chapter 4 but focuses on dichotomous outcome variables of Intenders/non-intenders amongst virgins, and effective contraceptive users/ineffective contraceptive users amongst non-virgins.	T-tests using Bonferroni's correction revealed self-efficacy, control beliefs and anticipated regret had the largest effect sizes for differences between effective and less effective contraceptive users and were also important for virgins, so they will be the targets for intervention.
6	To increase levels of intention in virgins, and levels of behaviour and intention in non-virgins, to shift people along the SOC, and to determine which intervention condition(s) are most effective.	Whilst there is a lack of research that has applied social cognitive theory to general contraceptive use, there is a greater paucity of research that extends findings to the development and evaluation of theory-based interventions (e.g. Rutter & Quine, 2002).	A total of 247 adolescents completed a longitudinal intervention study. Participants were measured at baseline, immediately post-intervention and at four-week follow-up, and were placed in one of four intervention conditions.	MANOVAs revealed that whilst there appeared to be no difference in terms of the conditions participants were placed in, significant increases in levels of five out of eight psychological DVs were seen across conditions for all participants and increases in effective contraceptive behaviour were found for a sub-sample of low intending non-virgins.

Key findings in relation to the thesis aims are addressed explicitly below. These are discussed in relation to relevant theory and research. Practical and theoretical implications are also discussed, alongside limitations and suggestions for future work.

7.2. Main empirical aim: development of an intervention

The overarching empirical aim of this thesis was to develop an intervention aimed at increasing the effective use of contraception amongst adolescents. A further aim was to then implement and evaluate this intervention. Chapter 6 reported the implementation and subsequent findings of the intervention study, with the preceding empirical chapters documenting the process by which the intervention was developed.

Findings suggested that manipulation of anticipated regret and self efficacy/control beliefs was not successfully achieved by the intervention materials *per se*, but that the questionnaires used to measure the changes in psychological constructs and behaviour acted as an intervention instead (see Questionnaires, on page 207). This was because significant increases in positive beliefs regarding the pill and pregnancy prevention, self-efficacy, normative beliefs, anticipated regret and intention were found in all participants, between baseline and final follow-up, regardless of condition of intervention (see Multivariate analysis of variance (MANOVA) for the whole sample, on page 219). This was also the case when a no-intervention control group that had completed baseline and T3 questionnaires was included in analysis (see 6.4.5 above, on page 237).

It was suggested that possible explanations for the significant increases in levels of the five psychological measures could be either a developmental effect of contraceptive improvements with age and experience (e.g. Ranjit et al., 2001) or a 'Hawthorne' effect (Roethlisberger & Dickson, 1939; see section 6.5.5 above, on page 259). However, it

was argued that because of the timeframe of the intervention study, it was unlikely a developmental effect could be solely responsible for the increases. In addition, it was argued that the nature of the findings made it unlikely that they were due to a Hawthorne effect, since increases in psychological antecedents of behaviour were observed for everyone, as well as changes in behaviour for a sub-sample of participants.

7.2.1. Exploring the impact of the questionnaires

If it is accepted that the questionnaires were responsible for the increases found in levels of self-reported behaviour, intention, self-efficacy, anticipated regret, positivity towards the pill and pregnancy prevention and normative beliefs, rather than exposure to the intervention materials, a developmental effect or a Hawthorne effect, then explorations of the reasons why this occurred must be sought, as well as consideration of the wider implications of such a finding.

It seems likely that the questionnaires have acted as messages about contraceptive use and pregnancy prevention. It is potentially the case that they have conveyed the message that it is important to intend to and want to use contraception, and that feelings relating to confidence and control over contraceptive use are important. Also the questions may have conveyed that it is possible to regret not using contraception, that it is likely that people experience positive and negative evaluations relating to contraception, and that there are important others whose opinions might matter. It is feasible that being exposed to these questionnaire items and focussing participants' attention on them has been enough to cause increases in levels of some psychological variables they were designed to measure, or at least to do so over a period of five to six weeks. Furthermore, this argument is corroborated by the fact that the questionnaire items were provided to all participants on at least two occasions, and for

the majority of the sample, on three occasions, and research has suggested that moderate repetition of messages can increase their persuasive ability (Cacioppo & Petty, 1989; Claypool, Mackie, Garcia-Marques, et al., 2004).

There is also some support within the literature for the notion that questionnaire items act as interventions by themselves. Within social cognition research, this has largely been found in relation to questionnaire items pertaining to anticipated regret (Richard et al., 1996; Richard et al., 1998; Sheeran & Orbell, 1999b). There is also evidence that repeated expression of cognitive constructs such as attitudes, as would occur through the completion of questionnaire items, leads to them becoming strengthened over time (e.g. Judd & Brauer, 1995). Furthermore, questionnaires acting as interventions have been identified in relation to parents' perceptions of infant intentionality (e.g. Reznick & Schwarz, 2001). Measures completed by parents were rated more positively when they were more familiar with the questionnaire compared with normal developmental increases reported by parents who were less familiar with the questionnaire. The authors concluded that this measure had altered the participants' awareness, and thus served as an intervention (Reznick & Schwartz, 2001).

Further research suggests that where successful manipulation of anticipated regret has occurred, it has also had an impact on attitudes (Parker et al., 1996; Parker, 2002). If it is possible for changes in levels of anticipated regret to affect attitudes then it is also possible that within the current intervention study, measures of anticipated regret, which have been shown to be capable of altering levels of anticipated regret (e.g. Richard et al., 1996) have also affected outcome beliefs measured in this study, which have been found to predict attitude. Given this possibility, future research might usefully investigate the extent to which successful manipulations of psychological constructs impact upon constructs other than those they were designed to effect. For

example, there has been some suggestion within the literature that the attitudinal and normative components of the TPB may be considered conceptually similar (Trafimow, 2000). Thus, investigation of whether successful manipulation of one of these constructs impacts upon levels of the other would be useful. Such research could potentially aid the development of succinct but effective interventions in the future, if it could be found that manipulating just one construct could consistently affect change in *more* than one antecedent of behaviour. However, further work needs also to consider the way in which changes in psychological constructs can be successfully translated into behaviour change for those who already have high intentions, but fail to consistently translate their intentions into behaviour. The present thesis only found significant improvements in relation to behaviour amongst a sub-sample of initial low-intenders. Further discussion of the reasons for this within the present thesis is provided below (see Focus on behaviour change, on page 283).

7.2.2. Implications of questionnaires acting as interventions

The implications of the intervention findings are encouraging, given that, for all participants, significant increases in the desired direction were achieved for five psychological variables, including intention to use contraception, and for a sub-sample of sexually active participants, a significant increase in effective behaviour was achieved (see 6.4.3 above, on page 218). However, the current thesis' assertion that the questionnaires (and not the intervention materials) may have been responsible for these increases has wider implications for the evaluation of theory-based interventions. This is because, for most research, it is not possible to separate the impact of intervention materials from the questionnaires used to evaluate them. Even where research has shown that there are differences between an intervention condition and a control condition (e.g. Quine et al., 2001; 2002), it is still possible that measuring theoretically-based constructs such as behavioural, normative and control beliefs in

order to evaluate an intervention adds to the ability of the intervention material to have the desired effect. It could be that the questionnaires allow for deeper processing or rehearsal of the intervention material (e.g. Cacioppo & Petty, 1989; Hawkins & Hoch, 1992; Igartua, Cheng & Lopes, 2003), and so whilst some confidence in the ability of such an intervention to affect change may be asserted, there cannot be complete confidence that the intervention material will work in isolation, without the additional administration of questionnaires used to evaluate it. Some research which can establish the differential impact of questionnaires and intervention materials would therefore be a useful future development (see 7.2.4 below, on page 286).

Thus, if the findings of Armitage and Conner (2002) are considered in relation to their intervention aimed at reducing dietary fat-intake, it could be argued that the significant decreases they observed across both the intervention and control conditions for baseline high fat consumers were due not to the provision of general educational intervention materials in both cases as they suggest, but to the impact of the TPB questionnaire items which all high fat consumers completed at baseline and three-month follow-up. It is also possible that the *combination* of intervention materials and questionnaires led to the increases observed. However, the findings from the current thesis would suggest that with the exception of the poorer performance of the combined condition in relation to increases in levels of intention, the intervention materials had no differential effect over and above the impact of the questionnaires on the psychological constructs measured.

Similarly, the findings of Quine et al. (2001; 2002) can be considered in relation to the impact of questionnaire items. Though their research showed successful manipulation of the intervention condition compared with the control condition in relation to TPB constructs *and* behaviour, it is not known whether the intervention manipulation would

have worked without the use of the evaluation questionnaires. In other words, the manipulation of the intervention condition may only have worked because participants received the questionnaires as well as the intervention materials. This may particularly be the case given the very close proximity between the questionnaire measures and the beliefs manipulated within the intervention materials that they used. For example, they measured two behavioural beliefs in the questionnaire, one of which was, 'My wearing a helmet while cycling to and from school would protect my head if I had an accident' (Quine et al., 2002; p183). For each belief they measured there was a corresponding intervention manipulation, which in this case sought directly to increase the belief that wearing a cycling helmet would protect your head in an accident (see Quine et al., 2002; p179). It is argued here that completion of questionnaire items that corresponded so closely to intervention manipulations would have almost certainly allowed increased processing of the persuasive messages and may therefore be responsible at least in part, for the overall impact of the intervention materials (Cacioppo & Petty, 1989). If the findings of health behaviour interventions are to have genuine applied utility, then future research in this area needs to address the issue of differentiating between true intervention material effects, and the impact of evaluative questionnaires. Suggestions for how this might be achieved are provided below (see 7.2.4 below, on page 286) after a discussion of the possible reasons why manipulation of the intervention conditions did not differentiate between participants in terms of the DVs observed to change over time.

7.2.3. Exploring findings relating to condition manipulation

Some consideration of the reasons why the manipulations of self-efficacy and anticipated regret were not successful within the present thesis was provided in the last Chapter (see 6.5.4 above, on page 253). Further attention is now given to this important finding. It has been suggested that the interventions were too minimalist, to

have had a great enough impact (beyond that provided by the questionnaires) on psychological measures, and other researchers have suggested the same in relation to unexpected findings for condition manipulations in their own research (e.g. Armitage & Conner, 2002; Evans & Norman, 2002), including sexual health intervention research (e.g. Gillmore et al., 1997). It was also suggested that use of reading and writing tasks may not have been engaging enough, a criticism also levied by Armitage and Conner (2002) about their intervention materials. Yet, Parker et al. (1996) used video interventions, Evans and Norman (2002) used live presentations of materials, and Gillmore et al. (1997) used both, and none reported any significant effects on intention and behaviour. Contrast this with Quine et al. (2001), who also utilised reading and writing based tasks, and *did* find significant increases in intention *and* improved behaviour. Furthermore, it has already been asserted within the present Chapter that the reading and writing based questionnaires used to evaluate the intervention impact may have been responsible for the significant increases in five psychological constructs. It is therefore argued that the reason for no impact of intervention conditions, or in other research, a disappointing impact of intervention materials, may be more complex than materials simply being too brief or not sufficiently engaging.

It does seem possible that greater repetition of messages may have increased the likelihood of an impact of conditions of the intervention in the present thesis *and* in other health behaviour change interventions (e.g. Armitage & Conner, 2002; Evans & Norman, 2002; Parker et al., 1996). Moderate repetition of persuasive messages has been shown to increase their persuasive effect (e.g. Cacioppo & Petty, 1989). Although there is evidence that excessive repetition can impede persuasion (e.g. Cacioppo & Petty, 1980; 1985) and that some factors may mediate the effects of repetition on persuasion (e.g. Claypool et al., 2004), it is largely held that with each repetition of a message, 'another opportunity to attend to, comprehend, encode, and

elaborate upon the message arguments, their implications and associations' is provided (Cacioppo & Petty, 1980; p117). Indeed, in the intervention study reported in the current thesis, it has been argued that the questionnaires have acted as a form of intervention, and the majority of participants received these on three separate occasions. Furthermore, it is feasible that distraction during administration of the intervention materials impeded the persuasive effect of intervention messages (Cacioppo & Petty, 1985). However, whilst this may have been the case in other studies (e.g. Armitage & Conner, 2002) it is unlikely to have been true of the present intervention study because an effect was nonetheless observed. It would be difficult to envisage a situation whereby distractions might impede the effect of intervention materials and not act in the same way for the questionnaires.

Further explanations as to why manipulations of the intervention did not have differential effects on psychological constructs may still be sought in relation to the impact of other factors. It has been shown that increases occurred regardless of whether an intervention booklet was received. It may therefore be the case that receiving the intervention booklets provided no demonstrable effect beyond that achieved by completing the questionnaires, when compared to the impact of manipulations of self-efficacy and anticipated regret that may occur in the wider environment in which participants live. Wight et al. (2002) argue a similar case in relation to the failure of their sexual health intervention to have an impact on the behaviour of their participants. They suggest that, 'a 20 period school sex education programme might be unimportant compared with long term pervasive influences from, for instance, family, local culture and the mass media' (Wight et al., 2002; p324). For the present research, it is argued that the wider influences of society, culture and the media may have had a stronger and potentially opposing influence on psychological antecedents and the behaviour of participants than the manipulations attempted within

the intervention materials in the current thesis. For example, marketing professionals have discussed the negative impact of cultural, social and media influences on the reduced sales of condoms within the U.S., and suggested that negative feelings relating to condom advertising reduced the amount of advertising dedicated to condoms, which in turn impacted on sales and use (e.g. Miller, 1994).

Finally, it was also argued in Chapter 6 (see 6.5.4 above, on page 253) that levels of motivation amongst participants may need to be increased in order to promote deeper processing of intervention materials. Such an assertion was supported by research showing that intervention materials that targeted the antecedents of condom use amongst adolescents were effective only when they were provided with increased incentive to attend to the message (Krahé et al., 2005). Wight et al. (2002) make a similar assertion in relation to their sexual health intervention study, suggesting that low interest in personal and social education lessons in schools may reduce the impact of interventions employed within these environments. Future interventions might therefore usefully incorporate motivational aspects that provide greater incentive for individuals to be involved, and process the information they receive.

The absence of differences between conditions

The above discussion of the findings from the intervention study has explored the potential reasons for an increase in levels of five psychological variables and behaviour as a function of the questionnaires acting as the intervention, with the intervention materials themselves arguably being, in a sense, redundant in the process of effecting such change (see 7.2.1 above, on page 275 and 7.2.3 above, on page 279). However, there is a need to further explore further the fact that no differences between conditions were observed in relation to manipulation of the constructs they were designed to impact upon. For example, it might be expected that participants who were in the AR

condition might have displayed greater increases in levels of anticipated regret than those in either the IOC or SE condition, because in addition to questions relating to anticipated regret on the questionnaire, they were exposed to further information that was designed to induce those feelings compared with other groups. However, there was no evidence within this thesis to suggest that that was the case. Thus, it is suggested, in accordance with arguments presented above relating to message repetition, wider societal, and motivational issues, that the intervention materials supplied within each of the theory-based conditions were not sufficient to manipulate levels of the constructs they were designed to impact upon, beyond that already achieved by the questionnaire items (see 7.2.3 above, on page 279).

Focus on behaviour change

The main aim of implementing the intervention study within this thesis was to improve levels of effective contraceptive use amongst adolescents. Clearly, this aim could only be addressed and tested in relation to participants who were engaging in sexual intercourse. Findings suggest that over the five to six weeks of the study, significant improvements in self-reports of behaviour were found for a sub-sample of sexually active non-virgins who had initially held relatively low intentions to use contraception effectively on every occasion of sex. When *all* non-virgins were included in analysis, increases in self-reports of behaviour did not achieve significance.

Existing literature has reported mixed findings in relation to the impact of theory-based interventions on self-reported behaviour change. Whilst some have found that there is no impact on behaviour (e.g. Evans & Norman, 2002; Gillmore et al., 1997), other studies *have* reported significant behavioural change (e.g. Armitage & Conner, 2002; Quine et al., 2001). It seems likely that the reason for such mixed findings might at least partly be explained in relation to the findings from the current research. Additional

analysis of the low intending sub-group of non-virgins in the intervention study was conducted in line with theory proposed by Gollwitzer and colleagues (e.g. Gollwitzer, 1993; Gollwitzer & Brandstätter, 1997; Gollwitzer & Schaal, 1998). They purported that there are two distinct processes to implementing a behavioural goal. The first process (motivational) involves making a decision to act or forming an intention to achieve goal “x”. This process can be considered analogous with holding positive beliefs and attitudes, and having appropriate levels of self-efficacy or other social cognitive antecedents of behaviour (that form the constructs of models such as the TPB, TTM or HBM), such that intentions to perform a behaviour or achieve a goal are formed. The second process (volitional) involves making specific plans in line with the intention that has been formed about *how* the behavioural goal will be achieved (see section 1.8.4 above, on page 60).

Although social cognition models such as the TPB propose that high intentions to perform a behaviour should be a good predictor of actual behaviour, meta-analytic reviews have suggested that intention is a relatively poor predictor of behaviour with levels of around only 27% of variance in behaviour explained (e.g. Armitage & Conner, 2001). It has therefore been proposed that even when intentions or motivation to perform a behaviour or achieve a goal are high, other factors, such as competing intentions or forgetting about the intention, may impede the translation of intention into action (Sheeran, 2002; Sheeran et al., 2005). Sheeran et al. (2005) suggest that where participants already hold high intentions to perform a health behaviour, but have difficulty in translating those intentions into actions, volitional interventions, such as encouraging the formation of implementation intentions (Gollwitzer, 1993) will be more successful than motivational interventions in affecting behavioural change. Empirical support has been found for this assertion (see Milne et al., 2002; Orbell & Sheeran, 2000; Prestwich et al., 2003; see also section 1.8.4 above, on page 60 of this thesis).

Given that analysis of all non-virgins within the current thesis showed that there was no significant increase in self-reports of effective contraceptive use, and their mean level of intention was already high at the outset of the intervention study ($m = 6.01$ on a scale of 1 to 7 where 7 is high), it seems likely that the intervention materials provided, which focused on motivational level cognitive variables, were not able to initiate changes in motivation that could be translated into action across the sample as a whole. However, because analysis of the sub-sample of low-intending non-virgins showed that significant increases in self-reports of contraceptive behaviour had occurred, it can be concluded that where intentions to use contraception effectively were initially relatively low amongst the sexually active participants, the motivationally based intervention materials were sufficient to not only increase levels of intention, but for those intentions to translate into self-reported behavioural change. These significant increases appear to have been masked when high-intending non-virgins were included in the original analysis of non-virgins because the high intenders needed a more volitional type intervention to affect behavioural change.

If this is the case, then discrepancies in the findings of existing motivationally based theory-driven interventions might similarly be explained. Where an impact on behaviour has been found it may be the case that participants' initial intentions were low enough for increases in intention to translate to behavioural change (e.g. Armitage & Conner, 2002; Quine et al., 2001). For studies where behavioural change was not detected (e.g. Evans & Norman, 2002; Gillmore et al., 1997), it may be that levels of intention were too high initially for motivational increases to impact beyond the volitional level, and volitional interventions may have been more effective. Thus, a potential avenue for future contraceptive research is the development of appropriate volitional interventions, but these will need to address the complexity involved in

making specific plans about a behaviour where time and context are often unknown (see section 1.8.4 above, on page 60; and for further discussion see 7.2.4 below).

If it is accepted that self-reported behavioural change amongst initially low intending non-virgins is explained by the fact that motivational interventions are effective for them and not for those who had higher intentions, the reason those high intentions were not being translated into action to begin with needs to be further addressed. There are two likely explanations. Firstly, it is possible that a sub-sample of the initially high intending non-virgins who cannot translate their intentions into actions account for the overall non-significant impact on behaviour, and it is they who would specifically benefit from volitional interventions. Secondly, it is possible that the shift in motivations achieved here for the low intenders was sufficient to initialise a shift in behaviour, but that over time, whilst intentions may remain high, volitional interventions are required, such as the forming of implementation intentions (Gollwitzer, 1993), or some other form of intervention, in order to maintain the shift in behaviour. Further research involving a greater number of post-intervention data collection points may illicit data that could more fully address this issue (see section 7.2.4 below).

7.2.4. Avenues for further research

In Chapter 6 suggestions were made for how future research might build on the findings of the present research (see 6.5.5 above, on page 259 and 6.5.6 above, on page 267). Here, these suggestions are extended in light of further discussion within the current Chapter. Further intervention research aiming to improve adolescent contraceptive use that builds on the findings of this thesis could usefully address several issues. Firstly, it could attempt to differentiate between effects that are due to the manipulation of intervention conditions, and those that are due to the impact of questionnaire items. Therefore a true control condition would be required. This was

only possible in the current thesis because there was no effect of condition and post-hoc analysis of a no-intervention control group was possible. Secondly, there is a need to increase the likelihood that there will be an effect of condition manipulation.

Consideration of the current findings suggest that this may be possible through increasing motivation and incentive to engage and be involved with intervention materials (Krahé et al., 2005; Wight et al., 2002), and through moderate message repetition (Petty & Cacioppo, 1989). Lastly, ensuring the design of the study is appropriate for detecting effects (should they exist) is crucial. Thus, the time frame of the study could be increased to identify any longer-term impacts of the intervention on behaviour. Furthermore, there is likely to be some benefit in developing and evaluating implementation intention based volitional interventions, testing the relative impact of these on initial high and low intenders amongst participants. The reason that this kind of volitional motivation was not originally considered for the intervention study within the current thesis related to the difficulty in achieving this with a behaviour as complex as contraceptive use (see section 1.8.4 above, on page 60). Future research would need to address issues relating to adolescents who are not yet having sex, the availability of a variety of contraceptive methods for achieving effective contraceptive use, and the effective and responsible use of emergency contraception in its methodology. This may be more easily achievable with interactive computer based intervention technology compared with paper and pen based tasks, since computer tasks can be designed to contain neat links to different versions of materials dependent on the needs of a participant, rather than needing to provide copious versions of materials on paper.

The following proposed design, which would aim to determine whether a theory-based intervention was more effective than information alone, could address the developments suggested above. Baseline measures could be taken from two matched

groups (questionnaire only group and combined group) of adolescents relating to psychological constructs of interest, intention and behaviour. A further matched group (intervention only group) should be identified but not measured at baseline. Following this, intervention materials would be administered to the combined group who were measured at baseline. They would also be administered to the intervention only group who were not measured at baseline, but *not* administered to the questionnaire only group. Repetition of materials and the inclusion of incentives to be involved should be used to increase the likelihood that intervention materials will be persuasive. For all those in the combined group, continued assessment with questionnaires would be used immediately after intervention implementation has finished and at several time points post intervention. The questionnaires would also be provided at the same time points to the questionnaire only group. At one final time point all three groups would be asked to fill in questionnaire items that relate purely to intention to use contraception and contraceptive behaviour. In addition, half of all participants in each of the groups could be asked to make implementation intentions that would aid the process of achieving effective contraceptive use for them, at the first intervention implementation time point. The design is illustrated in table 7.2 below.

Assuming that numbers of participants were great enough²⁴, and matched allocation of participants to groups was achieved, this proposed design would allow comparison of the impact of just getting intervention materials, just getting questionnaires and getting both, on intentions and behaviour. It would also allow assessment of whether implementation intentions improved the translation of intentions into action across all three conditions differentially for those with initial high levels of intention compared to those with initial low levels. In each of the groups receiving interventions it would also

Table 7.2 Proposed design for building on the findings of the current intervention study

	Questionnaire only group	Combined group	Intervention group
Baseline measures (T1)	✓	✓	x
Intervention and/or implementation intentions for half participants in each group (T2)	x	✓	✓
Intervention (T3)	x	✓	✓
Intervention and/or questionnaire (T4)	No intervention provided	✓	No questionnaire provided
Questionnaire (T5)	✓	✓	x
Questionnaire (T6)	✓	✓	x
Final intention and behaviour measure (T7)	✓	✓	✓

be necessary to have an intervention and control condition to detect effects of condition manipulation, and to compare theory-driven materials with basic educational/information-only materials. Increasing the length of the study and the number of time-points for questionnaire administration would also allow for detection of longer term effects on behaviour as well as immediate impacts on psychological constructs.

²⁴ Estimated sample size by the final time point would need to be around 255 based on an α -level of .05 and a medium effect size (see Field, 2005, p34). Given that attrition in the current three time-point study was 40%, even larger attrition rates would need to be taken into consideration at initial recruitment.

7.3. Methodological issues

A number of methodological issues have been raised throughout the thesis with both practical and theoretical implications, and these are discussed below.

7.3.1. *Issues relating to virgin status*

There are some firm indications that different variables may be important for intervening with virgins compared with non-virgins. Evidence for this comes partly from the fact that different effects were seen for virgins compared with non-virgins in the intervention study. For example, normative beliefs and self-efficacy showed increases for virgins but not for non-virgins, and these findings were explained in terms of virgins' initial lower levels of confidence in ability and greater emphasis placed on the opinions of others, which may be due to their current lack of personal experience with contraceptive use (see 6.5.5 above, on page 259). Furthermore, data analysis reported in Chapter 5 showed that normative beliefs and moral norms had the highest effect sizes on variables that differed between intending and non-intending virgins, compared with self-efficacy and control beliefs for the non-virgins in the sample (see 5.2.5 above, on page 172). Although for the purposes of the present research it was decided to prioritise those who were already having sex in the intervention, it may be the case that future research should deal with virgins and non-virgins separately in terms of selecting variables to target for intervention. Indeed, although strategies for implementing interventions to virgins and non-virgins separately would need to be given careful consideration²⁵, it may well be the case that tailoring interventions to different sub-groups is more effective than tailoring interventions for those in different SOC for contraceptive use. Indeed, further research may well confirm that tailoring interventions to have greater motivational or volitional components dependent on levels

²⁵ It was not attempted in the current research because of the problem of identifying virgins and non-virgins publicly.

of intention with regards contraceptive use is an appropriate way of maximising behavioural change. The findings of Armitage and Conner (2002) would certainly support the notion that the sub-groups of baseline high fat consumers and baseline low fat consumers require different interventions in order to reduce overall fat consumption. This is because their results showed that whilst their intervention decreased levels of fat intake for initially high fat consumers, they increased fat consumption amongst initial low-fat consumers (Armitage & Conner, 2002).

Other findings from this thesis hold implications for the development of interventions tailored to SOC for contraceptive use. A secondary aim of this thesis was to assess whether evidence could be found for the departure from linearity of variables that discriminated between the SOC for contraceptive use (see 1.5.5 above, on page 26; 2.2 above, on page 71; 4.8.2 above, on page 163). Had evidence for this been found, there would have been grounds for basing tailored-for-stage interventions on those variables identified by DFA. However, in accordance with the assertions of Sutton (2000a), little evidence was found for departures from linearity and an intervention aimed at the whole sample was therefore deemed justifiable. However, as Wight et al. (2002) suggest, in relation to their sex education intervention research, there may be sub-groups within a sample that have been affected by the intervention, that are masked in analysis of the whole sample. This was found to be the case in relation to low-intending sexually active participants as a sub-sample of the present intervention and it may be, for example, that adolescent participants are also differentially affected by intervention material aiming to improve contraceptive use, dependent on other characteristics, such as their level of academic ability or achievement, for example. This was perhaps reflected to some degree by findings in the qualitative study reported in this thesis (see Future aspirations and prototype similarity, on page 102) that suggested future aspirations (in relation to academic achievement and career success)

may be linked to desire to prevent pregnancy and effective contraceptive use. It certainly seems feasible that adolescents who are more focussed and willing to engage with their academic schoolwork would also be more likely to engage effectively with sexual health intervention materials and related questionnaires delivered to them in a school setting.

Related to this, is the possibility that participants may be differently affected by intervention materials dependent on their age. In the current research ages of participants ranged quite widely from 14 to 19 years. This age range was selected because it included those identified as having the most problematic rates of unintended pregnancy that have been the focus of the government's teenage pregnancy strategy (e.g. Summerfield & Babb, 2004; SEU report, 1999). The reason age was not taken into consideration as a potential IV was because the research aimed to assess whether it was possible to deliver an intervention that could be effective regardless of the age of participants. Although it is accepted that that effective contraceptive use increases with age anyway (e.g. Ranjit et al., 2001), it was felt it would be useful to have intervention materials that could be applied globally to all ages of adolescents (or at least those aged 14 – 19 years). The results of the current thesis suggest that this is possible. Future research looking to develop interventions may however, benefit from collating greater levels of demographic data, and including further analysis of such data in dissemination of findings than was obtained or provided in the current thesis, so that further important sub-group differences that could be relevant for intervention development could be identified.

This thesis has argued for a one size fits all intervention, developed to improve effective contraceptive use amongst adolescents, regardless of the specific method of contraception chosen. The findings suggest that this approach has been successful in

terms of positive increases in several DVs including intention and behaviour amongst the sample. The findings also indicate support however, for the potential advantages of providing more specific interventions, tailored to the needs of certain sub-samples, as outlined above. In particular, sub-samples of virgins vs. non-virgins and low intenders vs. high intenders have demonstrated differences in intervention outcomes (see 6.4.4 above, on page 226 and 6.4.6 above, on page 243). Checks were also included in analyses in relation to gender and relationship status, to assess whether differences due to these variables existed. Findings suggested that as far as DVs that were the focus of the intervention study were concerned, gender and relationship status were not problematic in terms of differential intervention outcomes (see 5.4 above, on page 177 and 6.4.6 above, on page 243). Despite this, there were indications that males and females may score differently from one another (see Effect of gender, on page 224). The difference in scores suggests that males were generally less positive about contraceptive use than females, meaning it is possible that interventions could be designed that might be more effective, if tailored for males vs. females, for example.

However, there are certain limitations associated with developing sub-group tailored interventions. Further research is required to identify and provide evidence for, from the many possibilities, the most appropriate sub-groups to focus on for intervention design. In addition, research would be required to evaluate the efficacy of interventions based on those sub-groups. Intervention research conducted in this area would also need to either accommodate the increased complexity of developing materials and questionnaires that can provide the specificity required no matter who receives them (i.e. provide a choice of different materials dependent on sub-group membership of each participant), or ethically identify particular sub-groups to work with. Where the former approach is adopted, research would also need to consider problems

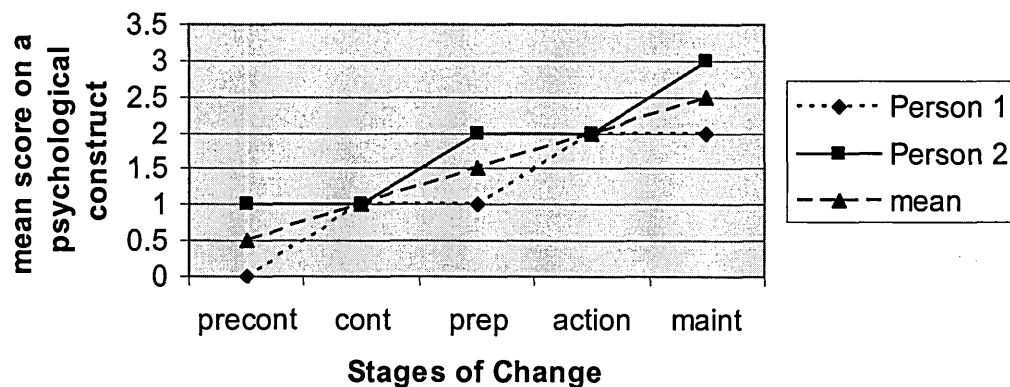
associated with requiring participants to follow fairly complex instructions. Challenges such as these highlight the successful outcomes achieved by the efficiency of the one size fits all approach adopted in the current thesis.

A further outcome of the research within this thesis, relating to SOC again is that this measure was inappropriate when applied to those who had not yet begun to have sexual intercourse, since virgins can only ever achieve preparation for effective contraceptive use (see 4.8.3 above, on page 164). This problem, coupled with the finding that there was little evidence to support the departure of variables important in discriminating the SOC from linearity, led to a focus on the use of more TPB-based outcome measures and a TPB-style intervention design. It is arguably the case that targeting virgins in contraceptive use intervention research is important, since they can potentially be prevented from ever engaging in unsafe sexual practices. Yet despite this, other research that has looked at contraceptive use and the TTM has tended to focus solely on those who are already engaging in sexual intercourse (e.g. Galavotti et al., 1995; Grimley & Lee, 1997; Grimley et al., 1997; Lauby et al., 1998; Noar et al., 2001).

However, whilst it was appropriate to relinquish use of the TTM and SOC for the measurement of participants in the current thesis because of the inclusion of virgins, it is suggested that SOC may still be a useful outcome measure when samples contain only non-virgins. It may also offer a useful theoretical basis for intervention design given that there have been some successful reports of the impacts of interventions based on this model (e.g. Prochaska & Prochaska, 2005; Smith & DiClemente, 2000). Potentially, the reason why successes have been achieved in the application of TTM tailored-to-stage behavioural interventions when there is evidence that the SOC are not discrete stages as asserted by its key proponents (e.g. Prochaska & DiClemente,

1983), may be that the claims made about different variables being important for transition between each stage are too rigid. Developmental stage theories tend to argue that a particular form of cognitive ability or development characterises a stage, making it qualitatively different from other stages, but simultaneously recognise that people and their rates of progression vary. For example, Goswami (2001) explains in relation to Piaget's cognitive developmental model that he recognised, 'the chronology of the stages might be extremely variable, and that such variability might also occur *within* a given stage.' (p260). Thus, if the same logic is applied to the SOC, it might be argued that rather than one variable being important in moving from precontemplation to preparation and another important for movement from preparation to action, in the context of a given behavioural domain and population, different variables may be important to different people within the same SOC of the same behavioural domain and population. If this is the case, then targeted interventions may still work, as long as there are enough people for whom the targeted variable is appropriate to effect change within the sample selected, whilst evidence for discontinuity of variables by SOC may be masked by differences in the importance of variables for different people within the same stage. Figure 7.1 below illustrates the way in which discontinuity from continuous linear increases across the stages may be masked by the presence of people for whom a particular psychological construct is important, but at different stages. For example, Person 1 needed increases in this variable to get from precontemplation to contemplation (needed increases in another variable instead) but person 2 did not, thus, in combination the mean increase in levels of this variable appears linear across the stage (cf. Sutton, 2000a).

Figure 7.1 Illustration of how differences between participants on a variable which departs from linearity across the SOC might mask the discontinuity pattern



7.3.2. Issues relating to variable selection

Further secondary aims within this thesis, leading to the development of the intervention, were the identification of variables most appropriate for targeting in the intervention, and assessment of whether variables external to the core constructs of the TPB might be important in distinguishing between effective and less effective contraceptive users. Because the aim was not to develop an intervention based around a specific theory *per se*, but to select a small number of the best potential targets, it is possible that limiting the selection of variables has meant some important variables were not targeted. For example, normative beliefs were shown in Chapter 5 to be important in distinguishing between high and low intenders amongst virgins (see 5.2.2 above, on page 169). Normative beliefs also showed significant increases amongst this sub-group in the intervention study. Had manipulation of normative beliefs been attempted in the intervention materials, it may have been successful, and produced greater levels of increases in this variable that may also have extended to outcome measures. Future research in this area, such as the research design suggested in 7.2.4 above, on page 286 might incorporate an intervention condition that

simultaneously targets a greater number of variables than those targeted in the present research. Adequate justification for their inclusion would need to be provided, and careful manipulation checks conducted for each variable, but such a condition could then simply be compared to an information-only control, in order to combat this limitation, without the need to include multiple intervention conditions as well as comparisons of questionnaire only and intervention only conditions.

In relation to the aim addressing critique of the TPB for not explaining sufficient variance in intention and behaviour (e.g. see Armitage & Conner, 1998; Rutter & Quine, 2002), this thesis offered some support for extension of the model to include moral norms (for sub-samples of virgins; see 5.3.2 above, on page 174) and anticipated regret for both virgins and non-virgins in contraceptive intervention research. However, the current research does not represent a test of the TPB and the utility of additional predictors in relation to contraceptive use, and thus, further research that does attempt this is needed to fully address the question of whether variables external to the TPB add to the predictive ability of the model in this behavioural domain.

7.3.3. Pregnancy prevention versus STI prevention

Finally, the focus of the present intervention development was the prevention of unintended pregnancy amongst adolescents, rather than the prevention of the spread of STIs. Thus, the promotion of any method of contraception that is effective at preventing conception was of interest. However, care had to be taken to ensure that STI prevention was not ignored and that contraceptive methods that do not protect from STI infection were not promoted at the expense of condom use promotion. In some cases, even where manipulation of variables in relation to contraceptive pill use may have been more effective for the long-term aim of reducing unintended pregnancies, some compromises had to be reached in relation to questionnaire items

and the content of intervention materials, so that pill use was not promoted over condom use. This may have implications in relation to promotion of contraception at a population level and the prevention of teenage pregnancy in the UK (see 7.4 below).

Related to the issue of a focus on pregnancy prevention rather than STI prevention is the fact that a decision was made to use a global self-report behavioural outcome measure of 'effective contraceptive use' rather than more specific behaviours such as, for example, 'effective condom use' or 'effective pill use'. This was done because much of the existing literature has focussed on specific contraceptive methods, such as condom use (e.g. see Albarracín et al., 2001; Godin et al., 2005; section 1.7.9 above, on page 52), or pill use (e.g. Moore et al., 1996), or hormonal methods in isolation (e.g. Guendelman et al., 2000; see 1.7 above, on page 42). The present thesis therefore aimed to examine contraceptive use generally. To look at all effective methods or allow consideration of all effective contraceptive behaviours individually however, would have complicated the design and development of questionnaires and intervention materials, because although research has shown that greater specificity of a behavioural measure increases predictive ability of social cognitive models and thus, effectiveness of intervention (e.g. carrying a condom vs effective condom use; Armitage & Arden, unpublished manuscript), greater specificity results in greater distance from desired end goal (e.g. carrying a condom is relatively easier to increase as a behavioural outcome but is not as good as increasing effective condom use). In order to achieve the aim of this thesis, which was to increase effective contraceptive use generally, whatever contraceptive method that might incorporate, many different specific behavioural measures would need to have been included, proving complex and impractical. Furthermore, splitting effective contraceptive behaviour into different categories such as pill use or condom use would have meant reducing sample sizes for analysis depending on the preferred method of choice of participants. Thus, a global

outcome measure of 'effective contraceptive use' was deemed appropriate for meeting the aims of the research in a parsimonious manner.

7.4. Implications for teenage pregnancy prevention in the UK

The findings from this thesis have implications for the wider issue of tackling high rates of teenage pregnancy within the UK. This issue was raised in Chapter 1, and a brief overview of the Government's approach to reducing these rates was provided (see section 1.2 above, on page 2). It was argued that the Government has based its approach on largely anecdotal evidence provided by the SEU report (1999), and made assumptions about the underlying causes of high rates of pregnancy, that over-simplify the reasons why contraception is not used or used ineffectively or inconsistently by adolescents. This thesis has not identified a comprehensive selection of variables that have a causal relationship with unintended pregnancy. It has however attempted to identify variables that have an established predictive relationship with effective contraceptive and/or condom use, that are also potentially amenable to change. Social cognitive theory suggests that successful manipulation of such variables provides the potential to effect change in behaviour, which in this case, would be improved use of contraception that could reduce the occurrence of unintended pregnancy. Findings have suggested that manipulation of these 'motivational' variables has had an impact on the behaviour of those who initially had low intentions to use contraception effectively. This is an important finding in relation to developing ways to reduce unintended teenage pregnancy rates.

The Government, which announced its teenage pregnancy strategy in 2001, aimed to reduce conceptions amongst those aged under 18 years of age by half by the year 2010. Although some reduction in rates has been reported nationally, it is not at a level that would suggest that this target will be met in five years time, and the latest figures

available suggest that rates have risen again (Quarterly Conceptions for women aged under 18, 2004). At the end of section 1.2 above, on page 2, it was argued that in order for effective interventions to be implemented to improve adolescent contraceptive use, and decrease pregnancy rates, research grounded in theory needed to be employed. This is an argument that has been made within health psychology in relation to health behaviour generally (e.g. Rutter & Quine, 2002) and in relation to the development of sexual health interventions (Bowen, 1996). The reason for this is twofold. Firstly, theory-driven interventions have been shown to be successful in bringing about effective behaviour change where other interventions have failed (e.g. Bowen, 1996). Secondly, when research and intervention are based in theory and empirically assessed using rigorous scientific methodology, it is possible to identify exactly what has helped to effect change, or conversely, what has not worked and potentially why. Findings can then be used to progress the body of knowledge and increase the likelihood of success in the future.

Thus, it is argued that where the Government are seeing limited success in their approach to decreasing rates of teenage pregnancy, they are largely unable to identify the reasons why. In contrast, the present research has been able to identify successes, such as an increase in self-reports of contraceptive use amongst low intending non-virgins, and their likely causes. In addition, it has been possible to understand potentially why some research predictions, such as behaviour change for all sexually active participants were not achieved, and consider ways of dealing with this in future research. For example, it may be the case that volitional interventions could increase the translation of intention into action amongst initially high intending participants. Thus, it is argued that the Government's teenage pregnancy strategy would be better placed to achieve its goals if it adopted similar theory-driven approaches to tackling the issue.

Of course the British Government is not solely concerned with reducing rates of teenage pregnancy, it is also concerned with reducing social exclusion related to young motherhood (see SEU report, 1999), and reducing rates of STI infection amongst the adolescent population (The national strategy for sexual health and HIV: Implementation action plan, 2002). As outlined above, it is not appropriate to promote only methods of contraception that are most effective in preventing conception (e.g. the contraceptive pill), since this could potentially reduce pregnancy rates at the expense of increased rates of STI infection. It may therefore be the case that the most effective interventions for improving contraceptive use and reducing unintended pregnancy rates have to be compromised to some extent to include the promotion of condoms. The intervention study reported in the current thesis included materials and questionnaire items relating to both the contraceptive pill and condoms. Despite this compromise, significant increases in intentions to use contraception, self-reports of contraceptive use and other psychological variables associated with contraceptive use were found. This is an important finding in relation to the utility of practical applications of theory-based interventions should they be applied at a population level. Larger scale research is needed to establish whether self-reported behavioural change can extend to actual reductions in unintended adolescent pregnancy rates.

7.5. Summary

This thesis has reported the findings of qualitative and quantitative research aiming to develop an intervention study based on variables identified as being most strongly associated with effective contraceptive use, and designed to increase levels of effective contraceptive use in adolescents. The main finding has been that the relatively brief intervention materials that attempted to manipulate self-efficacy and anticipated regret across four intervention conditions have not shown differential impacts on levels of the

DVs measured. However, there is evidence to suggest that the questionnaires, which were received by most participants on three occasions, have acted as interventions which have led to increases in levels of five psychological variables, including intention to use contraception effectively and self-reports of effective contraceptive behaviour on every occasion of sexual intercourse. The reasons for these findings were explored in relation to the literature (see 7.2.1 above, on page 275 and 7.2.3 above, on page 279). In addition, the wider implications for theory-based intervention research, for the finding that questionnaires have acted as interventions were explored (see 7.2.2 above, on page 277). It was asserted that future research designs need to incorporate ways of establishing whether effects can be attributed to the manipulation of intervention conditions alone, or whether questionnaires by themselves are partly or wholly responsible for changes observed (see 7.2.2 above, on page 277). Development of volitional interventions may also be important given the fact that the largely motivational intervention that was the focus of the present research only affected the behaviour of those with low intentions at the outset of the intervention study.

The implications of the findings for the direction of future research were then considered with specific reference to differentiating between intervention and questionnaire effects, and increasing the likelihood of successful condition manipulation. A suggestion was made for the way in which a study design could be implemented to achieve these aims. Some of the methodological issues, both practical and theoretical, were then discussed. The issues covered included problems relating to having virgins and non-virgins within the same sexual health research, particularly in relation to use of the SOC as an outcome measure, and it was suggested that interventions may need to target different variables to successfully impact upon these, and other potential sub-groups. Also covered were issues relating to the potentially

limiting impact of selecting only a few variables to target, and the need to promote condoms as well as methods more effective at preventing pregnancy.

Finally, the implications of this research for teenage pregnancy prevention in the UK were addressed. It was argued that using a theory-based approach has enabled identification of elements of successful and less successful outcomes, and provided ways of exploring the reasons why such outcomes were achieved or not achieved. Applying such approaches to the treatment of high rates of teenage pregnancy nationally, it was argued, would allow for greater identification of the reasons why strategies do or do not work. When they *do* work, methods for extending the strategy could be identified more easily, and when they do *not* work, the reasons why could be better understood, and alternative ways forward identified. The significant increases in intention to use contraception and contraceptive behaviour achieved in this research can be seen as an important first step in making progress towards an evidence and theory-driven approach to tackling the issue of high rates of unintended pregnancy amongst adolescents in the UK.

7.6. Conclusion

In conclusion, it can be said that the current thesis has made some substantial and important contributions to the body of knowledge in relation to health behaviour change intervention research and potential avenues for increasing the uptake of effective contraceptive use amongst British adolescents.

The intervention study itself has clearly had a positive impact since significant increases in levels of five psychological constructs were found. These included self-efficacy relating to contraceptive use, normative beliefs about contraceptive use, anticipated regret relating to non-use of contraception, positive outcome beliefs relating

to pill use and pregnancy prevention, and crucially, intention to use contraception effectively amongst the sample as a whole. Most importantly though, increases in levels of self-reported effective contraceptive behaviour were also found for a sub-group of participants who had relatively low intentions to use contraception at the outset of the research. The fact that this has been achieved over a relatively short period of time, apparently through the completion of paper and pen-based questionnaires, is promising in terms of the potential to effect change in the cognitive antecedents of contraceptive use, and contraceptive use itself, quickly and relatively inexpensively. In addition, the finding that questionnaires may have been largely responsible for the impact achieved is important in terms of the interpretation of existing intervention evaluation findings *and* has important implications for the design of theory-based interventions that need to be evaluated in the future. It is necessary to consider whether the impact of interventions seen in published research is solely due to the intervention manipulations administered when evaluating such research, and future work should bear in mind the potential impact that questionnaire items can have on the constructs they aim to measure.

The findings have also added to evidence relating to critiques of the TTM and the TPB. When applied to general contraceptive behaviour, there is evidence that variables that discriminate between the SOC are linearly related to the SOC, and thus support has been provided for the argument that stage-matched interventions may not be the most appropriate method of effecting behavioural change (Sutton, 2000a). Furthermore, the thesis has provided evidence that variables external to the core constructs of the TPB may well be important in promoting effective uptake of contraception, particularly when targeting those who have not yet begun to have sex.

Finally, this thesis has provided evidence for the strong advantage theory-based intervention development has over other approaches currently being used by the British Government. The likely reasons for successes and failures can be isolated and used as building-blocks for progressing research, increasing the chances of reaching ambitious targets, such as halving teenage pregnancy rates by the year 2010 (SEU report, 1999).

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Appendix 1 – Questions used as guide for semi-structured interviews in the qualitative study

- Establish the kind of sexual relationship(s) the respondent is in, in order to guide the interview appropriately.
e.g. single but having casual sex from time to time.
in a long-term sexual relationship and living together (married or otherwise).

How would you describe your relationship status?

What kind of sexual relationships do you have at the moment?

What about in the past?

.....

- **Experience of different methods of contraception**

Can you tell me about some of your experiences with contraception?

When you have sex, what method(s) of contraception do you usually use?

Have you used other methods in the past?

-the first time of intercourse, what was used?

How do you/did you feel about this method(s) of contraception?

-easy to use

-difficult to use

-are you good at using it?

-partner good at using it?

-like it/dislike it?

What problems have you had with using a contraceptive method?

Have you tried a method that did not suit you?

How has your use of contraception changed over time?

-what has changed about it?

- **Obtaining Contraception**

Where have you got advice or information about contraception from?

-did you find this helpful?

-did you receive it at an appropriate time?

Have you ever encountered any problems obtaining contraception when you've wanted it?

Can you tell me about your experiences of getting hold of contraception?

Where would you/do you go to get hold of contraception?

How does needing to get hold of contraception make you feel?

How do you feel about going to get a method of contraception?

- have you been happy talking to doctors/nurses/clinic workers about methods of contraception and what's right for you?

Can you tell me about experiences of talking to friends or relatives about contraception?

- what do you talk about?
- do they tell you about their own experiences?

Have you ever had concerns about a contraceptive method being harmful to you?

- **Failed contraception**

What risks have you taken with contraception?

- missed a pill and still had sex?
- not used a condom?

What would you do if the condom you were using broke during sex?

- has it ever happened to you?
- how did it make you feel?
- what did you do?

How did your partner react to the failed contraception?

- did you discuss it?
- anxiety/argument? Or calmly find solution?

Have you ever had the morning after pill?

- what was it like?

Participant Information Sheet

The study that I am working on is about contraception and unwanted pregnancy. It involves talking to different people about contraception, and finding out what they think, and what their experiences of it are. I am hoping to find out more about what helps people to be better at using contraception, and what makes contraceptive methods difficult to use. I am interested in talking to anyone who has ever been involved in a heterosexual relationship, or thinks they will be likely to engage in such a relationship in the future.

I would very much appreciate your participation in this study, if you feel you would like to volunteer. Firstly though, I would like you to read through the following questions and their answers, so that you understand more about what you would be involved in.

Why have you asked me to take part?

Unplanned and unwanted pregnancies happen all the time to women of all ages, in all walks of life. Needless to say, both men and women have a part to play. I need to talk with men and women, of different ages and with different experiences, in order to find out why, despite all of the contraceptive methods available, many people still experience unwanted pregnancy. No one participant will be able to help answer that question alone. The combination of your help as well as many other peoples' help will enable me to do this.

What will I be required to do?

If you decide you would like to take part, you will be asked to spend some time talking with me about contraception. I will want to know about your experiences, your feelings, your beliefs and your attitudes, and I will want to hear as much of what *you* have to say as possible. It will be necessary for me to tape record our conversation so that I can write it all down at a later date. Please be assured that any information you give me will be **confidential** and **anonymous**. No-one else will know what you talked to me about, and I won't tell anyone. The tape recorded material that I take with me will be kept locked away, and when I have written it all down, I will wipe the tape.

Where will this take place?

The interview will take place in private so that no one else will know what you have said, and in a place where you feel comfortable to talk.

How often will I have to take part and for how long?

Most participants will only need to take part in one interview, which need only last as long as you want it to. I'm hoping that most people will talk for between half an hour and an hour, but if we talk for longer or less time, then that is fine too. I may ask you to have a second interview at a later date, if for example, we still have lots to say but we cannot continue at the first session. However, this will be entirely voluntary, as is your participation in an initial interview. I may also ask, if you are in a relationship, if your partner might also be interviewed.

Again, you and your partner will be under no obligation to say yes.

What if I do not wish to take part?

If you do not wish to take part then you do not have to. Your participation is completely voluntary, and I do not wish anyone to take part that does not want to. It is important that all participants are happy to take part.

What if I change my mind during the study?

If you decide part way through, or at any time afterwards, up until the deadline for changes, that you no longer want to take part, then you are completely free to withdraw without giving a reason. Additionally, if you decide that there is a part of what you talked about that you do not want to be used, you are entirely free to say so during the interview time, or at any point up until shortly before the final report is completed.

When will I have the opportunity to discuss my participation?

Should you decide you might like to be involved, I will ensure that we spend time before the interview making sure you have had all your questions and queries answered, and you will be free to ask questions at any other time prior to, or after the interview. When we have finished our interview, I will also allow time for you to ask questions and to tell you more about what will be done with the recorded information you have given. My contact details are given at the end of this information sheet should you wish to get in touch regarding your participation.

Who will be responsible for all this information when this study is over? Who will have access to it? And what will happen to it?

I will be the only person responsible for this information, both throughout the study and when it is over, and I will be the only person who has access to the tape recordings. Every participants' tape recording will be written out so that they can be analysed together, and I will be the only person who has access to this material too. As soon as a recording has been written out it will be wiped from the tape. The interview material will not be discussed with anyone other than my supervisory team at the university, and only then if it is necessary for the purposes of carrying out my work.

I am hoping that when a full report of the findings from this study has been written, it will be published in a Psychology Journal. This means that people will read the finished work. However, no one will be able to identify you, as all names you use, including your own will be changed. The report will later become part of a much larger piece of work, so some of the information you give me may be mentioned in that too. No one else will be given the information to use in any other work.

There may be occasions in the future where I give presentations or speeches to people about my work. Under such circumstances I may talk about this

particular study and mention examples of the information I have received from you. Again, your real name will not be used. Any personal details I take from you, such as your name and contact details, will be coded and stored entirely separately from all other information you give to me. A code and a code name will identify all other information only.

How long is the whole study likely to last?

The study was being planned from early January, and it is hoped will be complete by the end of April this year. Because at some stage (hopefully the end of April) I will finish writing this report, there is a time limit for contacting me about taking information you gave in your interview out of the study. At this stage I will estimate that no more changes can be made after the middle of April.

How can I find out about the results of the study?

If you are interested in learning what the results have shown then you can contact me for information regarding this. I will produce a fact sheet to supply to anyone who is interested. This will be available in early May.

If you have any other questions that you would like answering, please do not hesitate to ask. If you think of something later you can contact me without hesitation. Details are as follows;

**Katherine Brown.
Centre for Research on Human Behaviour
School of Social Science and Law
Collegiate Crescent Campus
Sheffield Hallam University
Sheffield
S10 2BP**

Tel: 0114 225 2541 or 0114 225 4428

E-mail: Katherine.E.Brown2@student.shu.ac.uk

Appendix 3 – Participant consent form for the qualitative study

Participant Consent Form

Factors influencing the effectiveness of contraceptive use: An exploratory study

Please answer the following questions by circling your responses.

Have you read the information sheet about this study? **YES** **NO**

Are you happy to talk about this topic? YES NO

Have you been able to ask questions about this study? YES NO

Have you received answers to all your questions? YES NO

Have you been given enough information about this study? YES NO

Are you aged sixteen or over? YES NO

Who have you spoken to about this study?

Do you understand that you are free to withdraw from this study:

-at any time until the? YES NO

-without giving a reason? YES NO

Do you agree to take part in this study? YES NO

Your signature will certify that you have voluntarily agreed to take part in this research study and are happy at this time to talk about the subject under investigation, having read and understood the information in the sheet for participants. It will also show that you have had adequate opportunity to discuss the study with an investigator, and that all your questions have been answered to your satisfaction.

Signature of participant:..... Date:.....

Name (block letters):.....

Signature of investigator:..... Date:.....

Participant Code:.....

Please keep your copy of the consent form and the information sheet together.

Contact Details: Katherine Brown. Centre for Research on Human Behaviour, School of Social Science and Law, Sheffield Hallam University, Collegiate Crescent Campus, Sheffield, S10 2BP. Tel: 0114 225 2541 / 0114 225 4428.

Appendix 4 – *Worked example of the analytic procedure for IPA*

This example shows how transcribed interview material was analysed, and contributed to one of the themes presented in Chapter 3 of this thesis – 3.6.1 Negativity relating to knowledge of contraception and 3.6.1.1 Others' contraceptive use: The importance of anecdotal evidence.

The transcript appears in the central column, with initial notes made appearing in the left hand margin in blue and later stage annotations relating to themes that developed appearing in the right-hand column in green.

When all transcripts had been read thoroughly and annotated in the left margin, further read-throughs led to summary notes encapsulating themes being made in the right-hand margin. Following this, all transcripts were compared to see how best themes could be grouped together (see Smith, Jarman & Osborn, 1999).

positive and negative responses to pregnancy	things like that, I think they'd respect any decision I made, but, I don't, still think there'd be little whispers, you know, about, it not bein' a good idea...	
	Int: Yeah, um, ... have you ever had any worries about using contraception...the contraceptive pill?	
Pill causes health problems	Jen: I have, have 'cos you read through the sheets that come with it and you got, you know, heart problems, breast cancer, an', an' all the like, you know, getting...blood clots and stuff like that, an' you think, my God, you know, is this a good idea, but my mum, used the same, er, make as I did for five years, and she didn't have a problem, an' it's a really old make that's been around for a while, so, I thought, well, 'cos I go every, every, like three months to have it checked and things like that, so I'm, I'm, I don't know really, I don't think, I don't 'ave that many worries about it. Jamie was, my boyfriend, he was very, 'e thought, oh God, no, we'll just you know, not bother, 'cos 'e's right worried 'bout me, you know, bein' poorly and things like that, but, I think it's better to be safe than sorry, um, you know, loads of people use them, um, I were thinking, if me mum had a problem then, you know, I wouldn't but, she were all right with it, an' I'm basically the same as 'er, so, ...	Negativity relating to contraception
Trusts method mum used		Anecdotal advice important
Trust built with time		
Gets health checked regularly		
Communication with boyfriend – potential non-use		What boyfriend thinks is important – anecdotal evidence
Pregnancy safety more important to her – health safety more important to him	Int: Yeah, okay, with the condom side of things, have you ever had an experience with a condom splitting, or ..breakin' or comin' off?	Same as mum – anecdotal evidence
Same as mum – anecdotal evidence	Jen: No, not that I've known of, no (laughs)	
	Int: Excellent, um, okay, you said that you get quite a lot of advice, you get quite a lot of advice, information from your mum, what about other sources of, sort of, help and advice? What have they been like?	
Reliance on friends where contraception concerned	Jen: Um, friends and school, 've been a real help, you know, 'cos if you ever have a trouble then you, I, I've got friends to go and say, oh my God, you know, might not, not good. Um, an' at school they did tell you quite a lot about all the different types an, an what to do with each one which is, I think I were quite lucky in that respect, 'cos some people don't get, to know, and plus me mum, was a great source of information (laughing), bu, you know, she would be. I think me mum and dad'd rather me, um, ...know about it, and sort it out than turn up pregnant, and that's why they're a bit easy an' my, my dad, I don't talk to 'im about it all, but that's just a usual thing...	Others' experiences important – anecdotal evidence
Factual info from school		
Mother is source of info and advice		Mum and dad important anecdotal evidence

Appendix 5 Questionnaires I

Appendix 5a – First version of questionnaire – Male



Private and Confidential Questionnaire

Only fill in this questionnaire if you are male. If you are female and you have accidentally been given this questionnaire, please ask for the female version.

This questionnaire is part of a study on the use of contraceptives by young people. Thank you for agreeing to take part in this research. Your name is not asked for at any point in the questionnaire, so your answers will remain confidential.

Please write in the boxes below, the day and month of your birthday (for example if your birthday is February the 19th, you'd write **19 / 02**) followed by the first three letters of your Mother's Maiden Name (for example, Jones would be JON).

___ / ___ _ _ _

Please note that you will not have to fill in *all* the questions in this questionnaire, but *please* do follow the instructions carefully.

There follows a series of questions. Please answer each question by either writing in the space provided, or, by ticking the correct box.

Section 1- Some questions about you

1. How old are you? _____ years
2. Which of the following best describes your relationship status?

	tick
	box
Single	<input type="checkbox"/>
Single but seeing people	<input type="checkbox"/>
Have had one girlfriend for less than one year	<input type="checkbox"/>
Have had one boyfriend for less than one year	<input type="checkbox"/>
Have had one girlfriend for one year or more	<input type="checkbox"/>
Have had one boyfriend for one year or more	<input type="checkbox"/>
Having relationships with more than one person at the same time	<input type="checkbox"/>

This questionnaire is about contraceptive use in young people. When the questionnaire refers to *sex* or *sexual intercourse* it is asking about sex where the penis enters the vagina, even if this does not result in orgasm by either partner.

	Yes	No
3 Have you willingly had sexual intercourse with a female?	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
4 Have you willingly been involved in sexual intimacy with a male?	<input type="checkbox"/>	<input type="checkbox"/>

5 How often do you have sex? Please tick the box that best describes you.	tick box
Never (I am a virgin)	<input type="checkbox"/>
I have had sex before but not having it at the moment	<input type="checkbox"/>
Occasionally (Less than once a month)	<input type="checkbox"/>
About once a month	<input type="checkbox"/>
Not every week, but more than once a month	<input type="checkbox"/>
About once a week	<input type="checkbox"/>
Not every day, but more than once a week	<input type="checkbox"/>
Every day	<input type="checkbox"/>

	Yes	No
6 Do you have any religious beliefs that affect your use of contraception? (If no, please go to Question 8 below)	<input type="checkbox"/>	<input type="checkbox"/>

7. If yes, please describe briefly in the box below what those beliefs are, and how they affect, or would affect your contraception use.

8. Which of the following methods of contraception do you and your partner(s) use? Please tick as many as apply. tick box
- None (not having any sexual relationships at present) ☐
 - None (trying to get girlfriend pregnant) ☐
 - None (not bothered whether get girlfriend pregnant or not) ☐
 - Sometimes none (we just take a risk) ☐
 - Withdrawal method ☐
 - Rhythm method ☐
 - Spermicide ☐
 - Condoms ☐
 - Femidoms ☐
 - Contraceptive pill ☐
 - Intrauterine device (IUD) or coil ☐
 - Diaphragm or cervical cap ☐
 - Hormonal implants ☐
 - Hormonal injections ☐
 - Persona ☐
 - I am infertile ☐
 - My girlfriend is infertile ☐
 - I have had a vasectomy ☐
 - My girlfriend has had a hysterectomy ☐
 - Other (please specify in the box below) ☐

If you **do not** use contraception at the moment, for whatever reason, please now fill in Section 2 on page 4, and then go to Section 7 on page 12.

If you **do** use contraception at the moment, please fill in Section 3 on page 6, and then **one** of either Sections 4, 5 or 6, before proceeding to Section 7 on page 12.

Section 2 – Non-contraception users

Only answer the questions in this section if you do not currently use contraception. If you do use contraception miss out this section and go to section 3 on page 6.

Yes No

- 1 If you do not use a method of contraception, have you ☐ ☐
used one in the past? (If no, go to Question 3 below)

2. If yes, what method(s) did you use? Please give as much detail as possible, including how long you used it / them for, and why you no longer use the method(s).

3. Has anything ever gone wrong with contraception you have used in the past, such as a condom splitting, or a girlfriend missing a pill? Then go to Question 6 below.

Yes No

- 4 If you have never used contraception, have you ever ☐ ☐
considered using it? (If no, please go to Question 6
below)

5. If yes, what method(s) have you considered?

6. Why did you decide not to use it/them?

- | | Yes | No |
|---|--------------------------|--------------------------|
| 7 If you do not currently use contraception, are you considering using contraception at some point in the next 6 months? (If no, please go to section 7 on page 12) | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Yes | No |
|---|--------------------------|--------------------------|
| 8 Do you have a method or methods in mind? (If no, please go to Question 9 below) | <input type="checkbox"/> | <input type="checkbox"/> |

9 If yes, please state what it / they are in the box below.

10. Why are you considering starting to use contraception?

- | | Yes | No |
|--|--------------------------|--------------------------|
| 11 If you do not currently use contraception, are you considering starting to use contraception within the next month? (If no, please go to Question 13 below) | <input type="checkbox"/> | <input type="checkbox"/> |

12. If yes, what method(s) are you considering using?

13 Why are you considering starting to use contraception in the next month?

- 14 Have you done any of the following regarding obtaining contraception in the last 6 months? Please tick as many as apply. tick box
- Visited your doctor/nurse/family planning clinic ☐
- Visited your pharmacist ☐
- Purchased condoms/femidoms/spermicide ☐
- Talked to someone about using contraception ☐
- 15 Have you done any of the following regarding obtaining contraception in the last month? Please tick as many as apply. tick box
- Visited your doctor/nurse/family planning clinic ☐
- Visited your pharmacist ☐
- Purchased condoms/femidoms/spermicide ☐
- Talked to someone about using contraception ☐

Please go to section 7 on page 12.

Section 3 – Contraception users

Please answer the questions in this section if you currently use contraception. If you do not use contraception, please go to section 7 on page 12.

1. What would you say is your main method of contraception?

- 2 How long have you been using your main method of contraception for? Please tick one box which best describes you. tick box
- Less than a month ☐
- Between 1 and 6 months ☐
- About 6 months ☐
- Between 6 months and 1 year ☐
- More than 1 year ☐

		Yes	No
3	Do you use any other methods of contraception as well? (If no, please go to Section 4 below)	<input type="checkbox"/>	<input type="checkbox"/>

4. If yes, what other method(s) do you use? Please give as much detail as possible, including how long you have used it / them for.

5 If you answered that you use another method as well as your main method, how often is it used? Please tick the box that best describes how often your other method is used. tick box

Absolutely always, without fail ☐

Almost always, but always if the main method is at risk of failing (e.g. always use a condom if a pill has been missed or taken late) ☐

Almost always ☐

Most of the time ☐

About half of the time ☐

Sometimes ☐

Occasionally ☐

Very rarely ☐

Other (Please specify in the box below) ☐

Section 4 – Barrier method users

If you answered in section 3 on page 6, that either condoms, femidoms, the diaphragm/cap, the rhythm method, persona, withdrawal and/or spermicide is your **main** method of contraception, then please answer the questions in this section. If you answered that another method is your **main** method then please go to section 5, on page 9.

	Yes	No
1 Did you use your main method of contraception properly the last time you had sexual intercourse? (If no, please go to Question 3 below)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
2 If yes, did the method work properly, as far as you know? (If no, please go to Question 3, if yes, go to Question 4 below)	<input type="checkbox"/>	<input type="checkbox"/>

3. What went wrong, and what did you do about it? Please explain in the space provided below.

--

	Yes	No
4 During the last six months, (or however long you have been using your main method if less than six months) have there been any occasions when you have failed to use your method, or something has gone wrong with your contraception. For example, if condoms are your main method, has a condom broken or come off during sex, or did you have sex without using a condom? (If no, please go to Section 7 on page 12)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
5 If yes, has it happened more than once	<input type="checkbox"/>	<input type="checkbox"/>

6. What have you and your girlfriend done about it? Please explain in the space provided below.

	Yes	No
7 If your girlfriend took emergency contraception, has she always taken it within the last six months, if you have thought something may have gone wrong with your contraception?	<input type="checkbox"/>	<input type="checkbox"/>

Please now go to section 7 on page 12.

Section 5 – Contraceptive pill users

Please answer the following questions if you answered in Section 3 on page 6, that your girlfriend's contraceptive pill is your **main** method of contraception.

If you said that another method of contraception was your **main** method, then please go to section 6 below, on page 11.

	Yes	No
1 Does your girlfriend take the pill as a method of preventing pregnancy?	<input type="checkbox"/>	<input type="checkbox"/>
2. If she takes the pill for any other reason that you know of, please explain in the box below.		

	Yes	No
3 Has your girlfriend missed a pill, or taken a pill more than 12 hours late at any time over the last month, that you know of?	<input type="checkbox"/>	<input type="checkbox"/>

- | | Yes | No | |
|--|--------------------------|--------------------------|-------------|
| 4 Has your girlfriend missed a pill, or taken a pill more than 12 hours late at any time over the last 6 months (or for as long as she has been taking it, if under 6 months) that you know of? (If no, please go to Question 6 below) | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5 When my girlfriend has missed a pill or taken it more than twelve hours late in the last six months she has; (Please tick as many as apply) | | | tick
box |
| Ignored the fact that she missed a pill, and had sex within 7 days | | <input type="checkbox"/> | |
| Followed the advice on the packet | | <input type="checkbox"/> | |
| Taken the missed pill as soon as she remembered and avoided having sex for at least 7 days | | <input type="checkbox"/> | |
| Taken the missed pill as soon as she remembered, had sex, but used another contraceptive method e.g. a condom for at least 7 days | | <input type="checkbox"/> | |
| Asked her doctor or family planning clinic for advice | | <input type="checkbox"/> | |
| I do not know what she has done | | <input type="checkbox"/> | |
| Done something else (please explain in the box below) | | <input type="checkbox"/> | |

- | | Yes | No |
|---|--------------------------|--------------------------|
| 6 Has there been an occasion in the last six months when you had sex with your girlfriend, not knowing she had forgotten to take a pill? (If no, please go to Question 8 below) | <input type="checkbox"/> | <input type="checkbox"/> |

7. What did you do when you realised? Please explain in the box below.

	Yes	No
8 Has there been an occasion in the last six months when you had sex knowing your girlfriend had missed a pill in the last seven days, without using another contraceptive method, such as a condom? (If no, please go to section 7 on page 12)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
9 Did you and she do anything to try and stop her from getting pregnant after you had had sex?	<input type="checkbox"/>	<input type="checkbox"/>

10. Please explain what you did in the space below. If you and she did not do anything, please explain your reasons.

Please go to section 7, on page 12.

Section 6 – Doctor dependent method users

Please answer the questions in this section if you answered in section 3 on page 6, that an IUD / Coil, hormonal implants or hormonal injections as used by your girlfriend, are your main method of contraception.

	Yes	No
1 Has your girlfriend experienced any problems with her main method of contraception? (If no, please go to Section 7 on page 12)	<input type="checkbox"/>	<input type="checkbox"/>

2. If yes, please explain briefly what this problem(s) was, and what was done about it, if anything.

Please answer Section 7 on page 12.

Section 7 – For all participants to answer

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1 Has your girlfriend experienced a missed or late period in the last 6 months, that you know of? (If no, please go to Question 3 below) | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. If yes, what do you think was the reason your girlfriend missed a period, or that her period was late? Please explain briefly in the space provided below. | | |

- | | | |
|---|---------------------------------|--------------------------------|
| 3 Have you thought that you and your girlfriend might have an unplanned pregnancy in the last 6 months? | Yes
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 4 Have you found out that you and your girlfriend have an unplanned pregnancy in the last 6 months? | Yes
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 5 Have you and your girlfriend had a baby that was unplanned in the last 6 months? | Yes
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 6 Has your girlfriend had a pregnancy terminated in the last 6 months? | Yes
<input type="checkbox"/> | No
<input type="checkbox"/> |
| 7 Has your girlfriend miscarried an unplanned pregnancy in the last 6 months? | Yes
<input type="checkbox"/> | No
<input type="checkbox"/> |

Section 8

Thoughts and feelings about contraceptive use.

Over the page are a series of statements about contraception. Read each statement carefully, and then mark beside it the response that you most agree with, by ticking the correct box.

For each statement, please give a reply, by ticking one of the boxes. There are two examples of how to do this below:

EXAMPLE 1:

If you **agree** with statement number 10, you would tick box number **2** as shown below:

↓

	1 strongly agree	2 agree	3 slightly agree	4 neither agree or disagree	5 slightly disagree	6 disagree	7 strongly disagree
10 Over the last 6 months I have noticed that people are becoming more positive about contraceptive use	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EXAMPLE 2:

If you **strongly disagree** with statement number 10, you would tick box number **7** as shown below:

↓

	1 strongly agree	2 agree	3 slightly agree	4 neither agree or disagree	5 slightly disagree	6 disagree	7 strongly disagree
10 Over the last 6 months I have noticed that people are becoming more positive about contraceptive use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Thoughts and feelings about contraceptive use.

		1 strongly agree	2 agree	3 slightly agree	4 neither agree or disagree	5 slightly disagree	6 disagree	7 strongly disagree
1	Over the last 6 months I have become increasingly aware of my risk of causing a pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Over the last 6 months I have been thinking about how I feel about myself in relation to my contraceptive use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Over the last 6 months I have chosen an effective method of contraception and become committed to using it properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	During the last 6 months, if I have had no way of using an effective method of contraception for sex, I have found other ways of satisfying myself and my girlfriend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Over the last 6 months I have avoided people, places and situations that might lead to having sex without an effective method of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Over the last 6 months I have rewarded myself for engaging in safer sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Over the last 6 months I have always had someone to talk to, share feelings with, and get feedback from, regarding my experiences with using contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Over the last 6 months I have felt worried, concerned or scared when I have thought about people my age getting pregnant because they did not use contraception effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Over the last 6 months I have thought about how not using contraception properly, could affect my family and my girlfriends(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Over the last 6 months I have noticed that people are becoming more positive about contraceptive use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Over the last 6 months I have felt more positive about my assertiveness in sexual situations, and the use of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 9

Asking about the advantages and disadvantages of contraceptive use.

Please answer the following questions, by ticking the appropriate box as you did in section 8, above. *This time you are being asked how important each statement is to you in your decision to use contraception.*

		1 Very important	2 important	3 slightly important	4 Neither important or unimportant	5 slightly unimportant	6 unimportant	7 Very unimportant
1	...protection from unwanted pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	...protection from sexually transmitted infections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	...contraception being easily available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	...being personally responsible for my own sexual health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	...contraception being affordable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	...protecting my girlfriend from disease and unwanted pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	...feeling safe from pregnancy and disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	...feeling sensible and grown-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	...feeling as though you are doing your bit to prevent public health problems from growing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	...girlfriend having less painful periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	...girlfriend having lighter periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1	2	3	4	5	6	7
	How important in your decision to use contraception is...	Very important	Important	slightly important	Neither important or unimportant	slightly unimportant	unimportant	Very unimportant
12	...girlfriend being able to choose to not have a period some months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	...experiencing hassle using a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	...decreases in sexual pleasure because of a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	...a girlfriends' reaction to a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	... a girlfriends' co-operation in using a contraceptive method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	...the amount it costs to buy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	...embarrassment about obtaining contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	...being able to discuss contraception with a girlfriend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	...having to remember to make appropriate plans to use contraception properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	...the idea that wanting to use a condom / femidom may suggest your girlfriend is diseased or make them feel unloved and untrusted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	...worry about girlfriend taking a foreign substance or inserting a foreign object as a contraceptive method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	...fear of unwanted side-effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	...the physical feel and fit of a condom / femidom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How important in your decision to use contraception is...		1 Very important	2 Important	3 slightly important	4 Neither important or unimportant	5 slightly unimportant	6 unimportant	7 Very unimportant
25	...your girlfriend being protected from unwanted pregnancy and disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	...being able to have sex whenever you want to without having to think about contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 10

Looking at how confident you feel about using contraception

Please answer the following questions, by ticking the appropriate box as you did in section 8 & 9, above. *This time you are being asked how confident you feel about carrying out each item.*

Please answer each item in relation to how you feel about your main method of contraception. If you do not have a main method, answer in relation to how you feel about the method you know most about, or have most experience of.

How confident are you that you...		1 Very confident	2 confident	3 slightly confident	4 Neither confident or unconfident	5 slightly unconfident	6 unconfident	7 Very unconfident
1	... can use your main method of contraception, or the method you know most about properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	... will use a contraceptive method effectively next time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	... will use a contraceptive method effectively every time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	... will use a contraceptive method effectively if you have been drinking or taking drugs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**How confident are you
that you...**

1	2	3	4	5	6	7
Very confident	confident	slightly confident	Neither confident or unconfident	slightly unconfident	unconfident	Very unconfident

5	... will use a contraceptive method effectively if a girlfriend does not want you to?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	... will use a contraceptive method effectively if a girlfriend suggests using a risky method like withdrawal before ejaculation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	...will not have sex if there is no method of contraceptive protection available to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for taking part in this questionnaire.

**If you have any questions about the questionnaire please feel free to ask
the researcher before you leave.**

**If you would like to ask any questions at a later date, or feel you would like
to withdraw from the research (you do not have to give a reason) then use
the contact details provided at the end of your participant information
sheet.**

Re.C.A.P.P.

(Research into Contraception and Pregnancy Prevention)



Appendix 5b – Full version of questionnaire – Female (green)

Re.C.A.P.P.

Research into Contraception and Pregnancy Prevention



FEMALE PRIVATE AND CONFIDENTIAL QUESTIONNAIRE

Only fill in this questionnaire if you are female. If you are male and you have accidentally been given this questionnaire, please ask for the male version.

This questionnaire is part of a study on the use of contraceptives by young people. Thank you for agreeing to take part in this research. Your name is not asked for at any point in the questionnaire, so your answers will remain confidential.

Please write in the spaces below, the day and month of your birthday (for example if your birthday is **February the 19th**, you'd write **19 / 02**) followed by the first three letters of your Mother's Maiden Name (for example, **Jones** would be **JON**).

___ / ___

Please note that you will not have to fill in *all* the questions in this questionnaire, but *please* do follow the instructions carefully. You will find all instructions are written inside grey boxes like this one, so make sure you read every grey box you come across.

If you have any questions that you wish to ask before you start then please feel free to ask. If you need to ask a question part way through filling in the questionnaire then please raise your hand and a teacher or researcher will come to you.

There follows a series of questions. Please answer each question by either writing in the space provided, or, by ticking the correct box.

Section 1- Some questions about you

1. How old are you? _____ years
2. Which of the following best describes your relationship status? tick box
- Single ☐
- Single but seeing people ☐
- Have had one girlfriend for less than one year ☐
- Have had one boyfriend for less than one year ☐
- Have had one girlfriend for one year or more ☐
- Have had one boyfriend for one year or more ☐
- Having sexual relationships with more than one person at the same time ☐

This questionnaire is about contraceptive use in young people. When the questionnaire refers to sex or *sexual intercourse* it is asking about sex where the penis enters the vagina, even if this does not result in orgasm by either partner.

3. Have you willingly had sexual intercourse with a male? Yes No
- ☐ ☐
4. Have you willingly been involved in sexual intimacy with a female? Yes No
- ☐ ☐

- 5 **How often do you have sex? Please tick the box that best describes you.** tick box
- Never (I am a virgin) ☐
- I have had sex once before but not in the last 6 months ☐
- I have had sex once before and it was during the last 6 months ☐
- I have had sex two or three times only, but not in the last 6 months ☐
- I have had sex two or three times only, and it was during the last 6 months ☐
- I have had sex more than 3 times but not during the last 6 months ☐
- During the last 6 months I have had sex occasionally (Less than once a month) ☐
- During the last 6 months I have had sex about once a month ☐
- During the last 6 months I have had sex not every week, but more than once a month ☐
- During the last 6 months I have had sex about once a week ☐
- During the last 6 months I have had sex not every day, but more than once a week ☐
- During the last 6 months I have had sex every day ☐

- | | Yes | No |
|---|--------------------------|--------------------------|
| 6 Are you currently in any relationships where you have sex with a male? | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Yes | No |
|--|--------------------------|--------------------------|
| 6 Do you have any religious beliefs that affect your use of contraception? (If no, please go to Question 8 below) | <input type="checkbox"/> | <input type="checkbox"/> |

7. If yes, please describe briefly in the box below what those beliefs are, and how they affect, or would affect your contraception use.

8. Which of the following methods of contraception do you and your boyfriend(s) currently use? Please tick as many as apply. tick box
- | | |
|--|--------------------------|
| None (not having any sexual relationships at present) | <input type="checkbox"/> |
| None (trying to get pregnant) | <input type="checkbox"/> |
| None (not bothered whether get pregnant or not) | <input type="checkbox"/> |
| Sometimes none (we just take a risk) | <input type="checkbox"/> |
| Withdrawal method | <input type="checkbox"/> |
| Rhythm method | <input type="checkbox"/> |
| Spermicide | <input type="checkbox"/> |
| Condoms | <input type="checkbox"/> |
| Femidoms | <input type="checkbox"/> |
| Contraceptive pill (combined oral – 21 days on and 7 days off/7 dummy pills) | <input type="checkbox"/> |
| Contraceptive pill (progesterone only – 28 days continuous) | <input type="checkbox"/> |
| Intrauterine device (IUD) or coil | <input type="checkbox"/> |
| Diaphragm or cervical cap | <input type="checkbox"/> |
| Hormonal implants | <input type="checkbox"/> |
| Hormonal injections | <input type="checkbox"/> |
| Persona | <input type="checkbox"/> |
| I am infertile | <input type="checkbox"/> |
| My boyfriend is infertile | <input type="checkbox"/> |
| I have had a hysterectomy | <input type="checkbox"/> |
| My boyfriend has had a vasectomy | <input type="checkbox"/> |
| Other (please specify in the box below) | <input type="checkbox"/> |

If you **DO NOT** use contraception at the moment, for whatever reason then please fill in Section 2 below. Then go on to fill in Section 7 on page 13.

If you **DO** use contraception at the moment then please turn to Section 3 on page 8. You will then need to fill in either Section 4, Section 5 OR Section 6, depending on the type of contraception you use as your main method. Instructions are given at the beginning of each section to remind you if you should fill it in or not. After this, please go to Section 7 on page 13.

Everyone must then fill in Section 8 onwards.

Section 2

Non-contraception users only

Only fill in this section if you are **NOT** using contraception at the moment, even though you may have used it in the past. If you use contraception at the moment please go to Section 3 on page 8.

- | | Yes | No |
|--|--------------------------|--------------------------|
| 1 Although you do not use contraception now, have you used it in the past? (If no, go to Question 4 below) | <input type="checkbox"/> | <input type="checkbox"/> |

2. If yes, what method(s) did you use? Please give as much detail as possible, including how long you used it / them for, and why you no longer use the method(s).

3. Has anything ever gone wrong with contraception you have used in the past, such as a condom splitting, or forgetting to take a pill? If it has, explain briefly in the box below and then go to Question 7 below.

- | | Yes | No |
|--|--------------------------|--------------------------|
| 4 Although you have never used contraception, have you ever considered using it? (If no, please go to Question 7 below) | <input type="checkbox"/> | <input type="checkbox"/> |

5. If yes, what have you considered using, and why?

6. Why have you not gone on to use the method(s) you considered?

- | | Yes | No |
|--|--------------------------|--------------------------|
| 7 Although you do not use contraception at the moment, are you considering using contraception at some point in the next 6 months? (If no, please go to section 7 on page 12) | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Yes | No |
|--|--------------------------|--------------------------|
| 8 Do you have a particular method or methods in mind? (If no, please go to Question 10 below) | <input type="checkbox"/> | <input type="checkbox"/> |

9. If yes, please state which method(s) in the box below.

10. Why are you considering starting to use contraception?

Yes No

- 11 If you do not currently use contraception, are you considering starting to use contraception within the next month? (If no, please go to Question 14 below)

☐☐

- 12 If yes, what method(s) are you considering using?

- 13 Why are you considering starting to use contraception in the next month?

- 14 Have you done any of the following regarding obtaining contraception in the last 6 months? Please tick as many as apply. tick box

Visited your doctor/nurse/family planning clinic

☐

Visited your pharmacist

☐

Purchased condoms/femidoms/spermicide

☐

Talked to someone about using contraception

☐

- 15 Have you done any of the following regarding obtaining contraception in the last month? Please tick as many as apply. tick box

Visited your doctor/nurse/family planning clinic

☐

Visited your pharmacist

☐

Purchased condoms/femidoms/spermicide

☐

Talked to someone about using contraception

☐

That is the end of section 2. Please now go to Section 7 on page 13, and fill in all sections from there onwards.

Section 3

For all contraception users

Please answer the questions in this section if you are using contraception at the moment. It doesn't matter what type(s) of contraception they are.

If you do not use contraception at the moment, you should have already filled in Section 2. You do not need to fill in this section and you now need to go to Section 7 on page 13.

1 What would you say is your main method of contraception? Please answer in the box below.

2 How long have you been using your main method of contraception for? Please tick one box which best describes you.

tick

box

Less than a month

☐

Between 1 and 6 months

☐

About 6 months

☐

Between 6 months and 1 year

☐

More than 1 year

☐

3 Do you ever use any other methods of contraception as well? (If no, please go to Section 4 on page 9)

Yes

No

☐☐

4 If yes, what other method(s) do you use? Please give as much detail as possible, including how long you have used it / them for in the box below.

- 5 **If you answered that you use another method as well as your main method, how often is it used?** Please tick the box that best describes how often your other method is used. tick
box
- Absolutely always, without fail ☐
- Almost always, but always if the main method is at risk of failing (e.g. always use a condom if a pill has been missed or taken late) ☐
- Only when the main method is at risk of failing ☐
- Almost always ☐
- Most of the time ☐
- About half of the time ☐
- Sometimes ☐
- Occasionally ☐
- Very rarely ☐
- Other (Please specify in the box below) ☐

That is the end of Section 3. You now need to answer either Section 4, Section 5 OR Section 6. Read the instructions below carefully to decide which section you should fill in.

Section 4

People whose main method is a barrier method

If you answered in Section 3 on page 8 that either condoms, femidoms, the diaphragm/cap, the rhythm method, persona, withdrawal and/or spermicide is your main method of contraception, then please answer the questions in this section. If you answered that another method is your main method then please go to section 5, on page 11.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1 Did you use your main method of contraception properly the last time you had sexual intercourse?
(If no, please go to Question 3 below) | <input type="checkbox"/> | <input type="checkbox"/> |

	Yes	No
2 If yes, did the method work properly, as far as you know? (If no, please go to Question 3, if yes, go to Question 4 below)	<input type="checkbox"/>	<input type="checkbox"/>

3. What went wrong, and what did you do about it? Please explain in the box provided below.

	Yes	No
4 During the last six months, (or however long you have been using your main method if less than six months) have there been any occasions when you have failed to use your method, or something has gone wrong with your contraception? For example, if condoms are your main method, has a condom broken or come off during sex, or did you have sex without using a condom? (If no, please go to Section 7 on page 13)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
5 If yes, has it happened more than once?	<input type="checkbox"/>	<input type="checkbox"/>

6 What have you done about it? Please explain in the box provided below.

	Yes	No
7 If you took emergency contraception, have you always taken it within the last six months, if you have thought something may have gone wrong with your contraception?	<input type="checkbox"/>	<input type="checkbox"/>

That is the end of Section 4. Please now go to Section 7 on page 13.

Section 5

People whose main method is the contraceptive pill

Please answer the following questions if you answered in Section 3 on page 8, that the contraceptive pill is your main method of contraception. It does not matter whether you take the combined pill or the progesterone only pill.

If you said that another method of contraception was your main method, then please go to Section 6, on page 13.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1 Do you take the pill as a method of preventing pregnancy? | <input type="checkbox"/> | <input type="checkbox"/> |

2. If you take the pill for any other reason, please explain in the box below.

- | | Yes | No |
|--|--------------------------|--------------------------|
| 3 Have you missed a pill, or taken a pill more than 12 hours late at any time over the last 6 months? (or for as long as you have been taking it, if under 6 months) (If no, please go to Section 7 on page x) | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Yes | No |
|--|--------------------------|--------------------------|
| 4 Has there been an occasion in the last six months when you had sex, not realising you had forgotten to take a pill? (If no, please go to Question 6 below) | <input type="checkbox"/> | <input type="checkbox"/> |

- 5 What did you do when you realised that you had had sex that was not protected by the pill? Please explain in the box below.

	Yes	No
6 Has there been an occasion in the last six months when you had sex knowing you had missed a pill in the last seven days, without using another contraceptive method, such as a condom? (If no, please go to section 7 on page 13)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
7 Did you do anything to try and stop yourself from getting pregnant after you had had sex?	<input type="checkbox"/>	<input type="checkbox"/>

8 When I have missed a pill or taken it more than twelve hours late in the last six months I have; (Please tick as many as apply) tick box

Ignored the fact that I had missed my pill, and had sex within the next 7 days ☐

Followed the advice on the packet ☐

Taken the missed pill as soon as I remembered and avoided having sex for at least 7 days ☐

Taken the missed pill as soon as I remembered, had sex, but used another contraceptive method e.g. a condom for at least 7 days ☐

Asked my doctor or family planning clinic for advice ☐

Done something else (please explain in the box below) ☐

9 If you have missed a pill, or taken it more than 12 hours late in the last 6 months, how many times has this happened? Please give the number or a rough guess at the number in the box provided below.

That is the end of Section 5. Please now go to Section 7 on page 13.

Section 6

People whose main method is doctor dependent

Please answer the questions in this section if you answered in section 3 on page 8 that an IUD / Coil, hormonal implants or hormonal injections are your main method of contraception.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1 Have you experienced any problems with your main method of contraception? (If no, please go to Section 7 below) | <input type="checkbox"/> | <input type="checkbox"/> |

2. If yes, please explain briefly what this problem(s) was, and what was done about it, if anything.

That is the end of Section 6. Please now go to Section 7 below.

Section 7

Everyone should answer the next question.

- | | Yes | No |
|--|--------------------------|--------------------------|
| 1 Have you had sex with a member of the opposite sex at any time during the last 6 months? | <input type="checkbox"/> | <input type="checkbox"/> |

If you answered NO, then you can miss out the rest of this section and go to Section 8 on page 15.

If you answered YES then please continue to answer the questions in this section before going on to Section 8.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 2 Have you experienced a missed or late period in the last 6 months? (If no, please go to Question 3 below) | <input type="checkbox"/> | <input type="checkbox"/> |

3 If yes, what do you believe was the reason you missed a period, or that your period was late? Please explain briefly in the space provided below.

Yes No

- 4 Have you thought that you might have an unplanned pregnancy in the last 6 months? (If no, please go to question 6 below)**

☐ ☐

5 If yes, why did you think you might be pregnant? Please answer in the box below.

Yes No

- 6 Have you found out that you have an unplanned pregnancy in the last 6 months?**

☐ ☐

Yes No

- 7 Have you had a baby that was unplanned in the last 6 months?**

☐ ☐

Yes No

- 8 Have you had a pregnancy terminated in the last 6 months?**

☐ ☐

Yes No

9 Have you miscarried an unplanned pregnancy in the last 6 months?

☐
☐

Section 8

Everyone fills in this section

Over the page are a series of statements about contraception. Read each statement carefully, and then mark beside it the response that you most agree with, by ticking the correct box.

For each statement, please give a reply, by ticking one of the boxes. There are two examples of how to do this below:

EXAMPLE 1:

If you **agree** with a statement, you would tick box number **2** as shown below:

EXAMPLE 1:

1	2	3	4	5	6	7
strongly agree	agree	slightly agree	neither agree or disagree	slightly disagree	disagree	strongly disagree

eg

Over the last 6 months I have noticed that people are becoming more positive about contraceptive use

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

EXAMPLE 2:

If you **strongly disagree** with a statement, you would tick box number **7** as shown below:

EXAMPLE 2:

1	2	3	4	5	6	7
strongly agree	agree	slightly agree	neither agree or disagree	slightly disagree	disagree	strongly disagree

eg

Over the last 6 months I have noticed that people are becoming more positive about contraceptive use

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-------------------------------------

Section 8 Continued

Thoughts and feelings about contraceptive use

	1 strongly agree	2 agree	3 slightly agree	4 neither agree or disagree	5 slightly disagree	6 disagree	7 strongly disagree
Over the last 6 months I have noticed that people are becoming more positive about contraceptive use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have been thinking about how I feel about myself in relation to my contraceptive use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have become increasingly aware of my risk of getting pregnant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have thought about how not using contraception properly, could affect my family and my boyfriend(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have felt worried, concerned or scared when I have thought about people my age getting pregnant because they did not use contraception effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have felt more positive about my assertiveness in sexual situations, and the use of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have always had someone to talk to, share feelings with, and get feedback from, regarding my experiences with using contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have rewarded myself for engaging in safer sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have avoided people, places and situations that might lead to having sex without an effective method of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During the last 6 months, if I have had no way of using an effective method of contraception for sex, I have found other ways of satisfying myself and my boyfriend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over the last 6 months I have chosen an effective method of contraception and become committed to using it properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 9

Asking about the advantages of using contraception

The following 12 questions are about advantages that contraception may provide. Answer them as you did in the last section, by ticking the appropriate box. This time though, you are being asked how important each possible advantage is (or would be) to you, in your decision to use contraception.

	How important in your decision to use contraception is...	1 Very Important	2 Important	3 slightly important	4 neither important nor unimportant	5 slightly unimportant	6 unimportant	7 very unimportant
1	...protection from unwanted pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	...protection from sexually transmitted infections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	...contraception being easily available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	...being personally responsible for my own sexual health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	...contraception being affordable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	...protecting my boyfriend(s) from disease and unwanted pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	...feeling safe from pregnancy and disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	...feeling sensible and grown-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	...feeling as though you are doing your bit to prevent public health problems from growing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	...having less painful periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	...having lighter periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	...being able to choose to not have a period some months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 10

Asking about the disadvantages of using contraception

The following 12 questions are about disadvantages of contraception. Answer them as you did in the last section, by ticking the box. Remember you are being asked how important each possible disadvantage is (or would be) to you, in deciding to use contraception.

How important in your decision to use contraception is...

1 Very Important	2 Important	3 slightly important	4 neither important nor unimportant	5 slightly unimportant	6 unimportant	7 very unimportant
------------------------	----------------	----------------------------	---	------------------------------	------------------	--------------------------

...experiencing hassle using a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...loss of sexual pleasure because of a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...the possibility of a boyfriend not wanting to use a method, if you suggest it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...the fact that some methods need a boyfriend to co-operate with you to use them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...having to spend money on a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...embarrassment about getting hold of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...having to remember to make plans to use contraception effectively, if you know you are likely to have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...the possibility that some methods may be seen to suggest a boyfriend is diseased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...possible concern about inserting foreign objects or taking foreign substances with health risks as a contraceptive method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...fear of unwanted side-effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...the physical feel and fit of a condom / femidom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...not being able to have sex whenever you want to because contraception is an issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 11

Looking at how confident you feel about using contraception

Please answer the following questions, by ticking the appropriate box as you did in Sections 8, 9 & 10 above. *This time you are being asked how confident you feel about carrying out each item.*

Please answer each item in relation to how you feel about your main method of contraception. If you do not have a main method, answer in relation to how you feel about the method you know most about, or have most experience of.

How confident are you that you...	1 Very confident	2 confident	3 slightly confident	4 neither confident nor unconfident	5 slightly unconfident	6 unconfident	7 very unconfident
1 ...can use your main method of contraception, or the method you know most about properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 ...will use a contraceptive method effectively next time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 ...will use a contraceptive method effectively every time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 ...will use a contraceptive method effectively if you have been drinking or taking drugs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 ...will use a contraceptive method effectively if a boyfriend does not want you to?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 ...will use a contraceptive method effectively if a boyfriend suggests using a risky method like withdrawal before ejaculation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 ...will not have sex if there is no method of contraceptive protection available to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 12

Asking about your intentions to use contraception

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
I intend to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
I plan to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
I would like to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
I want to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
I expect to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 unlikely	7 very unlikely
How likely is it that you will use a method of contraception effectively every time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 13

Looking at your attitudes

Below are a list of statements which ask you to say how much you agree with them by ticking the correct box, as you have been doing on the sections before. After each statement though, you are also asked how Good or Bad something is. Look at the example below to see what you need to do.

EXAMPLE

If you feel that what is described in a statement is **UNLIKELY**, then you would tick box number 6 as shown below:

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
eg	If I took the pill / hormonal implants / hormonal injections / they might make me ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

You are then asked if the consequence of the above statement is a good or bad thing for you. If you think becoming ill is neither good nor bad then you would tick box number 4 as shown below:

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
eg	Becoming ill would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Attitudes toward contraceptive methods

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
1	If I took the pill / hormonal implants / hormonal injections / I would put on weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Putting on weight would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
If I took the pill / hormonal implants / hormonal injections / I would have problems with my periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Having problems with my periods would be ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
The pill / hormonal implants / hormonal injections / can cause cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Having cancer would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Taking the pill / hormonal implants / hormonal injections / could be poisonous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Having a poisonous substance in your body would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
9	Taking the pill / hormonal implants / hormonal injections / would be an easy way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
10	Contraception being easy is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
11	Taking the pill / hormonal implants / hormonal injections / could make my periods easier (e.g. less painful, shorter etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
12	Having easier periods would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
13	Taking the pill / hormonal implants / hormonal injections / is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
14	Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Taking the pill / hormonal implants / hormonal injections / is a responsible thing to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Being responsible is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
The pill / hormonal implants / hormonal injections / are easily available to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
A method being easily available is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
The pill / hormonal implants / hormonal injections / are affordable methods of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Contraception being affordable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
21	Taking the pill / hormonal implants / hormonal injections / requires or would require a lot of effort from me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	A method that requires a lot of effort is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
23	Condoms / femidoms can be an unsafe method of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Using a method that I do not feel is safe would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
25	Using a condom or a femidom can make sex awkward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	Using a method that makes sex awkward is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
7	Condoms / Femidoms are disgusting to touch						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
8	A method that is disgusting to touch is...						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
9	I believe that condoms / femidoms may not fit properly						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
	A method that doesn't fit is...						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
	Using a condom or a femidom can interrupt the flow of sex						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
	Interrupting the flow is...						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
33	Condoms / Femidoms can make sex more enjoyable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
34	Making sex more enjoyable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
35	Using a condom / femidom would make sex feel safer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
36	Feeling that sex is safe is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
37	Using a condom / femidom would make a boyfriend feel loved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
38	Making a boyfriend feel loved is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
9	Using a condom / femidom would make me feel responsible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
0	Feeling responsible is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
1	Using a condom or a femidom would mean less pleasure during sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
	Loss of pleasure during sex is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
	Using a condom / femidom means you have to rely on a boyfriend's co-operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
	Having to rely on a boyfriend's co-operation is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
45	Condoms and femidoms would be affordable for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
46	Contraception being affordable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
47	Buying condoms from a shop would make me embarrassed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
48	Being embarrassed is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
49	Using a condom / femidom is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
50	Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Using a condom / femidom is a reliable way to prevent the spread of Sexually Transmitted Infections (Sties)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Preventing the spread of STIs is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Using the withdrawal method to reduce the risk of pregnancy is better than not using anything at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Using a method that is better than nothing is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
The withdrawal method can be used at any time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
A method that is always available is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
57	Using the withdrawal method would not protect me from Sexually Transmitted Infections (STIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
58	Not being protected from STIs would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
59	Using the withdrawal method means relying on a boyfriend to pull out before ejaculation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
60	Having to rely on a boyfriend to do this is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
61	The withdrawal method is not a reliable method of preventing pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
62	A method that is unreliable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 14

Looking at how you feel about social pressure

Below are a several sets of paired questions that you should answer by circling the response that best explains how you feel. Do this in the same way that you responded to the last lot of questions toward the end of Section 13.

Please answer the questions even if you are not having sex. Try to imagine how you would think and feel if you were having sex

1 My friends think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

2 With regard to using contraception, how much do you want to do what your friends think you should?

Not at all

1 2 3 4 5 6 7

Very much

3 My parents think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

4 With regard to using contraception, how much do you want to do what your parents think you should?

Not at all

1 2 3 4 5 6 7

Very much

5 People who are important to me think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

6 With regard to using contraception, how much do you want to do what people who are important to you think you should?

Not at all 1 2 3 4 5 6 7 Very much
 7 My boyfriend(s) think that I should use contraception every time I have sex.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

8 With regard to using contraception, how much do you want to do what a boyfriend thinks you should?

Not at all 1 2 3 4 5 6 7 Very much

9 My doctor and / or other health workers I know think that I should use contraception every time I have sex.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

10 With regard to using contraception, how much do you want to do what your doctor or health workers think you should?

Not at all 1 2 3 4 5 6 7 Very much

Section 15

Looking at how much control you feel you have

The questions in this section again appear in pairs. Please answer them by circling your response as you did in the last section. Again try to imagine how you would feel, think and behave even if you are not having sex at the moment.

1 How often is your use of contraception affected by you taking drugs or alcohol?

Never 1 2 3 4 5 6 7 Always

2 If I have used drugs or alcohol before having sex, it makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

3 How often does the situation you are in (e.g. at a party or at home alone with your boyfriend) affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

4 The situations I am in when I have sex make my contraceptive use...

Much less likely 1 2 3 4 5 6 7 **Much more likely**

5 How often does the availability of contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

6 The availability of contraception makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 **Much more likely**

7 How often does the willingness of your boyfriend(s) to use contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

8 The willingness of my boyfriend(s) to use contraception makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

9 How often does the amount of knowledge you have about contraception affect your use of it?

Never 1 2 3 4 5 6 7 **Always**

10 My knowledge of contraception makes my contraceptive use...

Much less 1 2 3 4 5 6 7 **Much more**

likely
11 How often does your excitement or level of arousal during a sexual experience affect your use of contraception?

Never 1 2 3 4 5 6 7 Always

12 My excitement or level of arousal during a sexual experience makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

13 How often does your level of skill or competence at using contraception affect your use of it?

Never 1 2 3 4 5 6 7 Always

14 My level of skill or competence at using contraception makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

15 How often does your ability to discuss contraception with a boyfriend affect your use of contraception?

Never 1 2 3 4 5 6 7 Always

16 My ability to discuss contraception with a boyfriend makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

17 How often does your confidence in a sexual situation affect your use of contraception?

Never 1 2 3 4 5 6 7 Always

18 My confidence in a sexual situation means my use of contraception is...

Much less likely 1 2 3 4 5 6 7 Much more likely

Section 16

Looking at possible feelings of regret

Please answer the questions in this section by again circling the number on the scale which you think best matches how you feel about the question or statement.

1 If you had sex and did not use your chosen method of contraception, how much do you think you would regret it, the next day?

Not at all 1 2 3 4 5 6 7 **Very much**

2 If I failed to use my chosen method of contraception when I had sex, the next day I would feel...

Not at all worried	1	2	3	4	5	6	7	Very worried
--------------------	---	---	---	---	---	---	---	--------------

3 If you thought that it was possible you could be pregnant (e.g. because your period was late) and knew that you had failed to use a reliable method of contraception recently, how much would you regret not having used contraception?

Not at all 1 2 3 4 5 6 7 **Very much**

4 If you thought that it was possible you could be pregnant (e.g. because your period was late) and knew that you had failed to use a reliable method of contraception recently, how worried would you feel?

Not at all worried	1	2	3	4	5	6	7	Very worried
--------------------	---	---	---	---	---	---	---	--------------

5 How much of a problem would it be if you were to get pregnant in the next six months?

No problem at all	1	2	3	4	5	6	7	A very big problem
-------------------	---	---	---	---	---	---	---	--------------------

6 How much do you like the idea of being pregnant at this stage of your life?

Very much 1 2 3 4 5 6 7 **Not at all**

7 If you found out that you were pregnant, after failing to use a method of contraception, how much would you regret having not used contraception?

Not at all 1 2 3 4 5 6 7 Very much

8 If you found out that you were pregnant, after failing to use a method of contraception during sex, how worried would you be?

Not at all 1 2 3 4 5 6 7 Very worried
worried

9 Would an abortion be an option you feel you could consider if you were to have an unplanned pregnancy?

Definitely no 1 2 3 4 5 6 7 Definitely yes

10 How likely do you think you would be to have an unplanned pregnancy terminated?

Very unlikely 1 2 3 4 5 6 7 Very likely

Now think about a sexual experience you have had in the past where you have

- a) used contraception properly and**
- b) did not use contraception**

If you do not have experience of either one or both of these situations, please imagine that they have happened to you. Once you have imagined these two scenarios, or thought back to when they have happened to you, please turn to question 11 on the next page.

11a) How would you feel, or how did you feel after having sex when you USED contraception properly?

Unhappy	1	2	3	4	5	6	7	Happy
Concerned	1	2	3	4	5	6	7	Unconcerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried
Relaxed	1	2	3	4	5	6	7	Tense

11b) How would you feel, or how did you feel after having sex when you DID NOT USE contraception properly?

Unhappy	1	2	3	4	5	6	7	Happy
Concerned	1	2	3	4	5	6	7	Unconcerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried
Relaxed	1	2	3	4	5	6	7	Tense

Section 17

Looking at how likely teenage pregnancy is

Please answer the following questions in the same way as you have done in the previous section.

1 How likely is it that the average teenage girl will have an unplanned pregnancy?

Very unlikely	1	2	3	4	5	6	7	Very likely
---------------	---	---	---	---	---	---	---	-------------

2 How likely is it that you will have an unplanned pregnancy as a teenager?

Very unlikely	1	2	3	4	5	6	7	Very likely
---------------	---	---	---	---	---	---	---	-------------

3 How many teenagers do you think get pregnant each year in England?

Express your answer in terms of how many in every hundred. For example if you thought that very few get pregnant you might say **1 in a hundred teenagers get pregnant every year**. If you thought that half of all teenagers get pregnant every year you might say **50 in a hundred teenagers get pregnant every year**. Write your answer in the space provided below.

I think that _____ in a hundred teenagers get pregnant every year.

Section 18

Feelings about right and wrong

1 I think that it is only right that I should use contraception properly every time I have sex.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
----------------	---	---	---	---	---	---	---	-------------------

2 I think that it would be very wrong for me to have sex without using contraception.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
----------------	---	---	---	---	---	---	---	-------------------

Section 19

Looking at how you feel about yourself

1 I consider myself to be someone who practices safe sex.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
----------------	---	---	---	---	---	---	---	-------------------

2 I do not think I am responsible enough when it comes to using contraception properly.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
----------------	---	---	---	---	---	---	---	-------------------

Section 20

Looking at what you think of the type of teenager who gets pregnant or gets a girl pregnant

1 To what extent does each of the following adjectives describe the type of teenage girl who gets pregnant or teenage boy who gets a girl pregnant?

Please make your response by circling the number that shows best what you think.

Intelligent									
Not at all	1	2	3	4	5	6	7	Very much	
Confused									
Not at all	1	2	3	4	5	6	7	Very much	
Popular									
Not at all	1	2	3	4	5	6	7	Very much	
Immature									
Not at all	1	2	3	4	5	6	7	Very much	
Cool or sophisticated									
Not at all	1	2	3	4	5	6	7	Very much	
Self-confident									
Not at all	1	2	3	4	5	6	7	Very much	
Independent									
Not at all	1	2	3	4	5	6	7	Very much	
Careless									
Not at all	1	2	3	4	5	6	7	Very much	
Unattractive									
Not at all	1	2	3	4	5	6	7	Very much	

2 In general, how similar are you to the type of teenage girl who gets pregnant?

Not at all	1	2	3	4	5	6	7	Very much
------------	---	---	---	---	---	---	---	-----------

3 If you were out with a boyfriend and he wanted to have sex, but neither of you had used contraception (e.g. pill) or had any contraception with you (e.g. condom), how likely is it that you WOULD NOT HAVE SEX?

Not at all likely 1 2 3 4 5 6 7 Very likely

4 If you were out with a boyfriend and he wanted to have sex, but neither of you had used contraception (e.g. pill) or had any contraception with you (e.g. condom), how likely is it that you WOULD GO AHEAD AND HAVE SEX ANYWAY WITHOUT CONTRACEPTION?

Not at all likely 1 2 3 4 5 6 7 Very likely

Section 21

Looking at what you hope to achieve in the future

Below is a list of things that people might want to achieve in their lives.

If any of them are things that you would really like to achieve could you please tick the box next to them (if you have already achieved them, put a cross in the box).

From the items you have ticked can you then indicate the order of importance to you by ranking them. Put a 1 next to the item that is most important to you, and 2 by the second most important and so on.

- | | | |
|---|--------------------------|-----|
| Gaining GCSE's | <input type="checkbox"/> | ___ |
| Gaining A Levels or equivalent qualifications | <input type="checkbox"/> | ___ |
| Getting married | <input type="checkbox"/> | ___ |
| Having children | <input type="checkbox"/> | ___ |
| Getting a well paid job | <input type="checkbox"/> | ___ |
| Travelling the world | <input type="checkbox"/> | ___ |
| Buying your own home | <input type="checkbox"/> | ___ |
| Going to university | <input type="checkbox"/> | ___ |
| Getting a good degree | <input type="checkbox"/> | ___ |
| Own a car or have a company car | <input type="checkbox"/> | ___ |

That is the end of the questionnaire.

Thank you for taking the time to fill it in. It is very much appreciated.

Remember if you have any questions you can ask them whenever you like. You have contact details direct to the person who designed the questionnaire on your participant information sheet.

If at any time you wish to withdraw your information from the study you may do so without giving a reason, by contacting Katherine Brown using the contact details you have been given.

Once again, thank you very much.

Re.C.A.P.P.

Research into Contraception and Pregnancy Prevention



Appendix 6 – Detailed description of changes made to the full version of the questionnaires with rationale

The first fourteen sides of the questionnaire remained exactly the same as before. This includes sections one to seven, an algorithm for assessing participants' stage of change. The reader is reminded that participants are not required to fill in all the sections here, only those that correspond with their own contraceptive behaviour. Current non-contraception users fill in sections one, two and possibly section seven. Current barrier method users complete sections 1, 3, 4 and 7, whilst current pill users (or boyfriends of pill users) fill in sections 1, 3, 5 and 7. People who currently use a doctor dependant method (or whose girlfriend does) fill in sections 1, 3, 6 and 7.

On page 15 there remains instructions and examples of how to fill in what was sections 8 to 11, but has been reduced to sections 8 to 10. Section 8 remained the same, since there were 11 items, with each item measuring one of the 11 processes of change for contraceptive use, from the TTM.

Sections nine and ten were collapsed together to create the current section nine. There were originally 12 advantages of contraception use in section nine and 12 disadvantages asked about in section ten. These were reduced to six of each and put together into the same section. In each of the advantages and disadvantages sections it was felt that the most obvious advantages and disadvantages needed to be kept in and less obvious ones could be cut out. For example, 'being protected from unwanted pregnancy' is a more obvious advantage of contraception than, 'feeling sensible and grown up'. Also, 'loss of sexual pleasure because of a method' is a more obvious disadvantage to contraception use than, 'the possibility that some methods may be seen to suggest a girlfriend is diseased'. So, the six most obvious or pertinent advantages and disadvantages, that still covered a variety of aspects of contraceptive use were retained to measure pros and cons from the TTM.

The original section 11, then became section 10. Section 10 which asks about confidence in contraceptive use across a variety of situations (self-efficacy from the TTM) was not altered at all. There were originally only seven items in this section, and it was felt that there was no benefit gained from making it shorter.

The original section 12 was now section 11. Section 11 asks about intentions (TPB) to use contraception. On the original questionnaire there were 6 items to measure intention. These have been cut to 3. The items that began with, 'I would like to...', 'I expect to...' and 'How likely is it that you will...' were cut because it was felt that the items that began with 'I intend to...', 'I plan to...' and 'I want to...' were the three strongest items in terms of measuring intention to perform a behaviour.

Section 12 (originally section 13) measures attitudes toward contraceptive use. This section originally contained 31 paired items (62 in all) asking about contraceptive outcome beliefs and evaluations of those outcome beliefs, as recommended by Conner & Norman (1995). These were reduced to 20 paired items (40 in all) for the revised questionnaire.

Items 3 and 4 from the original questionnaire were removed because they asked about the belief that hormonal contraceptives can cause problems with periods. This belief is asked about in reverse, in the original items 11 and 12, which have been left in. Original items 5 and 6 which asked about the belief that hormonal contraceptives

can cause cancer was removed because it was mentioned in feedback as being an item that may cause upset or offence.

Items 15 and 16 asked about the belief that taking hormonal contraceptives is responsible. It was felt that this was a less pertinent belief to measure than others on the questionnaire, and so it was discarded. Items 17 and 18 which asked about the belief that hormonal contraception is easily available was discarded as that belief was reflected in another paired item that it was decided should be left in, about hormonal contraceptives being an easy way to prevent pregnancy. Also items 19 and 20 were cut because they asked about the belief that hormonal contraception is affordable. It was thought many people will be aware that hormonal contraceptives are provided free on the NHS to women, and it is therefore an irrelevant question.

Items 29 and 30 were discarded because they asked about the belief that condoms and femidoms may not fit properly. This belief is reflected in original items 23 and 24 that ask about the belief that condoms and femidoms are an unsafe method of contraception which have been kept in.

Items 33 and 34 were discarded because they ask about a belief which is opposite to that reflected in the retained items 41 and 42, about loss of pleasure cause by condoms or femidoms. Items 37 and 38, 39 and 40, and 43 and 44 were all discarded because they relate to beliefs thought to be less pertinent than beliefs asked about in other items in the attitude section. finally, items 55 and 56 were deleted because they asked about the belief that the withdrawal method can be used at any time, which it was felt might come across as sounding to positive about a method that is very unreliable in terms of pregnancy prevention.

On the original questionnaire there were six further semantic differential scale questions that measured general attitudes toward contraception and related issues. The first question asked participants to rate the pill on 6 semantic differentials labelled Good - Bad, Unpleasant - Pleasant, Easy - Difficult, Harmful - Beneficial, Wise - Foolish and Unhealthy - Healthy. This item was left in but the last two scales were discarded, leaving just 4.

The same thing was done for questions two and three, which asked about condoms and the withdrawal method respectively. Questions four, five and six were discarded completely because they asked about general attitudes towards single parents, teenage parents and abortion, which whilst related issues were not as important to measure as other variables.

Section 13 (originally 14) measures subjective norms (TPB). There were originally 5 paired items in this section (10 in all). Items 5 and 6 asked about the importance of what 'People who are important to me...' think about a participants' contraceptive use, and how much participants' wish to comply with those people. This item was replaced by a general measure of Subjective norm (see Conner & Norman, 1995 p137) which asks about feeling under social pressure to use contraception. It was placed at the end of the section, after the remaining four paired items.

Section 14 (originally 15) measures Perceived behavioural control (TPB), and originally contained nine paired items (18 in all). The questions ask about a variety of situations, and the frequency that contraceptive use would be affected by the participant being in those situations. Items 9 and 10 were deleted because they asked about knowledge of contraception, which it was felt tapped into a similar area to level of skill or competence with contraceptives, asked about in items 13 and 14.

Items 17 and 18 were also discarded because they asked about confidence in sexual situations. This has to some extent been measured in the TTM's self-efficacy section, and is also tapped into by the question concerning PBC and ability to discuss contraceptives with a sexual partner.

In section 15 (originally 16) anticipated regret is measured. On the original version of the questionnaire there were ten items which asked about five different scenarios, two questions for each scenario. One question asked about regret, and the other, worry. To reduce this section, five items were removed, leaving only one type of question (worry or regret) for each scenario. The deleted questions were two, three, five, eight and ten.

There was a further question in this section, which ask participants to imagine or think back to two sexual situations, one where they used contraceptives properly, and one where they did not. On the original questionnaire they were then asked to rate how they would feel or how they did feel, on five semantic differential scales. To shorten the question, one of the semantic differential items (Relaxed 1 2 3 4 5 6 7 Tense) was deleted.

In section 16 (originally 17) ratings of participants' thoughts on the likelihood of teenage pregnancy are measured. There were only 3 items so this was left as it was. The same applies to section 17 (originally 18) which asks about moral norms (2 items), and section 18 (originally 19) which asks about self-perception (2 items).

Section 19 (originally 20) measures prototype theory (Gibbons & Gerrard), and to shorten the question one, two of the semantic diferentilas were discarded. Questions two, three, and four were retained. On items three and four, the word 'would' which was presented in capitals and underlined before the words 'not have sex' and 'go ahead and have sex anyway', also presented in capitals and underlined, was changed to small letters and not underlined to make it clearer to participants thatthe two questions ask about two different behaviours, i.e. not having sex, or having sex when you have no contraception..

Section 21 on the original questionnaire, which measured future aspirations, was scrapped completely because most of the first 200 participants had not completed it, even when they had completed the rest of the questionnaire. It was the only variable that had not been based on a standardised measure or been piloted previously, and was considered the least critical measure out of the those included. For this reason deletion of the item, given the need to shorten the questionnaire as much as possible, was deemed acceptable.

Final version of questionnaire – Female (blue)

Re.C.A.P.P.
Research into Contraception and Pregnancy Prevention



FEMALE
PRIVATE AND CONFIDENTIAL QUESTIONNAIRE

Only fill in this questionnaire if you are female. If you are male and you have accidentally been given this questionnaire, please ask for the male version.

This questionnaire is part of a study on the use of contraceptives by young people. Thank you for agreeing to take part in this research. Your name is not asked for at any point in the questionnaire, so your answers will remain confidential.

Please write in the spaces below, the day and month of your birthday (for example if your birthday is **February the 19th**, you'd write **19 / 02**) followed by the first three letters of your Mother's Maiden Name (for example, **Jones** would be **JON**).

___ / ___ _

Please note that you will not have to fill in *all* the questions in this questionnaire, but *please* do follow the instructions carefully. You will find all instructions are written inside grey boxes like this one, so make sure you read every grey box you come across.

If you have any questions that you wish to ask before you start then please feel free to ask. If you need to ask a question part way through filling in the questionnaire then please raise your hand and a teacher or researcher will come to you.

There follows a series of questions. Please answer each question by either writing in the space provided, or, by ticking the correct box.

Section 1- Some questions about you

1. How old are you? _____ years
2. Which of the following best describes your relationship status? tick
box
- Single ☐
- Single but seeing people ☐
- Have had one girlfriend for less than one year ☐
- Have had one boyfriend for less than one year ☐
- Have had one girlfriend for one year or more ☐
- Have had one boyfriend for one year or more ☐
- Having sexual relationships with more than one person at the same time ☐

This questionnaire is about contraceptive use in young people. When the questionnaire refers to *sex* or *sexual intercourse* it is asking about sex where the penis enters the vagina, even if this does not result in orgasm by either partner.

- | | Yes | No |
|--|--------------------------|--------------------------|
| 3 Have you willingly had sexual intercourse with a male? | <input type="checkbox"/> | <input type="checkbox"/> |
| | | |
| | Yes | No |
| 4 Have you willingly been involved in sexual intimacy with a female? | <input type="checkbox"/> | <input type="checkbox"/> |

- 5 **How often do you have sex? Please tick the box that best describes you.** tick box
- Never (I am a virgin) ☐
- I have had sex once before but not in the last 6 months ☐
- I have had sex once before and it was during the last 6 months ☐
- I have had sex two or three times only, but not in the last 6 months ☐
- I have had sex two or three times only, and it was during the last 6 months ☐
- I have had sex more than 3 times but not during the last 6 months ☐
- During the last 6 months I have had sex occasionally (Less than once a month) ☐
- During the last 6 months I have had sex about once a month ☐
- During the last 6 months I have had sex not every week, but more than once a month ☐
- During the last 6 months I have had sex about once a week ☐
- During the last 6 months I have had sex not every day, but more than once a week ☐
- During the last 6 months I have had sex every day ☐

- | | Yes | No |
|---|--------------------------|--------------------------|
| 6 Are you currently in any relationships where you have sex with a male? | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Yes | No |
|--|--------------------------|--------------------------|
| 6 Do you have any religious beliefs that affect your use of contraception? (If no, please go to Question 8 below) | <input type="checkbox"/> | <input type="checkbox"/> |

7. **If yes, please describe briefly in the box below what those beliefs are, and how they affect, or would affect your contraception use.**

8. **Which of the following methods of contraception do you and your boyfriend(s) currently use? Please tick as many as apply.** tick box

None (not having any sexual relationships at present) ☐

None (trying to get pregnant) ☐

None (not bothered whether get pregnant or not) ☐

Sometimes none (we just take a risk) ☐

Withdrawal method ☐

Rhythm method ☐

Spermicide ☐

Condoms ☐

Femidoms ☐

Contraceptive pill (combined oral – 21 days on and 7 days off/7 dummy pills) ☐

Contraceptive pill (progesterone only – 28 days continuous) ☐

Intrauterine device (IUD) or coil ☐

Diaphragm or cervical cap ☐

Hormonal implants ☐

Hormonal injections ☐

Persona ☐

I am infertile ☐

My boyfriend is infertile ☐

I have had a hysterectomy ☐

My boyfriend has had a vasectomy ☐

Other (please specify in the box below) ☐

If you **DO NOT** use contraception at the moment, for whatever reason then please fill in Section 2 below. Then go on to fill in Section 7 on page 13.

If you **DO** use contraception at the moment then please turn to Section 3 on page 8. You will then need to fill in either Section 4, Section 5 OR Section 6, depending on the type of contraception you use as your main method. Instructions are given at the beginning of each section to remind you if you should fill it in or not. After this, please go to Section 7 on page 13.

Everyone must then fill in Section 8 onwards.

Section 2

Non-contraception users only

Only fill in this section if you are **NOT** using contraception at the moment, even though you may have used it in the past. If you use contraception at the moment please go to Section 3 on page 8.

- | | Yes | No |
|--|--------------------------|--------------------------|
| 1 Although you do not use contraception now, have you used it in the past? (If no, go to Question 4 below) | <input type="checkbox"/> | <input type="checkbox"/> |

2. If yes, what method(s) did you use? Please give as much detail as possible, including how long you used it / them for, and why you no longer use the method(s).

3. Has anything ever gone wrong with contraception you have used in the past, such as a condom splitting, or forgetting to take a pill? If it has, explain briefly in the box below and then go to Question 7 below.

Yes No

- 4 Although you have never used contraception, have you ever considered using it? (If no, please go to Question 7 below)

☐☐

5. If yes, what have you considered using, and why?

6. Why have you not gone on to use the method(s) you considered?

Yes No

- 7 Although you do not use contraception at the moment, are you considering using contraception at some point in the next 6 months? (If no, please go to section 7 on page 12)

☐☐

Yes No

- 8 Do you have a particular method or methods in mind? (If no, please go to Question 10 below)

☐☐

9. If yes, please state which method(s) in the box below.

10. Why are you considering starting to use contraception?

- | | Yes | No |
|--|--------------------------|--------------------------|
| 11 If you do not currently use contraception, are you considering starting to use contraception within the next month? (If no, please go to Question 14 below) | <input type="checkbox"/> | <input type="checkbox"/> |

12 If yes, what method(s) are you considering using?

13 Why are you considering starting to use contraception in the next month?

14 Have you done any of the following regarding obtaining contraception in the last 6 months? Please tick as many as apply. tick box

- | | |
|--|--------------------------|
| Visited your doctor/nurse/family planning clinic | <input type="checkbox"/> |
| Visited your pharmacist | <input type="checkbox"/> |
| Purchased condoms/femidoms/spermicide | <input type="checkbox"/> |
| Talked to someone about using contraception | <input type="checkbox"/> |

15 Have you done any of the following regarding obtaining contraception in the last month? Please tick as many as apply. tick box

- | | |
|--|--------------------------|
| Visited your doctor/nurse/family planning clinic | <input type="checkbox"/> |
| Visited your pharmacist | <input type="checkbox"/> |
| Purchased condoms/femidoms/spermicide | <input type="checkbox"/> |
| Talked to someone about using contraception | <input type="checkbox"/> |

That is the end of section 2. Please now go to Section 7 on page 13, and fill in all sections from there onwards.

Section 3

For all contraception users

Please answer the questions in this section if you are using contraception at the moment. It doesn't matter what type(s) of contraception they are.

If you do not use contraception at the moment, you should have already filled in Section 2. You do not need to fill in this section and you now need to go to Section 7 on page 13.

1 What would you say is your main method of contraception? Please answer in the box below.

2 How long have you been using your main method of contraception for? Please tick one box which best describes you.

tick

box

Less than a month

☐

Between 1 and 6 months

☐

About 6 months

☐

Between 6 months and 1 year

☐

More than 1 year

☐

3 Do you ever use any other methods of contraception as well? (If no, please go to Section 4 on page 9)

Yes

No

☐☐

4 If yes, what other method(s) do you use? Please give as much detail as possible, including how long you have used it / them for in the box below.

- 5 **If you answered that you use another method as well as your main method, how often is it used?** Please tick the box that best describes how often your other method is used. tick
box

- Absolutely always, without fail ☐
- Almost always, but always if the main method is at risk of failing (e.g. always use a condom if a pill has been missed or taken late) ☐
- Only when the main method is at risk of failing ☐
- Almost always ☐
- Most of the time ☐
- About half of the time ☐
- Sometimes ☐
- Occasionally ☐
- Very rarely ☐
- Other (Please specify in the box below) ☐

That is the end of Section 3. You now need to answer either Section 4, Section 5 OR Section 6. Read the instructions below carefully to decide which section you should fill in.

Section 4

People whose main method is a barrier method

If you answered in Section 3 on page 8 that either condoms, femidoms, the diaphragm/cap, the rhythm method, persona, withdrawal and/or spermicide is your main method of contraception, then please answer the questions in this section. If you answered that another method is your main method then please go to section 5, on page 11.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1 Did you use your main method of contraception properly the last time you had sexual intercourse?
(If no, please go to Question 3 below) | <input type="checkbox"/> | <input type="checkbox"/> |

Yes No

- 2 If yes, did the method work properly, as far as you know? (If no, please go to Question 3, if yes, go to Question 4 below)

☐ ☐

3. What went wrong, and what did you do about it? Please explain in the box provided below.

Yes No

- 4 During the last six months, (or however long you have been using your main method if less than six months) have there been any occasions when you have failed to use your method, or something has gone wrong with your contraception? For example, if condoms are your main method, has a condom broken or come off during sex, or did you have sex without using a condom? (If no, please go to Section 7 on page 13)

☐ ☐

Yes No

- 5 If yes, has it happened more than once?

☐ ☐

6 What have you done about it? Please explain in the box provided below.

Yes No

- 7 If you took emergency contraception, have you always taken it within the last six months, if you have thought something may have gone wrong with your contraception?

☐ ☐

That is the end of Section 4. Please now go to Section 7 on page 13.

Section 5

People whose main method is the contraceptive pill

Please answer the following questions if you answered in Section 3 on page 8, that the contraceptive pill is your main method of contraception. It does not matter whether you take the combined pill or the progesterone only pill.

If you said that another method of contraception was your main method, then please go to Section 6, on page 13.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1 Do you take the pill as a method of preventing pregnancy? | <input type="checkbox"/> | <input type="checkbox"/> |

2. If you take the pill for any other reason, please explain in the box below.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 3 Have you missed a pill, or taken a pill more than 12 hours late at any time over the last 6 months? (or for as long as you have been taking it, if under 6 months) (If no, please go to Section 7 on page 13) | <input type="checkbox"/> | <input type="checkbox"/> |

- | | Yes | No |
|--|--------------------------|--------------------------|
| 4 Has there been an occasion in the last six months when you had sex, not realising you had forgotten to take a pill? (If no, please go to Question 6 below) | <input type="checkbox"/> | <input type="checkbox"/> |

- 5 What did you do when you realised that you had had sex that was not protected by the pill? Please explain in the box below.

	Yes	No
6 Has there been an occasion in the last six months when you had sex knowing you had missed a pill in the last seven days, without using another contraceptive method, such as a condom? (If no, please go to section 7 on page 13)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
7 Did you do anything to try and stop yourself from getting pregnant after you had had sex?	<input type="checkbox"/>	<input type="checkbox"/>

8 When I have missed a pill or taken it more than twelve hours late in the last six months I have; (Please tick as many as apply)	tick box
---	----------

Ignored the fact that I had missed my pill, and had sex within the next 7 days	<input type="checkbox"/>
--	--------------------------

Followed the advice on the packet	<input type="checkbox"/>
-----------------------------------	--------------------------

Taken the missed pill as soon as I remembered and avoided having sex for at least 7 days	<input type="checkbox"/>
--	--------------------------

Taken the missed pill as soon as I remembered, had sex, but used another contraceptive method e.g. a condom for at least 7 days	<input type="checkbox"/>
---	--------------------------

Asked my doctor or family planning clinic for advice	<input type="checkbox"/>
--	--------------------------

Done something else (please explain in the box below)	<input type="checkbox"/>
---	--------------------------

9 If you have missed a pill, or taken it more than 12 hours late in the last 6 months, how many times has this happened? Please give the number or a rough guess at the number in the box provided below.

That is the end of Section 5. Please now go to Section 7 on page 13.

Section 6

People whose main method is doctor dependent

Please answer the questions in this section if you answered in section 3 on page 8 that an IUD / Coil, hormonal implants or hormonal injections are your main method of contraception.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 1 Have you experienced any problems with your main method of contraception? (If no, please go to Section 7 below) | <input type="checkbox"/> | <input type="checkbox"/> |

2. If yes, please explain briefly what this problem(s) was, and what was done about it, if anything.

That is the end of Section 6. Please now go to Section 7 below.

Section 7

Everyone should answer the next question.

- | | Yes | No |
|--|--------------------------|--------------------------|
| 1 Have you had sex with a member of the opposite sex at any time during the last 6 months? | <input type="checkbox"/> | <input type="checkbox"/> |

If you answered NO, then you can miss out the rest of this section and go to Section 8 on page 15.

If you answered YES then please continue to answer the questions in this section before going on to Section 8.

- | | Yes | No |
|---|--------------------------|--------------------------|
| 2 Have you experienced a missed or late period in the last 6 months? (If no, please go to Question 3 below) | <input type="checkbox"/> | <input type="checkbox"/> |

3 If yes, what do you believe was the reason you missed a period, or that your period was late? Please explain briefly in the space provided below.

Yes No

- 4 Have you thought that you might have an unplanned pregnancy in the last 6 months? (If no, please go to question 6 below)**
- ☐ ☐

5 If yes, why did you think you might be pregnant? Please answer in the box below.

Yes No

- 6 Have you found out that you have an unplanned pregnancy in the last 6 months?**
- ☐ ☐

Yes No

- 7 Have you had a baby that was unplanned in the last 6 months?**
- ☐ ☐

Yes No

- 8 Have you had a pregnancy terminated in the last 6 months?**
- ☐ ☐

- | | | | |
|--|--------------------------|--------------------------|--|
| | Yes | No | |
| 9 Have you miscarried an unplanned pregnancy in the last 6 months? | <input type="checkbox"/> | <input type="checkbox"/> | |

Section 8

Everyone fills in this section

Over the page are a series of statements about contraception. Read each statement carefully, and then mark beside it the response that you most agree with, by ticking the correct box.

For each statement, please give a reply, by ticking one of the boxes. There are two examples of how to do this below:

EXAMPLE 1:

If you **agree** with a statement, you would tick box number **2** as shown below:

EXAMPLE 1:

1	2	3	4	5	6	7
strongly agree	agree	slightly agree	neither agree or disagree	slightly disagree	disagree	strongly disagree

g Over the last 6 months I have noticed that people are becoming more positive about contraceptive use

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

EXAMPLE 2:

If you **strongly disagree** with a statement, you would tick box number **7** as shown below:

EXAMPLE 2:

1	2	3	4	5	6	7
strongly agree	agree	slightly agree	neither agree or disagree	slightly disagree	disagree	strongly disagree

g Over the last 6 months I have noticed that people are becoming more positive about contraceptive use

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	-------------------------------------

Section 8 Continued

Thoughts and feelings about contraceptive use

		1 strongly agree	2 agree	3 slightly agree	4 neither agree or disagree	5 slightly disagree	6 disagree	7 strongly disagree
1	Over the last 6 months I have noticed that people are becoming more positive about contraceptive use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Over the last 6 months I have been thinking about how I feel about myself in relation to my contraceptive use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Over the last 6 months I have become increasingly aware of my risk of getting pregnant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Over the last 6 months I have thought about how not using contraception properly, could affect my family and my boyfriend(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Over the last 6 months I have felt worried, concerned or scared when I have thought about people my age getting pregnant because they did not use contraception effectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Over the last 6 months I have felt more positive about my assertiveness in sexual situations, and the use of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Over the last 6 months I have always had someone to talk to, share feelings with, and get feedback from, regarding my experiences with using contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Over the last 6 months I have rewarded myself for engaging in safer sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Over the last 6 months I have avoided people, places and situations that might lead to having sex without an effective method of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	During the last 6 months, if I have had no way of using an effective method of contraception for sex, I have found other ways of satisfying myself and my boyfriend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Over the last 6 months I have chosen an effective method of contraception and become committed to using it properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 9

Asking about the advantages and disadvantages of using contraception

The following 12 questions are about advantages or disadvantages that contraception may provide. Answer them as you did in the last section, by ticking the appropriate box. This time though, you are being asked how important each possible advantage is (or would be) to you, in your decision to use contraception.

How important in your decision to use contraception is...

	1 Very Important	2 Important	3 slightly important	4 neither important nor unimportant	5 slightly unimportant	6 unimportant	7 very unimportant
...protection from unwanted pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...protection from sexually transmitted infections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...contraception being easily available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...protecting my boyfriend(s) from disease and unwanted pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...feeling safe from pregnancy and disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... a girlfriend having easier periods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...experiencing hassle using a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...loss of sexual pleasure because of a method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...the possibility of a boyfriend not wanting to use a method, if you suggest it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 ...embarrassment about getting hold of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 ...fear of unwanted side-effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 ...the physical feel and fit of a condom / femidom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 10

Looking at how confident you feel about using contraception

Please answer the following questions, by ticking the appropriate box as you did in Sections 8 & 9 above. *This time you are being asked how confident you feel about carrying out each item.*

Please answer each item in relation to how you feel about your main method of contraception. If you do not have a main method, answer in relation to how you feel about the method you know most about, or have most experience of.

How confident are you that you...	1 Very confident	2 confident	3 slightly confident	4 neither confident nor unconfident	5 slightly unconfident	6 unconfident	7 very unconfident
1 ...can use your main method of contraception, or the method you know most about properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 ...will use a contraceptive method effectively next time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 ...will use a contraceptive method effectively every time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 ...will use a contraceptive method effectively if you have been drinking or taking drugs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 ...will use a contraceptive method effectively if a boyfriend does not want you to?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 ...will use a contraceptive method effectively if a boyfriend suggests using a risky method like withdrawal before ejaculation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 ...will not have sex if there is no method of contraceptive protection available to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 11

Asking about your intentions to use contraception

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
I intend to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I want to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 12

Looking at your attitudes

Below are a list of statements which ask you to say how much you agree with them by ticking the correct box, as you have been doing on the sections before. After each statement though, you are also asked how Good or Bad something is. Look at the example below to see what you need to do.

EXAMPLE

If you feel that what is described in a statement is **UNLIKELY**, then you would tick box number 6 as shown below:

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
If I took the pill / hormonal implants / hormonal injections / they might make me ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

You are then asked if the consequence of the above statement is a good or bad thing for you. If you think becoming ill is neither good nor bad then you would tick box number 4 as shown below:

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
eg Becoming ill would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Attitudes toward contraceptive methods

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
1 If I took the pill / hormonal implants / hormonal injections / I would put on weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
2 Putting on weight would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
3 Taking the pill / hormonal implants / hormonal injections / could be poisonous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
4 Having a poisonous substance in your body would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Taking the pill / hormonal implants / hormonal injections / would be an easy way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Contraception being easy is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Taking the pill / hormonal implants / hormonal injections / could make my periods easier (e.g. less painful, shorter etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Having easier periods would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Taking the pill / hormonal implants / hormonal injections / is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
11	Taking the pill / hormonal implants / hormonal injections / requires or would require a lot of effort from me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
12	A method that requires a lot of effort is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
13	Condoms / femidoms can be an unsafe method of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
14	Using a method that I do not feel is safe would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
15	Using a condom or a femidom can make sex awkward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
16	Using a method that makes sex awkward is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
7	Condoms / Femidoms are disgusting to touch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
8	A method that is disgusting to touch is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
9	Using a condom or a femidom can interrupt the flow of sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
0	Interrupting the flow is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
1	Using a condom / femidom would make sex feel safer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
2	Feeling that sex is safe is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
--	--	---------------------	-------------	-------------------------	--	---------------------------	---------------	-----------------------

23	Using a condom or a femidom would mean less pleasure during sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
----	---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
--	--	-------------------	-----------	-----------------------	------------------------------	----------------------	----------	---------------

24	Loss of pleasure during sex is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
----	------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
--	--	---------------------	-------------	-------------------------	--	---------------------------	---------------	-----------------------

25	Condoms and femidoms would be affordable for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
----	---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
--	--	-------------------	-----------	-----------------------	------------------------------	----------------------	----------	---------------

26	Contraception being affordable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
----	--------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
--	--	---------------------	-------------	-------------------------	--	---------------------------	---------------	-----------------------

27	Buying condoms from a shop would make me embarrassed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
----	--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
--	--	-------------------	-----------	-----------------------	------------------------------	----------------------	----------	---------------

28	Being embarrassed is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
----	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Using a condom / femidom is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Using a condom / femidom is a reliable way to prevent the spread of Sexually Transmitted Infections (Sties)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Preventing the spread of STIs is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Using the withdrawal method to reduce the risk of pregnancy is better than not using anything at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Using a method that is better than nothing is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
35	Using the withdrawal method would not protect me from Sexually Transmitted Infections (STIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
36	Not being protected from STIs would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
37	Using the withdrawal method means relying on a boyfriend to pull out before ejaculation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
38	Having to rely on a boyfriend to do this is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
39	The withdrawal method is not a reliable method of preventing pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
40	A method that is unreliable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

You're way past half way now, so not much more to do!

Section 13

Looking at how you feel about social pressure

Below are a several sets of paired questions that you should answer by circling the response that best explains how you feel. Do this in the same way that you responded to the last lot of questions toward the end of Section 12.

Please answer the questions even if you are not having sex. Try to imagine how you would think and feel if you were having sex

1 My friends think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

2 With regard to using contraception, how much do you want to do what your friends think you should?

Not at all

1 2 3 4 5 6 7

Very much

3 My parents think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

4 With regard to using contraception, how much do you want to do what your parents think you should?

Not at all

1 2 3 4 5 6 7

Very much

5 My boyfriend(s) think that I should use contraception every time I have sex.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
-----------------------	---	---	---	---	---	---	---	--------------------------

6 With regard to using contraception, how much do you want to do what a boyfriend thinks you should?

Not at all	1	2	3	4	5	6	7	Very much
-------------------	---	---	---	---	---	---	---	------------------

7 My doctor and / or other health workers I know think that I should use contraception every time I have sex.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
-----------------------	---	---	---	---	---	---	---	--------------------------

8 With regard to using contraception, how much do you want to do what your doctor or health workers think you should?

Not at all	1	2	3	4	5	6	7	Very much
-------------------	---	---	---	---	---	---	---	------------------

9 I feel under social pressure to use contraception properly every time I have sex.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
-----------------------	---	---	---	---	---	---	---	--------------------------

Section 14

Looking at how much control you feel you have

The questions in this section again appear in pairs. Please answer them by circling your response as you did in the last section. Again try to imagine how you would feel, think and behave even if you are not having sex at the moment.

1 How often is your use of contraception affected by you taking drugs or alcohol?

Never 1 2 3 4 5 6 7 **Always**

2 If I have used drugs or alcohol before having sex, it makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

3 How often does the situation you are in (e.g. at a party or at home alone with your boyfriend) affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

4 The situations I am in when I have sex make my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

5 How often does the availability of contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

6 The availability of contraception makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

7 How often does the willingness of your boyfriend(s) to use contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

8 The willingness of my boyfriend(s) to use contraception makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

9 How often does your excitement or level of arousal during a sexual experience affect your use of contraception?

Never 1 2 3 4 5 6 7 Always

10 My excitement or level of arousal during a sexual experience makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

11 How often does your level of skill or competence at using contraception affect your use of it?

Never 1 2 3 4 5 6 7 Always

12 My level of skill or competence at using contraception makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

13 How often does your ability to discuss contraception with a boyfriend affect your use of contraception?

Never 1 2 3 4 5 6 7 Always

14 My ability to discuss contraception with a boyfriend makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

Section 15

Looking at possible feelings of regret

Please answer the questions in this section by again circling the number on the scale which you think best matches how you feel about the question or statement.

1 If you had sex and did not use your chosen method of contraception, how much do you think you would regret it, the next day?

Not at all 1 2 3 4 5 6 7 Very much

2 If you thought that it was possible you could be pregnant (e.g. because your period was late) and knew that you had failed to use a reliable method of contraception recently, how worried would you feel?

Not at all 1 2 3 4 5 6 7 Very worried
worried

3 How much do you like the idea of being pregnant at this stage of your life?

Very much 1 2 3 4 5 6 7 Not at all

4 If you found out that you were pregnant, after failing to use a method of contraception, how much would you regret having not used contraception?

Not at all 1 2 3 4 5 6 7 Very much

5 Would an abortion be an option you feel you could consider if you were to have an unplanned pregnancy?

Definitely no 1 2 3 4 5 6 7 Definitely
yes

Now think about a sexual experience you have had in the past where you have

- a) used contraception properly and**
- b) did not use contraception**

If you do not have experience of either one or both of these situations, please imagine that they have happened to you. Once you have imagined these two scenarios, or thought back to when they have happened to you, please complete question 6 below.

6a) How would you feel, or how did you feel after having sex when you USED contraception properly?

Unhappy	1	2	3	4	5	6	7	Happy
Concerned	1	2	3	4	5	6	7	Unconcerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried

6b) How would you feel, or how did you feel after having sex when you DID NOT USE contraception properly?

Unhappy	1	2	3	4	5	6	7	Happy
Concerned	1	2	3	4	5	6	7	Unconcerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried

You've almost finished!!!

Section 16

Looking at how likely teenage pregnancy is

Please answer the following questions in the same way as you have done in the previous section.

1 How likely is it that the average teenage girl will have an unplanned pregnancy?

Very unlikely	1	2	3	4	5	6	7	Very likely
---------------	---	---	---	---	---	---	---	-------------

2 How likely is it that you will have an unplanned pregnancy as a teenager?

Very unlikely	1	2	3	4	5	6	7	Very likely
---------------	---	---	---	---	---	---	---	-------------

3 How many teenagers do you think get pregnant each year in England?

Express your answer in terms of how many in every hundred. For example if you thought that very few get pregnant you might say **1 in a hundred teenagers get pregnant every year**. If you thought that half of all teenagers get pregnant every year you might say **50 in a hundred teenagers get pregnant every year**. Write your answer in the space provided below.

I think that _____ in a hundred teenagers get pregnant every year.

Section 17

Feelings about right and wrong

1 I think that it is only right that I should use contraception properly every time I have sex.

Strongly
agree

1 2 3 4 5 6 7

Strongly
disagree

2 I think that it would be very wrong for me to have sex without using contraception.

Strongly
agree

1 2 3 4 5 6 7

Strongly
disagree

Section 18

Looking at how you feel about yourself

1 I consider myself to be someone who practices safe sex.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
-------------------	---	---	---	---	---	---	---	----------------------

2 I do not think I am responsible enough when it comes to using contraception properly.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
-------------------	---	---	---	---	---	---	---	----------------------

Section 19

Looking at what you think of the type of teenager who gets pregnant or gets a girl pregnant

1 To what extent does each of the following adjectives describe the type of teenage girl who gets pregnant or teenage boy who gets a girl pregnant?

Please make your response by circling the number that shows best what you think.

Intelligent	Not at all	1	2	3	4	5	6	7	Very much
Confused	Not at all	1	2	3	4	5	6	7	Very much
Popular	Not at all	1	2	3	4	5	6	7	Very much
Immature	Not at all	1	2	3	4	5	6	7	Very much
Cool or sophisticated	Not at all	1	2	3	4	5	6	7	Very much
Self-confident	Not at all	1	2	3	4	5	6	7	Very much
Careless	Not at all	1	2	3	4	5	6	7	Very much

2 In general, how similar are you to the type of teenage girl who gets pregnant?

Not at all 1 2 3 4 5 6 7 Very much

3 If you were out with a boyfriend and he wanted to have sex, but neither of you had used contraception (e.g. pill) or had any contraception with you (e.g. condom), how likely is it that you would NOT HAVE SEX?

Not at all 1 2 3 4 5 6 7 Very likely
likely

4 If you were out with a boyfriend and he wanted to have sex, but neither of you had used contraception (e.g. pill) or had any contraception with you (e.g. condom), how likely is it that you would GO AHEAD AND HAVE SEX ANYWAY WITHOUT CONTRACEPTION?

Not at all 1 2 3 4 5 6 7 Very likely
likely

That is the end of the questionnaire.

Thank you for taking the time to fill it in. It is very much appreciated.

Remember if you have any questions you can ask them whenever you like.

You have contact details direct to the person who designed the questionnaire on your participant information sheet.

If at any time you wish to withdraw your information from the study you may do so without giving a reason, by contacting Katherine Brown using the contact details you have been given.

Once again, thank you very much.

Re.C.A.P.P.

Research into Contraception and Pregnancy Prevention



Appendix 8 – Rotated component matrices from exploratory factor analyses in Chapter 4

Matrix for Processes of change

Items 1 to 6 load onto factor 1 representing experiential processes of change and items 7 to 11 load onto factor 2 representing behavioural processes of change.

Rotated Component Matrix(a)

	Component	
	1	2
process of change3	.825	-.026
process of change4	.771	.137
process of change2	.682	.173
process of change6	.619	.311
process of change5	.486	.263
process of change1	.249	.246
process of change9	-.159	.699
process of change8	.353	.574
process of change7	.293	.525
process of change11	.447	.506
process of change10	.131	.501

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 3 iterations.

Matrix for pros and cons of contraceptive use

Pros load onto factor 2 with the exception of item 6 (refer to thesis p121 for explanation) and cons load onto factor 1

Rotated Component Matrix(a)

	Component	
	1	2
advantages/pros of contraception1	.054	.508
advantages/pros of contraception2	.007	.736
advantages/pros of contraception3	.235	.446
advantages/pros of contraception4	.061	.815
advantages/pros of contraception5	.041	.840
advantages/pros of contraception6	.383	.129
disadvantages/cons of contraception1	.573	.022
disadvantages/cons of contraception2	.695	-.122
disadvantages/cons of contraception3	.662	.089
disadvantages/cons of contraception4	.473	.084
disadvantages/cons of contraception5	.619	.216
disadvantages/cons of contraception6	.748	.036

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Matrix for behavioural belief items

Factors 1, 2 and 3 became the behavioural belief items focused on in further analysis.
See p 125 of thesis.

Rotated Component Matrix(a)

	Component				
	1	2	3	4	5
att35xatt36	.761	2.005E-02	-.141	1.571E-02	4.684E-02
att37xatt38	.714	.202	-.185	2.395E-02	-.066
att39xatt40	.695	8.036E-02	-.192	3.818E-02	2.645E-02
att31xatt32	.682	.403	8.636E-03	-.050	-.019
att21xatt22	.589	.373	.203	-.167	-.143
att25xatt26	.566	.131	.156	-.079	2.820E-02
att9xatt10	.393	.758	-.043	6.828E-02	5.922E-02
att29xatt30	.417	.685	.175	-.033	5.533E-02
att5xatt6	.300	.631	-.166	4.814E-02	.155
att7xatt8	.212	.617	-.279	.140	.191
att1xatt2	.139	-.567	.175	2.203E-02	.287
att15xatt16	-.008	-.111	.793	.109	5.949E-02
att19xatt20	-.049	-.051	.773	.219	-.063
att23xatt24	-.081	-.113	.721	7.132E-02	-.034
att13xatt14	-.167	-.002	.519	-.318	.445
att27xatt28	-.050	9.322E-04	-.001	.712	.110
att17xatt18	8.858E-02	-.040	.419	.556	-.023
att33xatt34	-.091	.110	.129	.500	.114
att3xatt4	-.038	.137	-.030	4.169E-02	.705
att11xatt12	4.863E-02	-.058	-.005	.280	.676

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Appendix 9 – Participant information sheet for the questionnaire study (Chapter 4)

Participant Information Sheet

The study that I am working on is about contraception and unplanned pregnancy. It involves getting people to fill in a questionnaire asking them about their contraceptive use, and their attitudes and beliefs about things related to contraception use.

Your answers will be kept completely **confidential**, and at no point will you be asked to give your name. It does not matter if you have never used contraception. I would very much appreciate your participation in this study, if you feel you would like to volunteer. Firstly though, I would like you to read through the following questions and their answers, so that you understand more about what you would be involved in.

Why have you asked me to take part?

Unplanned and unwanted pregnancies happen all the time to women and girls of all ages, in all walks of life. Needless to say, both men and women have a part to play. One of the age groups that are most at risk of unplanned pregnancy are teenagers. Because of this, I am asking people aged between 14 and 18 years to take part.

What will I be required to do?

If you decide that you would like to take part, you will be asked to fill in a questionnaire either today, or very soon, and then another questionnaire in about four months time. The questionnaire may take you about half an hour to fill in, and you will be asked to fill it in on your own, without speaking or making contact with anyone else. This is so that everyone keeps their answers private. If you have any questions to ask while you are filling in the questionnaire, you can raise your hand, and I will come to you.

Where will this take place?

You will fill in the questionnaire at school, in a classroom setting, not too close to other classmates, so that you can fill in the answers in private.

How often will I have to take part and for how long?

I am asking that you spend around 10 minutes filling in the questionnaire. There is no time limit though, if it takes you less or more time than this, then that is fine.

What if I do not wish to take part?

If you do not wish to take part then you do not have to. Your participation is completely voluntary, and I do not wish anyone to take part who does not want to. It is important that all participants are happy to take part. You can always look at the questionnaire when it is handed to you, and leave it blank. Handing it back blank, is fine, and no-one will ask you why you have not filled it in.

What if I change my mind during the study?

If you decide at any time, that you no longer want to take part, then you are completely free to withdraw without giving a reason. Either raise your hand or let me know later. Contact details for me, are at the end of this information sheet.

When will I have the opportunity to discuss my participation?

I may not be able to be present when you fill in your questionnaire depending on the particular arrangements your school has made for you to fill it in. If I am at the school when you fill it in then you will be able to ask me any questions you wish. If I am not present, and only your teachers are available, then please feel free to contact me using the details given at the end of this questionnaire, to ask me anything at a later date.

Who will be responsible for all this information when this study is over? Who will have access to it? And what will happen to it?

Two other members of the research team and I will be the only people responsible for this information, both throughout the study and when it is over, and we will be the only people who have access to the questionnaires that have been filled in. Results will be compiled from all of the questionnaires together, and no-one's individual answers will ever be referred to in a write up of the results.

The overall results will be used as part of a larger study to help design a project that will try to improve people's use of contraception. It is hoped that this will help stop many unplanned pregnancies in young people.

How long is the whole study likely to last?

This study is part of an ongoing project that will hopefully be complete by September 2004. You may be asked to take part in another part of the study next year, but you will get more information about that nearer the time, and be given the chance to say whether you would like to take part or not, then.

If you have any other questions that you would like answering, please do not hesitate to ask. If you think of something later you can contact me without hesitation. Details are as follows;

**Katherine Brown.
Centre for Research on Human Behaviour
School of Social Science and Law
Collegiate Crescent Campus
Sheffield Hallam University
Sheffield
S10 2BP**

Tel: 0114 225 2541 or 0114 225 4428

Appendix 10 – In Loco Parentis consent form for the questionnaire study (Chapter 4)

Consent Form for those acting in Loco Parentis

Design of an intervention to improve contraceptive efficacy

Please answer the following questions by circling your responses.

Have you read the information provided about this study? YES NO

Have you been able to ask questions about this study? YES NO

Have you received answers to all your questions? YES NO

Have you been given enough information about this study? YES NO

Do you understand that pupils will still be allowed to choose whether or not they want to take part in the study after you have signed the consent form?

YES NO

Do you understand that pupils will be given the right to withdraw from this study without needing to provide a reason?

YES NO

Are you happy for your school's pupils to take part? YES NO

Do you agree to your school's pupils taking part? YES NO

Your signature will certify that as a head teacher, or someone of appropriate authority, you have voluntarily agreed, acting in loco parentis, to allow the pupils of _____

to take part in the questionnaire and intervention studies that you have been given information about. It will also show that you have had adequate opportunity to discuss the study with an investigator, and that all your questions have been answered to your satisfaction.

Signature of person in loco parentis: _____

Date: _____

Name (block letters): _____

Signature of investigator: _____ Date: _____

Contact Details: Katherine Brown. Centre for Research on Human Behaviour, School of Social Science and Law, Sheffield Hallam University, Collegiate Crescent Campus, Sheffield, S10 2BP. Tel: 0114 225 2541 / 0114 225 4428.

Appendix 11 – Parental consent form for questionnaire study

Re.C.A.P.P. (Research into Contraception and Pregnancy Prevention)



Dear Parent or Guardian,

Sheffield Hallam University is conducting some research into contraception use amongst teenagers in the Sheffield area. As I am sure you are aware, this country has very high rates of teenage pregnancy, rates that far exceed some of our Western European neighbours.

Whilst unwanted or unintended pregnancy can effect people of all ages, teenagers are one of the groups who are most at risk, and that is why there is a need to carry out research in this area.

The school that your child(ren) attend(s) has been asked to take part in this piece of research. It will only involve those pupils who are in Year 10 and above (i.e. those aged 14 years or older). Pupils would be required to fill in a **private and confidential** questionnaire (i.e. names are not asked for) which asks about any experience they may have of using contraception. Questions target what they think of different methods and how they feel (or would feel) about using them. All pupils will be asked to fill it in even though they may have never used contraception. It is important to find out what everyone thinks.

Your child(ren) will be asked to fill in a questionnaire in the near future, and again in four months time, so that we can look at changes in answers over time. Please note that every pupil has the right to say that they do not want to take part on an individual basis. So, if you give your consent, this does not mean they have to fill in the questionnaire.

Below is a consent form that can be detached and returned to your child(ren)'s school only if you **do not** want your child to take part in filling in this questionnaire. If you do not return the form we will consider that you consent to your child(ren) deciding whether or not they would like to take part.

I the parent or guardian of _____ (please write name(s))
do not consent to her/him/them taking part in the forthcoming research with Sheffield
Hallam University. I do not want him/her/them to fill in the questionnaire.

Signed

Name (please print) _____

Only return this slip if you do not want your child(ren) to take part.

Appendix 12 – Instructions to teachers administering the questionnaire without researcher

Re.C.A.P.P.
Research into Contraception and Pregnancy Prevention



Instructions to members of staff for administering the Questionnaire

- There are 2 different questionnaires. One is for males and one is for females. They are both clearly labelled, as well as being different colours.
- The questionnaire will take around half an hour for pupils to fill in.
- PLEASE ENSURE THAT PARTICIPANTS UNDERSTAND THAT THE QUESTIONNAIRE IS COMPLETELY **CONFIDENTIAL** AND **ANONYMOUS**. The envelopes provided should be handed to participants at the same time as the questionnaires so that they can seal them up when they have finished.
- The questionnaire is about contraception use. Everyone should fill it in if they want to. It does not matter whether they are having sex or not, or whether they use contraception or not. Everyone's feelings and thoughts are important.
- Included with the questionnaires should be enough participant information sheets for every pupil to have one each. These should be handed out for people to read quietly, or a teacher can read through it with them, before they are given the questionnaire. Pupils should be asked to keep hold of this sheet because it contains the contact details of the researcher who designed the questionnaire, should anyone wish to ask any questions at a later date.
- The Participant Information Sheet explains what being involved in this research means for them. Please allow pupils to ask you questions before they fill in the questionnaire. If there is anything you cannot answer, then please let them know that you will find out the answer and ask me (Katherine Brown from Sheffield Hallam University) about it afterwards. I hope though that these guidelines will provide you with all the information you need.
- Everyone needs to understand that their participation is **voluntary** and that the questionnaire is completely **private and confidential**.

Pupils should be seated in a way that ensures they can fill in the questionnaire privately, without being able to see each others questionnaire. They should know that their names are not asked for at any point on the questionnaire, instead a code is asked for. This is so that if anyone wishes to have their data excluded from the study at a later date, their questionnaire can be identified.

The code simply asks for the date and month of their birth and the first three letters of their mothers' maiden name.

So for example if my birthday was the 4th July and my mother's maiden name was Brown, then I would write;

04/07 BRO

When they have understood this information they can be given a questionnaire each, and they should understand that they are free to inspect the questionnaire. If they then feel that they do not want to fill it in they can leave it blank, and get on with other quiet work while the other pupils fill it in.

When everyone has filled in the questionnaire it can be collected, no questions will be asked about blank ones being handed back. However, it should be stressed that this research is important, and it would be very much appreciated if people feel they could take the time to fill the questionnaire in.

- Some of the questions will ask pupils what they would do in certain situations or what they think about certain contraceptive methods. People who have not used contraception before, which is likely to be a substantial proportion of the participants, should try and imagine what they would do, based on the knowledge they have of contraception. It is really important to gather information on the views of everyone.
- Included with the questionnaires there is also an A4 sheet which summarises which sections should be filled in depending on the contraception use of the individual. The instructions on the questionnaire make this quite clear, but should anyone ask about this whilst filling it in, this is an easy to follow summary.
- Each questionnaire will be read by a human researcher, not a machine, so as long as people make reasonably clear ticks in boxes, and write clearly where necessary, everything will be understood.

If there is anything else that you need to know before proceeding with asking pupils to take part in the study, please do not hesitate to contact me.

Katherine Brown BSc (Hons)
Centre for Research on Human Behaviour
Re.C.A.P.P.
School of Social Science & Law
Sheffield Hallam University
Collegiate Crescent Campus
Collegiate Crescent
Sheffield S10 2BP

0114 225 2541

Appendix 13 – Missing patterns Table – questionnaire data

Case	# Missing	% Missing	Missing and Extreme Value Patterns(a)																							
			AGE	EXPRO	BEHPROROC	GENDER	STAGE	VIRGIN	METHOD	CONDOM	PILL	SUBNORM	WITHDRAW	ATTITUDE	PROS	CONS	EFFICACY	INTENTIO	ANTREG	PBC	OPTBIA2	MORALN	SELFID	PROTO	LIKELY	
13	1	4.3																	S							
70	1	4.3																	S							
260	1	4.3																	S							
48	1	4.3																							S	
146	1	4.3																							S	
91	2	8.7		+																				S	S	
98	2	8.7																						S	S	
137	2	8.7																						S	S	
189	2	8.7			+																			S	S	
177	1	4.3																						S	S	
204	1	4.3															S									
40	2	8.7														S	S									
243	1	4.3																+						S		
279	1	4.3																						S	S	
43	3	13.0																		S	S	S				
36	3	13.0														-				S	S	S				
134	2	8.7																		S	S	S				
269	3	13.0																		S	S	S				
169	6	26.1								+	+								S	S	S	S	S	S	S	
83	5	21.7																		S	S	S	S	S	S	
57	5	21.7																		S	S	S	S	S	S	
55	5	21.7									+									S	S	S	S	S	S	
64	5	21.7																		S	S	S	S	S	S	
78	5	21.7														+				S	S	S	S	S	S	
38	4	17.4																		S	S	S	S	S	S	
170	4	17.4																			S	S	S	S	S	
14	3	13.0								+												S	S	S	S	
183	3	13.0																				S				
266	3	13.0													S	S	S			S						
201	3	13.0												S	S	S	S									
53	2	8.7											S												S	
74	3	13.0										S								S	S	S	S	S	S	
80	7	30.4																	S	S	S	S	S	S	S	
68	12	52.2								S	S	S	S	S					S	S	S	S	S	S	S	

- indicates an extreme low value, while + indicates an extreme high value. The range used is (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

a Cases and variables are sorted on missing patterns.

**Appendix 14 - Summary of t-tests comparing time 1 and time 2
questionnaire data**

	<i>t</i>	<i>df</i>	<i>p</i>
Experiential processes	.542	50	.590
Behavioural processes	.796	50	.430
Pros/advantages	.882	50	.382
Cons/disadvantages	.452	50	.653
Self-efficacy	-1.016	50	.314
Intention	-1.702	50	.095
Control beliefs	-.691	50	.493
Normative beliefs	.103	50	.918
Anticipated regret	.142	50	.888
Optimistic bias**	-1.421	50	.161
Moral norm	.404	50	.688
Self identity	-1.54	50	.878
Prototype similarity	-3.00	50	.766
Willingness to take risk	-.713	50	.479
Factor 1 [#]	-1.538	50	.130
Factor 2 ^{##}	-2.135	50	.025
Factor 3 ^{###}	-.560	50	.578

Negativity towards withdrawal and positivity towards condoms and STI prevention.

Positivity toward the pill and pregnancy prevention.

Negativity towards condoms.

Appendix 15

Questionnaires III

Appendix 15a – T1 questionnaire – Male (yellow)

Re.C.A.P.P.
Research into Contraception and Pregnancy Prevention



MALE
PRIVATE AND CONFIDENTIAL QUESTIONNAIRE

Only fill in this questionnaire if you are male. If you are female and you have accidentally been given this questionnaire, please ask for the female version.

This questionnaire is part of a study on the use of contraceptives by young people. Thank you for agreeing to take part in this research. Your name is not asked for at any point in the questionnaire, so your answers will remain confidential.

Please write in the spaces below, the day and month of your birthday (for example if your birthday is **February the 19th**, you'd write **19 / 02**) followed by the first three letters of your Mother's Maiden Name (for example, **Jones** would be **JON**).

___ / ___ _ _ _

Please note that you will not have to fill in *all* the questions in this questionnaire, but *please* do follow the instructions carefully. The diagram below should help. You will find all instructions are written inside grey boxes like this one, so make sure you read every grey box you come across.

Everyone fill in Section 1

Then decide whether to fill in Section 2 OR Section 3

Section 2



**Section 4
onwards**

Section 3



**Section 4
onwards**

If you have any questions that you wish to ask before you start then please feel free to ask. If you need to ask a question part way through filling in the questionnaire then please raise your hand and a teacher or researcher will come to you. There follows a series of questions. Please answer each question by either writing in the space provided, or, by ticking the correct box.

Section 1- Some questions about you

1. How old are you? _____ years

This questionnaire is about contraceptive use in young people. When the questionnaire refers to *sex* or *sexual intercourse* it is asking about sex where the penis enters the vagina, even if this does not result in orgasm by either partner.

	Yes	No
2 Have you willingly had sexual intercourse with a female?	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
3 Have you willingly been involved in sexual intimacy with a male?	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
4 Do you have any religious beliefs that could affect your use of contraception? (If no, go to Question 6)	<input type="checkbox"/>	<input type="checkbox"/>

5. If yes, please describe briefly in the box below what those beliefs are, and how they affect, or would affect your contraception use.

--

- 6 Which of these statements best describes you? tick box
- I have never had sex, I am a virgin (please go to section 2) ☐
- I have had sex but not during the last 6 months (continue in this section) ☐
- I have had sex within the last 6 months (continue in this section) ☐
7. Which of the following methods of contraception have you and your girlfriend(s) used? Please tick as many as apply. tick box
- None (have been trying to get pregnant) ☐
- None (not bothered whether get pregnant or not) ☐
- Sometimes none (we just take a risk) ☐
- Withdrawal method ☐
- Rhythm method ☐
- Spermicide ☐
- Condoms ☐
- Femidoms ☐
- Contraceptive pill ☐
- Intrauterine device (IUD) or coil ☐
- Diaphragm or cervical cap ☐
- Hormonal implants ☐
- Hormonal injections ☐
- I am infertile ☐
- My girlfriend is infertile ☐
- I have had a vasectomy ☐
- My girlfriend has had a hysterectomy ☐
- Other (please specify in the box below) ☐

--

If you **HAVE NOT** used contraception during the last 6 months, for whatever reason then please fill in Section 2 below. Then go on to fill in Section 4 on page 9.

If you **HAVE BEEN** using contraception during the last 6 months then please turn to Section 3 on page 6. Instructions are given at the beginning of each section to remind you if you should fill it in or not. After this, please go to Section 4 on page 9.

Section 2

Non-contraception users only

Fill in this section if you have either **NEVER** used contraception, or **HAVE NOT** used contraception in the last six months. If you have used contraception during the last 6 months please skip this section and go to Section 3 on page 6.

1. Which of these statements best describes you? tick
box
- I have never had sexual intercourse (go to question 4) ☐
- I have had sex but never used contraception (go to question 4) ☐
- I have had sex and sometimes used contraception (go to question 2) ☐
- I have had sex and always used contraception (go to question 2) ☐

2. If you have used contraception before, what method(s) did you use?

Please give as much detail as possible, including how long you used it / them for, and why you no longer use the method(s).

3. Has anything ever gone wrong with contraception you have used in the past, such as a condom splitting, or forgetting to take a pill? If it has, explain briefly in the box below and then go to Question 4 below.

	Yes	No
4 Are you planning to have sex in the next 6 months? (if no, go to section 4 on page 9)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
5 Are you planning to have sex in the next month?	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
6 Although you do not use contraception at the moment, are you planning to use contraception at some point in the next 6 months? (If no, please go to section 7 on page 13)	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
7 Do you have a particular contraceptive method or methods in mind? (If no, please go to Question 10)	<input type="checkbox"/>	<input type="checkbox"/>

8. **If yes, please state which contraceptive method(s) in the box below.**

9. **Why are you considering starting to use contraception?**

Yes No

- 10 Although you do not currently use contraception, are you planning to start using contraception within the next month? (If no, go to section 4 on p 9)

☐☐

- 11 If yes, what method(s) are you considering using?

- 12 Why are you considering starting to use contraception in the next month?

That is the end of section 2. Please now go to Section 4 on page 9, and fill in all sections from there onwards.

Section 3

For all contraception users (must have used it during last 6 months)

Please answer the questions in this section if you have used contraception in the last six months. It doesn't matter what type(s) of contraception they are.

If you have not used contraception in the last six months, you should have already filled in Section 2. You do not need to fill in this section and you now need to go to Section 4 on page 9.

- 1 What would you say is your main method of contraception? Please answer in the box below.

- 2 **How long have you been using your main method of contraception for?** Please tick one box which best describes you. tick box
- Less than a month ☐
- Between 1 and 6 months ☐
- About 6 months ☐
- Between 6 months and 1 year ☐
- More than 1 year ☐

- 3 **How often do you use your main method of contraception?** Please tick the box that best describes how often your main method is used. tick box
- Absolutely always, without fail ☐
- Almost always but always use another method anyway ☐
- Almost always ☐
- Most of the time ☐
- About half of the time ☐
- Sometimes ☐
- Occasionally ☐
- Very rarely ☐

- 4 **Do you ever use any other methods of contraception as well?** (If no, please go to question 7 below) Yes No
- ☐ ☐

- 5 **If yes, what other method(s) do you use?** Please state how long you have used it / them for in the box below.

6 **If you answered that you use another method as well as your main method, how often is it used?** Please tick the box that best describes how often your other method is used. tick box

Absolutely always, without fail ☐

Almost always, but always if the main method is at risk of failing (e.g. always use a condom if a pill has been missed or taken late) ☐

Only when the main method is at risk of failing ☐

Almost always ☐

Most of the time ☐

About half of the time ☐

Sometimes ☐

Occasionally ☐

Very rarely ☐

7 **How many times have you had sex and used contraception properly in the last 6 months?** Please answer in the box below. If you cannot remember please put your best guess.

8 **How many times have you had sex and either NOT used contraception properly or had contraception go wrong in the last 6 months? (e.g. condom broke, girlfriend forgot to take pill, didn't use a condom)** Please answer in the box below, and put your best guess if you're not sure.

9 **How many times have your girlfriend(s) used emergency contraception such as the morning-after pill in the last 6 months? (only counts if used within 72 hours of the unprotected sex)** Please give the number in the box below.

10 Please tick a box from 1 to 7 to show how much you agree with the following statement. **I have used contraception properly every time I have had sex in the last 6 months.**

1 Strongly disagree	2 disagree	3 slightly disagree	4 neither agree nor disagree	5 slightly agree	6 agree	7 strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

That is the end of Section 3.

There are just a few more questions that you need to answer to do with what you think and feel about contraception.

Please answer them all if you can.

It doesn't matter if you have never used contraception or if you have been using it for some time, everyone should answer the rest of the questionnaire.

If you have not used contraception answer the questions according to how you imagine you would think and feel about using it.

Section 4

Looking at what you want to do Please tick a box from 1 to 7 to show what you think.

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
I intend to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Strongly disagree	2 disagree	3 slightly disagree	4 neither agree nor disagree	5 slightly agree	6 agree	7 strongly agree
I plan to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
3 I want to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 5

Looking at how confident you feel about using contraception

Please answer the following questions, by ticking the appropriate box. You are being asked how confident you feel about carrying out each item.

Please answer each item in relation to how you feel about your main method of contraception. If you do not have a main method, answer in relation to how you feel about the method you know most about, or have most experience of.

	How confident are you that you...	1 Very confident	2 confident	3 slightly confident	4 neither confident nor unconfident	5 slightly unconfident	6 unconfident	7 very unconfident
1	...can use your main method of contraception, or the method you know most about properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	...will use a contraceptive method effectively next time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	...will use a contraceptive method effectively every time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	...will use a contraceptive method effectively if you have been drinking or taking drugs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	...will use a contraceptive method effectively if a girlfriend does not want you to?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	...will use a contraceptive method effectively if a girlfriend suggests using a risky method like withdrawal before ejaculation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	...will not have sex if there is no method of contraceptive protection available to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 6

Looking at feelings of regret

Please answer the questions in this section by again circling a number from 1 to 7 on the scale which you think best matches how you feel about the question or statement.

1 If you had sex and did not use your chosen method of contraception, how much do you think you would regret it the next day?

very much 1 2 3 4 5 6 7 not at all

2 If you thought that it was possible your girlfriend could be pregnant (e.g. because her period was late) and knew that you had failed to use a reliable method of contraception recently, how worried would you feel?

Not at all 1 2 3 4 5 6 7 Very worried
worried

3 How much would you regret your girlfriend being pregnant at this stage of your life?

Very much 1 2 3 4 5 6 7 Not at all

4 If you found out that your girlfriend was pregnant with your child, after failing to use a method of contraception, how much would you regret having not used contraception?

Not at all 1 2 3 4 5 6 7 Very much

5 Would an abortion be an option you feel you could consider if your girlfriend were to have an unplanned pregnancy?

Definitely no 1 2 3 4 5 6 7 Definitely
yes

Now think about a sexual experience you have had in the past where you have used contraception properly.

If you do not have experience of this, please imagine that you have. Once you have imagined it, or thought back to when it has happened to you, please complete question 6 below.

6 How would you feel, or how did you feel after having sex when you USED CONTRACEPTION PROPERLY? Please circle a number from 1 to 7.

Unhappy	1	2	3	4	5	6	7	Happy
Unconcerned	1	2	3	4	5	6	7	Concerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried

Now think about a sexual experience you have had in the past where you have NOT used contraception properly.

If you do not have experience of this, please imagine that you have. Once you have imagined it, or thought back to when it has happened to you, please complete question 7 below.

7 How would you feel, or how did you feel after having sex when you DID NOT USE CONTRACEPTION PROPERLY?

Unhappy	1	2	3	4	5	6	7	Happy
Unconcerned	1	2	3	4	5	6	7	Concerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried

Past half way now!!!

Section 7

Looking at how much control you feel you have

The questions in this section appear in pairs. Please answer them by circling a number from 1 to 7 that best represents how you would feel, think and behave even if you are not having sex at the moment.

1 How often is your use of contraception affected by you taking drugs or alcohol?

Always	1	2	3	4	5	6	7	Never
---------------	----------	----------	----------	----------	----------	----------	----------	--------------

2 If I have used drugs or alcohol before having sex, it makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

3 How often does the situation you are in (e.g. at a party or at home alone with your girlfriend) affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

4 The situations I am in when I have sex make my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

5 How often does the availability of contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

6 The availability of contraception makes my contraceptive use...

Much more likely	1	2	3	4	5	6	7	Much less likely
------------------	---	---	---	---	---	---	---	------------------

7 How often does the willingness of your girlfriend(s) to use contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 Always

8 The willingness of my girlfriend(s) to use contraception makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

9 How often does your excitement or level of arousal during a sexual experience affect your use of contraception?

Always 1 2 3 4 5 6 7 Never

10 My excitement or level of arousal during a sexual experience makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

11 How often does your level of skill or competence at using contraception affect your use of it?

Never 1 2 3 4 5 6 7 Always

12 My level of skill or competence at using contraception makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 Much more likely

13 How often does your ability to discuss contraception with a girlfriend affect your use of contraception?

Never 1 2 3 4 5 6 7 Always

14 My ability to discuss contraception with a girlfriend makes my contraceptive use...

Much more likely 1 2 3 4 5 6 7 Much less likely

Section 8

Your beliefs about contraception

The questions in this section appear in pairs again, please answer them by ticking the box that best shows what you think.

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
1	A girlfriend taking the pill / hormonal implants / hormonal injections / would be an easy way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
2	Contraception being easy is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
3	A girlfriend taking the pill / hormonal implants / hormonal injections / could make her periods easier (e.g. less painful, shorter etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
	A girlfriend having easier periods would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
	A girlfriend taking the pill / hormonal implants / hormonal injections / is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
	Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
7	Using a condom / femidom is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
8	Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
9	Using the withdrawal method would not protect me from Sexually Transmitted Infections (STIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
10	Not being protected from STIs would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
11	Using the withdrawal method means having to pull out before ejaculation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
12	Having to pull out before ejaculation is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
The withdrawal method is not a reliable method of preventing pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
A method that is unreliable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Using a condom / femidom is a reliable way to prevent the spread of Sexually Transmitted Infections (STIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Preventing the spread of STIs is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
Using a condom / femidom would make sex feel safer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
Feeling that sex is safe is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
19	Condoms and femidoms would be affordable for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
20	Contraception being affordable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
21	Condoms / femidoms can be an unsafe method of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
22	Using a method that I do not feel is safe would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
23	Using a condom or a femidom can make sex awkward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
24	Using a method that makes sex awkward is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Almost finished!!!

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
25	Using a condom or a femidom can interrupt the flow of sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
26	Interrupting the flow is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
27	Using a condom or a femidom would mean less pleasure during sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
28	Loss of pleasure during sex is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 9

Looking at how you feel about social pressure

Below are a final set of paired questions that you should answer by circling the response that best explains how you feel.

Please answer the questions even if you are not having sex. Try to imagine how you would think and feel if you were having sex

1 My friends think that I should use contraception every time I have sex.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree
---------------------------	---	---	---	---	---	---	---	------------------------------

2 With regard to using contraception, how much do you want to do what your friends think you should?

Not at all	1	2	3	4	5	6	7	Very much
-------------------	---	---	---	---	---	---	---	------------------

3 My parents think that I should use contraception every time I have sex.

**Strongly
disagree**

1 2 3 4 5 6 7

**Strongly
agree**

4 With regard to using contraception, how much do you want to do what your parents think you should?

Not at all

1 2 3 4 5 6 7

Very much

5 My girlfriend(s) think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

6 With regard to using contraception, how much do you want to do what your girlfriend(s) thinks you should?

Very much

1 2 3 4 5 6 7

Not at all

7 My doctor and / or other health workers I know think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

8 With regard to using contraception, how much do you want to do what your doctor or health workers think you should?

Not at all

1 2 3 4 5 6 7

Very much

Thank you for filling in this questionnaire. Your time and effort are very much appreciated.

**Re.C.A.P.P.
Research into Contraception and Pregnancy Prevention**

Appendix 15b – T2 questionnaire – Female (blue)

Re.C.A.P.P.
Research into Contraception and Pregnancy Prevention



FEMALE
PRIVATE AND CONFIDENTIAL QUESTIONNAIRE

Only fill in this questionnaire if you are female. If you are male and you have accidentally been given this questionnaire, please ask for the male version.

This questionnaire is part of a study on the use of contraceptives by young people. Thank you for agreeing to take part in this research. Your name is not asked for at any point in the questionnaire, so your answers will remain confidential.

Please write in the spaces below, the day and month of your birthday (for example if your birthday is **February the 19th**, you'd write **19 / 02**) followed by the first three letters of your Mother's Maiden Name (for example, **Jones** would be **JON**).

___ / ___ - ___ - ___

If you have any questions that you wish to ask before you start then please feel free to ask. If you need to ask a question part way through filling in the questionnaire then please raise your hand and a teacher or researcher will come to you.

There follows a series of questions. Please answer each question by either writing in the space provided, or, by ticking the correct box.

It doesn't matter if you have never used contraception or if you have been using it for some time, everyone should answer all questions if possible .

If you have not used contraception answer the questions according to how you imagine you would think and feel about using it.

Section 1

Looking at what you want to do Please tick a box from 1 to 7 to show what you think.

	1 Strongly agree	2 agree	3 slightly agree	4 neither agree nor disagree	5 slightly disagree	6 disagree	7 strongly disagree
1 I intend to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 I plan to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 I want to use a method of contraception effectively every time I have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 2

Looking at how confident you feel about using contraception

Please answer the following questions, by ticking the appropriate box. You are being asked how confident you feel about carrying out each item.

Please answer each item in relation to how you feel about your main method of contraception. If you do not have a main method, answer in relation to how you feel about the method you know most about, or have most experience of.

How confident are you that you...	1 Very confident	2 confident	3 slightly confident	4 neither confident nor unconfident	5 slightly unconfident	6 unconfident	7 very unconfident
1 ...can use your main method of contraception, or the method you know most about properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 ...will use a contraceptive method effectively next time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 ...will use a contraceptive method effectively every time you have sex?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 ...will use a contraceptive method effectively if you have been drinking or taking drugs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 ...will use a contraceptive method effectively if a boyfriend does not want you to?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 ...will use a contraceptive method effectively if a boyfriend suggests using a risky method like withdrawal before ejaculation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 ...will not have sex if there is no method of contraceptive protection available to you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 3

Looking at feelings of regret

Please answer the questions in this section by again circling a number from 1 to 7 on the scale which you think best matches how you feel about the question or statement.

1 If you had sex and did not use your chosen method of contraception, how much do you think you would regret it the next day?

very much 1 2 3 4 5 6 7 not at all

2 If you thought that it was possible you could be pregnant (e.g. because your period was late) and knew that you had failed to use a reliable method of contraception recently, how worried would you feel?

Not at all 1 2 3 4 5 6 7 Very worried
worried

3 How much would you regret being pregnant at this stage of your life?

Very much 1 2 3 4 5 6 7 Not at all

4 If you found out that you were pregnant, after failing to use a method of contraception, how much would you regret having not used contraception?

Not at all 1 2 3 4 5 6 7 Very much

5 Would an abortion be an option you feel you could consider if you were to have an unplanned pregnancy?

Definitely no 1 2 3 4 5 6 7 Definitely
yes

Now think about a sexual experience you have had in the past where you have used contraception properly.

If you do not have experience of this, please imagine that you have. Once you have imagined it, or thought back to when it has happened to you, please complete question 6 below.

6 How would you feel, or how did you feel after having sex when you USED CONTRACEPTION PROPERLY? Please circle a number from 1 to 7.

Unhappy	1	2	3	4	5	6	7	Happy
Unconcerned	1	2	3	4	5	6	7	Concerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried

Now think about a sexual experience you have had in the past where you have NOT used contraception properly.

If you do not have experience of this, please imagine that you have. Once you have imagined it, or thought back to when it has happened to you, please complete question 7 below.

7 How would you feel, or how did you feel after having sex when you DID NOT USE CONTRACEPTION PROPERLY?

Unhappy	1	2	3	4	5	6	7	Happy
Unconcerned	1	2	3	4	5	6	7	Concerned
Regretful	1	2	3	4	5	6	7	Not regretful
Not worried	1	2	3	4	5	6	7	Worried

Past half way now!!!

Section 4

Looking at how much control you feel you have

The questions in this section appear in pairs. Please answer them by circling a number from 1 to 7 that best represents how you would feel, think and behave even if you are not having sex at the moment.

1 How often is your use of contraception affected by you taking drugs or alcohol?

Always 1 2 3 4 5 6 7 **Never**

2 If I have used drugs or alcohol before having sex, it makes my contraceptive use...

Much less likely 1 2 3 4 5 6 7 **Much more likely**

3 How often does the situation you are in (e.g. at a party or at home alone with your boyfriend) affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

4 The situations I am in when I have sex make my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

5 How often does the availability of contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

6 The availability of contraception makes my contraceptive use...

Much more likely	1	2	3	4	5	6	7	Much less likely
------------------	---	---	---	---	---	---	---	------------------

7 How often does the willingness of your boyfriend(s) to use contraception affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

8 The willingness of my boyfriend(s) to use contraception makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

9 How often does your excitement or level of arousal during a sexual experience affect your use of contraception?

Always 1 2 3 4 5 6 7 **Never**

10 My excitement or level of arousal during a sexual experience makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

11 How often does your level of skill or competence at using contraception affect your use of it?

Never 1 2 3 4 5 6 7 **Always**

12 My level of skill or competence at using contraception makes my contraceptive use...

Much less likely	1	2	3	4	5	6	7	Much more likely
------------------	---	---	---	---	---	---	---	------------------

13 How often does your ability to discuss contraception with a boyfriend affect your use of contraception?

Never 1 2 3 4 5 6 7 **Always**

14 My ability to discuss contraception with a boyfriend makes my contraceptive use...

Much more likely	1	2	3	4	5	6	7	Much less likely
------------------	---	---	---	---	---	---	---	------------------

Section 5

Your beliefs about contraception

The questions in this section appear in pairs again, please answer them by ticking the box that best shows what you think.

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
1	Taking the pill / hormonal implants / hormonal injections / would be an easy way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
2	Contraception being easy is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
3	Taking the pill / hormonal implants / hormonal injections / could make my periods easier (e.g. less painful, shorter etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
4	Having easier periods would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
5	Taking the pill / hormonal implants / hormonal injections / is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
6	Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
7	Using a condom / femidom is a reliable way to prevent pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
8	Preventing pregnancy is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
9	Using the withdrawal method would not protect me from Sexually Transmitted Infections (STIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
10	Not being protected from STIs would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
11	Using the withdrawal method means relying on a boyfriend to pull out before ejaculation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
12	Having to rely on a boyfriend to do this is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
13	The withdrawal method is not a reliable method of preventing pregnancy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
14	A method that is unreliable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
15	Using a condom / femidom is a reliable way to prevent the spread of Sexually Transmitted Infections (STIs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
16	Preventing the spread of STIs is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
17	Using a condom / femidom would make sex feel safer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
18	Feeling that sex is safe is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
19	Condoms and femidoms would be affordable for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
20	Contraception being affordable is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
21	Condoms / femidoms can be an unsafe method of contraception	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
22	Using a method that I do not feel is safe would be...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
23	Using a condom or a femidom can make sex awkward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
24	Using a method that makes sex awkward is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Almost finished!!!

		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
25	Using a condom or a femidom can interrupt the flow of sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
26	Interrupting the flow is...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very likely	2 likely	3 slightly likely	4 neither likely nor unlikely	5 slightly unlikely	6 Unlikely	7 very unlikely
27	Using a condom or a femidom would mean less pleasure during sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		1 Very good	2 good	3 slightly good	4 neither good nor bad	5 slightly bad	6 bad	7 very bad
28	Loss of pleasure during sex is ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 6

Looking at how you feel about social pressure

Below are a final set of paired questions that you should answer by circling the response that best explains how you feel.

Please answer the questions even if you are not having sex. Try to imagine how you would think and feel if you were having sex

1 My friends think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

2 With regard to using contraception, how much do you want to do what your friends think you should?

Not at all

1 2 3 4 5 6 7

Very much

3 My parents think that I should use contraception every time I have sex.

**Strongly
disagree**

1 2 3 4 5 6 7

**Strongly
agree**

4 With regard to using contraception, how much do you want to do what your parents think you should?

Not at all

1 2 3 4 5 6 7

Very much

5 My boyfriend(s) think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

6 With regard to using contraception, how much do you want to do what your boyfriend(s) thinks you should?

Very much

1 2 3 4 5 6 7

Not at all

7 My doctor and / or other health workers I know think that I should use contraception every time I have sex.

**Strongly
agree**

1 2 3 4 5 6 7

**Strongly
disagree**

8 With regard to using contraception, how much do you want to do what your doctor or health workers think you should?

Not at all

1 2 3 4 5 6 7

Very much

Thank you for filling in this questionnaire. Your time and effort are very much appreciated.

**Re.C.A.P.P.
Research into Contraception and Pregnancy Prevention**

Participant Information Sheet

The study that we are working on is about contraception and unplanned pregnancy. It involves getting people to fill in some questionnaires and workbooks regarding contraception.

Your answers will be kept completely **confidential**, and at no point will you be asked to give your name. It does not matter if you have never used contraception. I would very much appreciate your help with this piece of work, if you feel you would like to take part. Firstly though, I would like you to read through the following questions and their answers, so that you understand more about what you are doing.

Why have you asked me to take part?

Unplanned and unwanted pregnancies happen all the time to women and girls of all ages, in all walks of life. Needless to say, both men and women have a part to play. One of the age groups that are most at risk of unplanned pregnancy are teenagers. Because of this, I am asking people aged between 14 and 19 years to take part.

What will I be required to do?

If you decide that you would like to take part, you will be asked to fill in some questionnaires and do some workbook activities. The questionnaires and workbooks will be done in one of your lessons, without speaking or making contact with anyone else. This is so that everyone keeps their answers private. If you have any questions to ask while you are filling in the materials, you can raise your hand, and I will come to you. When you've finished everything you can seal it all away in the brown envelope I'll give you, so that it's extra private.

Where will this take place?

You will fill in the questionnaire at school, in a classroom setting, not too close to other classmates, so that you can fill in the answers in private.

How often will I have to take part and for how long?

You will just need to complete 3 questionnaires on 3 different days over a period of about 5 weeks. There will also be a colour workbook for you to read through before you complete the second questionnaire.

What if I do not wish to take part?

If you do not wish to take part then you do not have to. Your participation is completely voluntary, and I do not wish anyone to take part that does not want to. It is important that all participants are happy to take part. You can always look at the materials when they are handed to you, and leave them blank.

Handing them back blank, is fine, and no-one will ask you why you have not filled them in. But, we would really like your help with this work, so please do take part if you can, remembering that no-one will ever be able to connect you to the responses you give. We do need your help.

What if I change my mind during the study?

If you decide at any time, that you no longer want to take part, then you are completely free to withdraw without giving a reason. Contact details for me, are at the end of this information sheet.

When will I have the opportunity to discuss my participation?

I will be there at the school when you are doing the tasks, so you can ask me questions then, or use the contact details to contact me at a later date

Who will be responsible for all this information when this study is over? Who will have access to it? And what will happen to it?

Two other members of the research team and I will be the only people responsible for this information, both throughout the study and when it is over, and we will be the only people who have access to the questionnaires that have been filled in. Results will be compiled from all of the questionnaires together, and no-one's individual answers will ever be referred to in a write up of the results. Please remember that **all responses are anonymous** anyway, your name is not asked for anywhere, and if you want the questionnaire to be destroyed at a later date, when the data has been taken down, please write a **D** on the sealed envelope when you have finished.

How long is the whole study likely to last?

This study is part of an ongoing project that will be complete by March 2005.

If you have any other questions that you would like answering, please do not hesitate to ask. If you think of something later you can contact me without hesitation. Details are as follows;

**Katherine Brown.
Psychology Subject Group
School of Health and Social Sciences
Coventry University
Priory street
Coventry
CV1 5FB**

Tel: (024) 7688 8654

k.brown@coventry.ac.uk

(Remember if you send an email I will be able to see your name on the email address – but I will delete the email as soon as I have dealt with it.)

Appendix 17 – Sources of help and advice post intervention

Websites

www.brook.org.uk

www.ruthinking.co.uk

www.crush-onu.co.uk

www.bpas.org

www.fpa.org.uk

www.support4learning.org.uk then click on health & then click on sexual health

Places to ring or visit

Women's Health & Information Centre phone: 02476 844 171
& G.U. Medicine (STIs)
within Coventry & Warwickshire Hospital
Stoney Stanton Road
Coventry CV1 4FH

Grove Road Family Planning Clinic phone: 0121 705 8737
51 Grove Road
Solihull
West Midlands B91 2AQ

Brook Advisory Centre phone: 0121 643 5341
59-65 John Bright Street
Birmingham B1 1BL
(within easy walking distance of New Street station)

Brunswick Clinic phone: 01926 423 736
St Mary's Lodge
Radford Road
Leamington Spa CV31 1JQ

Millenium Emergency Contraception Help Line phone: 0121 236 6626
Whittal Street
Birmingham B4 6DH

Treaford Lane Family Planning Clinic phone: 0121 327 6548
73, Treaford Lane
Birmingham B8 2UE

If you have a problem or query that has anything to do with contraception, sex, sexual health, pregnancy or STIs, please speak to someone about it. Speak to someone you trust or call one of the numbers above. They will be able to help, and give you further information about the nearest places for you to visit. It costs money to call the numbers above, so if that's a problem there's a free number you can call below.

FREE Confidential advice from Sexwise – helpline 0800 28 29 30



Re.C.A.P.P.

Research into contraception and pregnancy prevention

Dear Parent or Guardian,

Sheffield Hallam University and Coventry University are conducting some research into contraception use amongst teenagers in the region. As I am sure you are aware, this country has very high rates of teenage pregnancy, rates that far exceed our Western European neighbours. Whilst unwanted or unintended pregnancy can affect people of all ages, teenagers are one of the groups who are most at risk, and that is why there is a need to carry out research in this area.

The school that your child(ren) attend(s) has been asked to take part in this piece of research. It will only involve those pupils who are in Year 10 and above (i.e. those aged 14 years or older). Pupils would be required to fill in a short **private and confidential** questionnaire (i.e. names are not asked for) which asks about any experience they may have of using contraception. Questions then target psychological constructs that earlier research has shown to be strongly associated with actual behaviour. All pupils will be asked to fill it in even though they may have never used contraception. It is important to find out what everyone thinks.

Your child(ren) will then be given a workbook to fill in. Please note that every pupil has the right to say that they do not want to take part on an individual basis. So, if you give your consent, this does not mean they have to fill in the questionnaire. Your child(ren) will be given a further brief questionnaire to complete about one month after completing the initial intervention workbook, to test for changes in responses since the intervention.

Below is a consent form that can be detached and returned to your child(ren)'s school only if you **do not** want your child to take part in this intervention study. If you do not return the form we will consider that you consent to your child(ren) deciding whether or not they would like to take part.

I the parent or guardian of _____ (please write name(s))
do not consent to her/him/them taking part in the forthcoming research with Sheffield
Hallam University. I do not want him/her/them to take part in the intervention.

Signed _____

Name (please print) _____

Only return this slip if you do not want your child(ren) to take part.

Appendix 19 – Missing Patterns table – intervention data

Missing Patterns (cases with missing values)

Case	# Missing	% Missing	Missing and Extreme Value Patterns(a)																								
			sta ge T1	du ms ta ge T2	be ha vio ur T1	du m be ha vT 2	T1 _in te nti on	T1 _A R	T1 _e f fic ac y	T1 _c on tro l	T2 _c on tro l	T2 _e f fic ac y	T2 _f act or 1	T2 _f act or 2	T2 _f act or 3	T2 _n or m	T2 _sta ge T3	be ha vio ur T3	T3 _c on tro l	T3 _f act or 1	T3 _f act or 2	T3 _f act or 3	T3 _n or m	T3 _A R	T3 _e f fic ac y	T3 intention	
12	1	3.3																					S				
318	1	3.3																					S				
225	2	6.7																					S				
344	4	13.3																					S				
351	5	16.7																					S				
356	4	13.3																					S				
6	6	20.0																					S				
381	6	20.0																					S				
395	8	26.7																					S				
22	10	33.3																					S				
52	10	33.3																					S				
53	10	33.3																					S				
59	10	33.3																					S				
67	10	33.3																					S				
86	10	33.3																					S				
99	10	33.3																					S				
130	10	33.3																					S				
136	10	33.3																					S				
138	10	33.3																					S				
147	10	33.3																					S				
157	10	33.3																					S				
171	10	33.3																					S				
174	10	33.3																					S				
179	10	33.3																					S				
211	10	33.3																					S				
217	10	33.3																					S				
218	10	33.3																					S				
219	10	33.3																					S				
224	10	33.3																					S				
4	10	33.3																					S				
230	10	33.3																					S				
236	10	33.3																					S				

