

The identification of salient beliefs concerning university students' decision to participate in sport

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Abstract

The aim of this study was to identify salient beliefs towards university provided recreational sport in first year undergraduate students. A purposive sample of 76 students (36 males, 40 females; mean age: 19.2 ± 1.7 years) undertaking various degree subjects at a higher education institution in the North of England, UK, was used in the study. The instrument was a theory-based open-ended questionnaire informed by the Theory of Planned Behavior addressing behavioral, normative and control beliefs. Thematic content analysis and coding was conducted on 30 randomly selected questionnaires followed by a frequency count to identify the modal salient beliefs. The modal set revealed 17 beliefs from a possible 53; six behavioral, five normative, and six control. These beliefs were related to health benefits, enjoyment, friendships, time constraints, study workloads, awareness, and the perception of family, friends, and academics. The results highlight the factors that should be targeted for intervention and provide data to be utilized for a second main quantitative study which will identify more specific belief targets. Due to equivocal intervention success, this formative research can serve to help increase the number of students participating in university recreational sport.

Keywords: Theory of Planned Behavior, recreational sports, physical activity, intervention

With a decline in various health related behaviors often seen in late adolescence, higher education settings provide great opportunities to target improvements (Hensley, 2000; Kwan, Bray, & Martin Ginis, 2009; Leslie, Sparling & Owen, 2001). The provision of sport and recreation activities has demonstrated numerous benefits within academia including an increase in success rates (Huesman, Brown, Lee, Kellogg, & Radcliffe, 2009) and a reduction in stress (Kanters, 2000). Furthermore, the greater sense of campus community promoted through such activities (Elkins, Forrester, & Noël-Elkins, 2011) can contribute to the improvement of retention rates (Kampf & Teske, 2013). Scott and Willits (1998) also found that the performance of various leisure activities, including sport, continued to be performed in adulthood when done so during adolescence.

Despite these benefits, participation in sport usually decreases when students begin university (Gucciardi & Jackson, 2015). Similar results have been found in physical activity (PA) (Bray & Born, 2004; Romaguera et al., 2011). Bray and Born (2004) found a 22% decrease in the numbers who performed PA prior to university compared to the first two months of life in higher education (66% were active prior compared to the 44% during). Although sport and PA may share similarities, there are differences between the two. Sport includes some amount of physical exertion, but it also includes organized conditions and rules (Coakley, 2009). As such, this paper uses sport to refer to those organized activities provided by the university.

Another important distinction concerns the nature of sport offered in higher education. In the UK, higher institutions offer both organized formal competitions and recreational activities. Regarding the former, British Universities and Colleges Sport (BUCS) provide institutions with the opportunity to compete with one another in a variety of sports. However, similar to the interscholastic model used in the United States, this approach limits the number of students that can participate (Kanters, Bocarro, Edwards, Casper, & Floyd, 2013). As less

sporty students may be put off participating or may withdraw due to its competitive nature (Wechsler, Devereaux, Davis, & Collins, 2000; Weiss & Ferrer-Caja, 2002), ensuring that participation is not based around athletic ability is important (Barnett, Morgan, van Beurden, Ball, & Lubans, 2011). As an alternative, UK institutions also offer additional informal and intramural activities promoted using a noncompetitive process, lack of membership subscriptions, and flexible timetabling. Despite catering to include all students (Tsigilis, Masmanidids, & Koustelios, 2009), a limited number of students participating in these recreational sporting activities has been found (Sport England, 2012).

Upon recognizing the important role institutions have in developing and maintaining interest in sporting activities, Sport England committed itself to involving over 75% of university students in sport as part of the 2012-2017 Sport England Youth and Community Strategy (Sport England, 2012). Specifically, the organization has recently made considerable investments into two large projects with the aim of establishing a sporting habit for life by attracting school and college leavers to participate in sport at least once a week for thirty minutes. The Active Universities showed a 2% increase in participation across three years, with the majority of change seen during the first year (2011-2012). As such, during the remaining two years there was no increase in sporting participation (Sport England, 2014). Similar modest gains have been observed in the Sport Activation Fund to date. These limited affects could be explained by the neglect of psychological behavior change theory in the development of the interventions, especially as interventions underpinned by theory have been shown to demonstrate effectiveness above atheoretical approaches (Taylor, Conner, & Lawton, 2012). From the plethora of behavior change theories available, one of the most cited, utilized and critiqued is the Theory of Planned Behavior (TPB; Ajzen, 1985).

According to the TPB, an individual's intention is the proximal determinant of their behavior and represents a person's motivation of their conscience plan or decision to exert

effort to perform the behavior (Fishbein & Ajzen, 1980). Intention is determined by three factors, namely attitude, subjective norm, and perceived behavioral control. The attitude component refers to the individual's perception toward the behavior, whether it be favorable or unfavorable (Fishbein & Ajzen, 2009). Subjective norm concerns perceptions of social pressure from significant others to perform the behavior (Ajzen & Fishbein, 1980). Perceived behavioral control relates to the perceptions of the ease and difficulty of actually performing the behavior. Just as intentions are held to have determinants, attitude, subjective norm, and perceived behavioral control are also held to have determinants in the form of beliefs. As individuals hold a large number of beliefs relevant to a specific behavior and can only attend to a relatively small number at any given time (Miller, 1956), the TPB postulates that it is these salient behavioral, normative and control beliefs that govern behavior (Ajzen, 2002). Behavioral beliefs are the perceived consequences of engaging in behavior, and people's evaluation of these consequences (Ajzen & Fishbein, 1980). Normative beliefs are the perceived expectations of important referents such as family members, friends, and doctors, and by a person's motivation to comply with the wishes of these important others (Ajzen, 1985). Finally, control beliefs are people's evaluation about the presence of factors that may facilitate or impede performance of the behavior (Ajzen & Madden, 1986).

One of the most important recommendations of the TPB is that belief elicitation must be conducted, which highlights beliefs important for change and identifies suitable intervention belief-based targets (Ajzen, 2002). As beliefs vary from population to population (Fishbein & Manfredo, 1992), elicitation should be conducted specific to each behavior. To define behavior precisely, Ajzen (1988) asserts that the *target*, *time*, *action* and *context* must be taken into consideration (TACT). Although this process is arbitrary, the purpose of this strict procedure is a consequence of a change in one of these elements will redefine the behavior. Although it is more effective to elicit individual beliefs and deliver tailored

120 interventions, it is more practical to gain the beliefs held most commonly amongst the
121 population through the identification of the modal set. The elicitation study is then followed
122 by a main quantitative study which highlights those specific beliefs to target. Elicitation
123 studies are conducted using open-ended questions within a questionnaire, focus groups, or
124 interviews (Ajzen & Fishbein, 1980), with questionnaires more commonly used due to the
125 time taken to transcribe and identify key themes. There is no definitive sample size (Epton et
126 al., 2015), with ranges varying considerably (Downs & Hausenblas, 2005a). Despite this, a
127 small convenience sample within the target population is appropriate as long as a
128 comprehensive range of salient beliefs are captured (Francis et al., 2004). Saturation
129 techniques are employed whereby additional data yields little further information (Ajzen &
130 Fishbein, 1980).

131 As the modal set is not based on idiosyncratic beliefs (Ajzen, 1991) and may therefore
132 include beliefs not relevant to each participant (Francis et al., 2010), Sutton (2002) suggests
133 there must be a trade-off between maximizing the number of the person's salient beliefs that
134 fall in the modal set and minimizing the number of beliefs that aren't salient to the individual.
135 Various methods have been used to conduct this. For example, Chatzisarantis and Hagger
136 (2005) selected the three to five most salient beliefs whereas Ungar, Sieverding, Ulrich and
137 Wiskemann (2015) and Rowe et al. (2016) included those beliefs that a minimum of three
138 participants had identified. A widely used procedure has been the use of a percentage
139 criterion whereby beliefs mentioned between 20-30% of the sample are identified as being
140 modal (e.g., Epton et al., 2015; Spinks & Hamilton, 2015; Vayro & Hamilton, 2016).
141 According to Vayro and Hamilton (2016), this number ensures that a wide range of
142 underlying beliefs are included for the main study.

143 The theory has received a huge amount of attention with hundreds of cross-sectional
144 studies attesting to the predictive validity of attitude, subjective norm, and perceived

behavioral control (Downs & Hausenblas, 2005b; Hagger, Chatzisarantis, & Biddle, 2002). Compared to the plethora of prediction studies, there has been a surprisingly small number undertaking the elicitation procedure (Fishbein & Middlestadt, 1995). Although prediction studies are useful, the information gained is insufficient for intervention development. For example, Gucciardi and Jackson (2015) found attitude and perceived behavioral control to explain intention to continue participation in sport. However, it is unclear as to the beliefs influencing these determinants and to therefore target. As a consequence, interventions are often created on intuition (Quine, Rutter, & Arnold, 2001) or by targeting beliefs that have been identified to be similar to their own target behavior (Curtis, Weiler, & Ham, 2010). However, guessing influential beliefs or utilizing beliefs from another study involving a different context may not represent the perceptions of those under investigation (de Leeuw, Valois, Ajzen & Schmidt, 2015). A meta-analysis by Webb, Joseph, Yardley and Michie (2010) examining online interventions to change various health behaviors found that although many were based on the TPB, none of them correctly conducted the elicitation process. The targeting of non-salient beliefs (Hardeman et al., 2002) could, perhaps, explain why interventions using the TPB have demonstrated limited effectiveness to date (Ajzen, 2015).

Despite the paucity of elicitation studies, a few studies have informed the development of PA interventions for undergraduate students (Cowie & Hamilton, 2014; Epton et al., 2015; Riecken, Mark, & Rhodes, 2013). For example, Epton et al. (2015) found that a behavioral, normative, and control belief concerned 'health', 'family', and 'time restrictions' respectively. Although studies concerning PA and sport may identify overlapping beliefs, participation in sport could be underpinned by different perceptions and would thus require alternative interventions. In line with Henderson's (2009, p. 64) suggestion that 'the motivators for sports participation are likely quite different than the motivators to exercise for most people', Kilpatrick, Hebert, and Bartholomew (2005) found

that exercise participation was influenced by perceptions of appearance whereas sport participation was governed by enjoyment factors. In a study more closely related to sport, Sniehotta (2009) conducted an experimental study to change elicited behavioral, normative, and control beliefs concerning the use of university sport and recreation services. Although the belief elicitation was not reported separately, some of the beliefs targeted during the interventions included 'health', 'family', 'time', and 'feelings of discomfort or embarrassment.' However, as this study concerned a wide range of sports available, including both competitive and recreational, as well as use of the gym facilities, different beliefs may be required for intervention design where gym facilities are not included. It could therefore, be more beneficial to conduct an elicitation study regarding recreational sport in isolation.

In summary, there has been a lack of elicitation studies conducted concerning participation in university sport, with the majority of studies focusing on PA. This subtle, yet important distinction could result in the identification of different beliefs, meaning alternative interventions would be necessary. Furthermore, those that have targeted sport have done so without distinguishing between the recreational and competitive sports offered which, again, fail to differentiate between different beliefs. As far as the authors are aware, no study has conducted elicitation with first year university students concerning participation in university provided recreational sports. Given the minimal success of interventions to date (Sport England, 2012) and the encouragement to use theory in the development of interventions (Michie, Johnston, Francis, Hardeman, & Eccles, 2008), it is important that such research is conducted concerning the behavior within this subpopulation.

Due to the lack of research in the UK examining participation in higher education sport, the purpose of the study was to conduct an elicitation study specifically aimed at highlighting the salient behavioral, normative, and control beliefs to participate in recreational sport provided by a university. This formative work is crucial as it identifies

potential targets for intervention and also informs a proceeding quantitative study which will highlight more specific beliefs to be altered during intervention.

Method

Sample

A sample of 80 students was selected at a small sized higher education institution in the North of England (36 males, 40 females; mean age = 19.2 ± 1.7 years). The response rate was 76 with 4 non-attendees at class during the time the survey was administered. Participants from different programs of study were selected in order to generalize to the wider first year population. The number of participants recruited and their respective degree courses were as follows: Nutrition, Food and Health (n=20), Secondary Physical Education and Sports Coaching (n=20), Child and Family Welfare Studies (n=18), and English (n=18). First year students were selected due to the decline in activity that this demographic has previously shown (Kwan et al., 2009) and the various benefits that can be seen. The study was undertaken in the second semester to allow ethical clearance to occur.

Procedure

As the study aimed to generalize to the first year population, a purposive sampling technique was used to ensure the inclusion of different subject areas. Prior to data collection, ethical approval was gained from the University board in Semester 1 (September – December), hence the study was undertaken in Semester 2 (January – June). The researcher made prior contact with academic lecturers via email to establish participant availability and lecture times. As recruitment was seen as being potentially problematic, this strategy was seen to ensure a higher response rate. Once teaching times and locations were established, the researcher approached the participants in class, after lectures and tutorials had finished. The researcher gave a brief overview of the study purpose and their potential involvement in it.

Students who were happy to participate were asked to read the participant information sheet and sign the consent form. The participant information sheet explained the study in more detail and included a definition of the behavior. This definition was formed using the TACT principle, which was explained more within the detailed description of the instrument. To emphasize the importance of this principle, the definition was also stated verbally by the researcher prior to questionnaire initiation. Furthermore, to ensure that participants understood what was meant by 'participation in sport', similar to Sutton et al. (2003), examples of the behavior were given by the researcher. For example, the researcher provided examples of university recreational sports such as 'tennis' and 'squash' that were explained to be part of the university recreational sports offered outside of the BUCS competitive sport leagues at this university. It was also explained that university sport concerned the sports that the university provided both on and off campus and was not targeting those offered by governing bodies (i.e., BUCS), nor did it relate to elite sports participation. This was due to the difference between competitive and non-competitive sport previously highlighted. Participants were therefore clear regarding the behavioral definition and were instructed to follow this definition throughout the questionnaire. The researcher explained to participants that participation was optional and that they were under no pressure to partake. Participants were assured of confidentiality and anonymity and were given the opportunity to ask any questions. Participants were asked to complete the questionnaire without interacting with other participants. The questionnaire took approximately 15 minutes to complete. Upon completion, participants were thanked for their involvement in the study.

Instrument

The study developed a questionnaire to assess behavioral, normative and control beliefs towards participating in recreational sport at university. This was done using recommended guidelines of Ajzen (2002) and questions utilized in prior elicitation studies

(e.g., Rhodes, Blanchard, Courneya, & Plotnikoff, 2009; Vayro & Hamilton, 2015). Using the TACT principle (Ajzen, 1991), the study followed the recommendations of Sport England (2014) to define the behavior as the following: sports (target), participation (action), at university (context), once a week, for 30 minutes (time). The definition was provided within the questionnaire and, as already highlighted, was emphasized verbally by the researcher.

Behavioral beliefs were assessed using three questions; 'What do you see as the advantages of you participating in sport at University for at least 30 minutes, once a week for the next month?', 'What do you see as the disadvantages of you participating in sport at University for at least 30 minutes, once a week for the next month?', and 'What else comes to mind when you think about participating in sport at University for at least 30 minutes, once a week for the next month?' Normative beliefs were assessed by asking the following; 'Please list the types of individuals or groups who would approve or think you should participate in sport at University for at least 30 minutes, once a week for the next month', 'Please list the individuals or groups who would disapprove or think you should not participate in sport at University for at least 30 minutes, once a week for the next month' and 'Are there any other individuals or groups who come to mind when you think about participating in sport at University for at least 30 minutes, once a week for the next month?' Control beliefs were accessed by asking; 'Please list any factors or circumstances that would make it easy or enable you to participate in sport at University for at least 30 minutes, once a week for the next month', 'Please list any factors or circumstances that would make it difficult or prevent you from participating in sport at University for at least 30 minutes, once a week for the next month?' and 'Are there any other issues that come to mind when you think about the difficulty of participating in sport at University for at least 30 minutes, once a week for the next month?'

The questionnaire also included items concerning the following demographics: age, gender, and course of study.

Data analysis

From the 76 questionnaires obtained, 30 questionnaires were selected at random to be analyzed. This is a number within the range of those typically used in elicitation studies, with that number specifically used by Belanger-Gravel, Godin, Bilodeau, Poirier and Dagenais (2013). To ensure that saturation had been reached, the study followed the analysis of the initial 30 questionnaires with the analysis of another three (i.e. the 31st, 32nd, and 33rd). Thus, thirty questionnaires were analyzed first, followed by a subsequent three. This consecutive rule has been used in a prior study (Robertson, Mullan, & Todd, 2014) and is suggested to be effective (Francis et al., 2010). To select the questionnaires randomly, they were first divided into the four degree programs and each third questionnaire was selected. In total, this procedure led to the analysis of the following numbers from the various degree courses; Nutrition, Food and Health (n=8), Secondary PE and Sports Coaching (n=7), Childhood and Welfare Studies (n=7), and English (n=8). An additional questionnaire from the first three programs were selected as the saturated questionnaires.

Data were analyzed using an iterative deductive-inductive approach. Thematic content analysis initially identified broad categories which were then refined into themes. This was attained by identifying frequently cited words and phrases. For example, the belief “enjoyment” was created from responses such as “have fun” and “it’s a laugh.” This represented the inductive approach. Following the analysis of thirty questionnaires, no new beliefs were added beyond this number as the following three questionnaires only yielded repetitive information (Glaser & Strauss, 1967). With saturation reached, categories were developed from the responses of 30 participants. These categories were then placed under the TPB belief-based headings (behavioral, normative, and control). The utilization of this

deductive approach allowed for the development of a coding frame which was used to identify the frequency of responses. A frequency count was used to identify the number of responses for each category. To ensure reliability of the frequency count, a second coder assisted with this procedure. Specifically, the second coder analyzed fifteen randomly selected questionnaires from the thirty analyzed by the main researcher. A similar procedure to the above provided the randomization. The results of the coder matched those of the researcher, thus inter-rater reliability was achieved (100% agreement). Finally, the modal set was gained by arranging the number of responses per belief in descending order under their respective category (behavioral, normative and control) and applying the 30% criterion (Spinks & Hamilton, 2015). That is, those beliefs mentioned by at least 30% of the sample were selected as the modal set and those mentioned by less than 30% of participants were not retained.

Results

A total of 53 beliefs were elicited; 18 behavioral, 11 normative, and 24 control. When the 30% rule was applied, 17 beliefs remained; six behavioral, five normative, and six control (see Table 1). This is consistent with prior elicitation studies, with a mean of seven behavioral, four normative and six control found in a systematic review (Downs & Hausenblas, 2005a).

[Table 1 near here]

Behavioral beliefs

As can be seen in Table 1, four behavioral beliefs were elicited relating to the

advantages of performing recreational sport at university and two beliefs relating to the disadvantages. Thus, six behavioral beliefs were mentioned in total by a minimum of 10 participants (30%). The advantage mentioned most frequently was 'health and fitness', followed by 'enjoyment', 'opportunities to meet new people' and 'improves mental well-being'. The disadvantages were that sport can be 'time consuming' and the 'attention taken away from University studies'.

Normative beliefs

Table 1 shows the normative beliefs elicited by at least 30% of the sample. Two referents were highlighted as being approving and three seen to be disapproving. Both of those that were seen to approve the behavior were also seen to disapprove of it. Specifically, the influence of friends was seen as being equally the most salient positive (80%) and negative normative referent (53.3%). Family members were also seen to largely approve and disapprove of the behavior. Academic staff was the only referent mentioned in one of the categories, with 40% stating that this particular referent would not be supportive of their decision to participate in recreational university sport.

Control beliefs

As shown in Table 1, six control beliefs were elicited from the sample when the 30% criterion was applied. Having 'less time constraints' was the main belief that would make sports participation easier with 76.7% sharing this view. Following this, 11 participants (36.7%) stated that 'awareness' would ease participation and 33.3% had concerns relating to 'study'. Issues regarding academic study were also mentioned as an inhibitor with 56.7% of the sample claiming that this made sports participation more difficult. 'Time restrictions' was the next salient belief pertaining to difficulty (46.7%), followed by a lack of motivation (43.3%).

Discussion

The aim of this study was to identify the modal salient behavioral, normative, and control beliefs to participate in recreational sport at university within a sample of first year undergraduate students. This is the first study, to our knowledge, that has done so using the elicitation procedure outlined within the TPB. As such, similarities and differences will be discussed in relation to elicitation studies concerning sports and recreation facilities, and PA.

Behavioral beliefs

A salient behavioral advantage concerned health and fitness which is unsurprising, particularly as students are educated individuals and both the short and long-term benefits are well known (Lumpkin, 2011). This belief has also been elicited within PA studies (Cowie & Hamilton, 2014; Epton et al., 2015). What is surprising, however, is that this belief was mentioned more frequently than the enjoyable nature of sport. Such a finding is not in line with those of Kilpatrick et al. (2005) who found such affective beliefs to be related to sport. Although the belief wasn't the most modally salient, it is interesting to note that enjoyment was included within the modal set whereas perceptions of the tangible, competitive nature of sport were not. This supports the notion that perceptions vary between the nature of sport offered (Kanters, Bocarro, Greenwood, Casper, Suau, & McKenzie, 2012; Weiss & Fener-Caja, 2002). Specifically, the results suggest that recreational sport is attributed to factors of enjoyment as opposed to competition. The improvement of mental well-being has been supported by Sniehotta (2009) and it is well-documented that sport participation can reduce stress (Kanters, 2000). The opportunity of friendship gains is also common amongst the university sample (e.g., Cowie & Hamilton, 2014; Epton et al., 2015; Riecken et al., 2013). The time that sport takes alongside potential impacts on academic study were seen as disadvantages of participation. Such findings may be attributed to the life transitions and increased responsibilities that first year students contend with (Bray & Bom, 2004). Such

concerns are also common within PA elicitation studies (Cowie & Hamilton, 2014; Epton et al., 2015). Together this suggests that engaging in behaviors concerning recreational sport and PA are perceived to be a hindrance in that they may interfere with study.

The elicited behavioral beliefs suggest that the physical and mental health related benefits of recreational sport should be emphasized alongside the opportunities to make new friendships and have fun. Furthermore, the time that participation takes up and the negative influence that it can have on academic studies should also be downplayed. If successfully performed, a resulting positive attitude, intention and behavior should ensue (Fishbein & Ajzen, 2009).

Normative beliefs

Due to the opportunities recreational sport provides for social groups, particularly amongst those students adjusting to life in their first academic year, it is not surprising that friends were mentioned as the most influential referent. The encouragement of friends has been found within sports recreational facilities (Sniehotta, 2009). With time spent away from family, it may be surprising that family members have an influence on students' perceptions. Nevertheless, due to the adaption process of first year study and as has been highlighted within a number of PA studies (Cowie & Hamilton, 2014; Epton et al., 2015), contact with family members is often maintained. Finally, academic staff were seen to be discouraging of the behavior. Within extra-curricular classes, it is common for such referents to be perceived as being negative (Anderson, Layland, & Ling, 2013). Although these referents were identified within the modal set, the prediction study of Gucciardi and Jackson (2015) failed to find support for the subjective norms construct, thus suggesting its role is limited in sports participation. However, as the study focused on competitive sports, it could be that normative referents do not necessarily approve of such competitive environments and play a more significant role in recreational sports, as demonstrated in the present study. A sense of

campus community developed from such recreational sports (Elkins et al., 2011) rather than pressures from referents such as teammates or gym users (Sniehotta, 2009) suggests that different normative beliefs underpin recreational university sport.

These results suggest that interventions should focus particularly on the perceptions that friends, family members, and academic staff have towards students participating in recreational sport.

Control beliefs

Two facilitators were also identified as inhibitors with beliefs concerning time and study mentioned in both categories. Time constraints were found as a control belief within university sports facilities (Sniehotta, 2009) as well as undergraduates' decision to perform PA (Epton et al., 2015; Riecken et al., 2013). The similarities between those and the present study suggest that first year students perceive they lack the time to perform these types of behaviors. Similar to this belief, over half of the sample put forth a barrier relating to that of academic studies. Cowie and Hamilton (2014) found study commitments were the most salient control belief in new students' decision to participate in PA. The final belief elicited by at least 30% of the sample concerning the ease of participation was 'awareness', which was not found in other elicitation studies. A lack of knowledge has been highlighted in literature away from TPB research however, with the suggestion that organizers should 'effectively advertise and promote their programs/activities' (Masmanidis Gargalianos & Kosta, 2009, p. 164). Finally, a lack of motivation was also mentioned as a barrier. Similar to Cowie and Hamilton (2014), it could be that the transition to university leaves students feeling demotivated to participate in recreational sport. It is interesting to note that feelings of embarrassment identified in Sniehotta's (2009) study were not found here. This may be due to the nature of recreational sport participation, with students not too concerned about how they are perceived.

In summary, the results concerning control beliefs suggest that time constraints, academic study, awareness, and motivation should all be targets for intervention. In doing so, there is a potential to increase sporting participation.

Limitations of the Present Study

Although the study highlights salient beliefs in a university sample, it is not without limitations. First, the beliefs elicited may not be representative of the whole university population and may also not be generalizable to other institutions. Second, the study was cross-sectional meaning that it is possible that beliefs were a result of behavior rather than a causal role of behavior. Next, the study utilized a 30% cut off criteria to highlight modal salient beliefs, therefore a number of beliefs were not included within the final set. However, as there is no specific way to select modal beliefs, it is difficult to include the beliefs of all participants. Further, the omitted beliefs could still prove useful by being introduced in intervention. Although intervention targets were highlighted utilizing the TPB framework, the theory is silent in how to actually achieve change. As such, it can be difficult to know which methods and techniques should be used. The recently developed taxonomy of change (Michie et al., 2013) aims to classify behavior change techniques and can be used to facilitate practitioners in altering identified cognitive processes. For example, planning strategies can be used to negate issues of time (Gollwitzer, 1996). Finally, the study did not identify whether there were any meaningful differences between the courses studied. As the study aimed to provide a generalized number of beliefs representative of the student population, analysis of individual degree courses was not deemed important. If, however, the researcher is interested in identifying beliefs relating to a specific course of study, it would be best to elicit from those within that population.

Conclusions and Future Prospects

Using the TPB, the present study highlighted seventeen modal salient beliefs relating

440 to participation in recreational university sport. This research provides two avenues for future
441 research. First, beliefs identified within the study could be target for intervention. Second, the
442 results can inform the development of a quantitative study highlighting more specific key
443 beliefs to target (Ajzen, 2006). Undergoing such rigorous formative work may lead to
444 significant improvements in the number of students participating in university recreational
445 sport.

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Table 1

Modal salient behavioral, normative and control beliefs

	Category	Belief	Total Number of Participants	Percentage of Participants (%)
Behavioral	Advantages	Health and fitness	24	80
		Enjoyment	18	60
		Opportunities to make new friends	9	30
		Improves mental well-being	9	30
	Disadvantages	Time consuming	22	73.3
		Attention taken away from University Studies	10	33.3
Normative	Approve	Friends	24	80
		Family	19	63.3
	Disapprove	Friends	16	53.3
		Academic Staff	12	40
		Family	11	36.7
Control	Easier	Less time Constraints	23	76.7
		More awareness	11	36.7
		Study Related	10	33.3
	Difficult	Study related	17	56.7
		Time restrictions	14	46.7
		Lack of motivation/energy	13	43.3