A systematic scoping review of speech and language therapists' public health practice for early language development

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A systematic scoping review of speech and language therapists' public health practice with families for early language development.

Abstract:

Background: There have been calls for speech and language therapists (SLTs) to work within a public-health framework to support language development. Innovative practice is reported but the range of services remains unknown. Furthermore the potential impact of public health practice in Speech and Language Therapy on early child development is also currently unknown. A new method in SLT research, systematic scoping reviews enable greater breadth of focus than traditional systematic reviews when identifying innovative practice. The aim of this review was to report scope and critically appraise evidence of family focussed health promotion practice in this area.

Methods: Using the Cochrane Public Health Group scoping review framework, data from reports of health promotion practice with families of children aged 0-3 years was extracted and critically appraised on service delivery, information, reach and evaluation.

Main contribution: Group based service delivery was the most popular form of service delivery. There were limited reports on the information given in services and on their reach. Questionnaires were the most popular reported evaluation method. Quality of evaluations was poor due to lack of replicability and experimental control in the studies reported.

Conclusions: This method of systematic review has highlighted the scope of health promotion practice in speech and language therapy and also demonstrated the lack of evidence for its effectiveness on child language development. It is argued that

systematic scoping reviews are valuable for scoping innovative practice in areas where, either there is a lack of robust evidence, or where there is a high level of heterogeneity in practice or evaluation. To support clinician appraisal of available evidence, recommendations are given for development of questionnaire appraisal and for categorisation of evidence levels on summary databases.

What this paper adds?

What we already know

Several reports in the literature have reported evidence of public health practice in speech and language therapy. As a component of public health practice of early language delay, these studies report direct work with families and children under the age of 3 years. This practice is justified in the literature, but the scope of practice and current levels of evidence are unknown.

What this paper adds to existing knowledge

Using a systematic reviewing method that is recommended by the Cochrane Public Health Group, but new to speech and language therapy research, this study is able to provide a more comprehensive account of family focussed speech and language therapy public health practice. Furthermore, critical appraisal of studies reporting child language outcomes has demonstrated that there is a lack of robust evidence of the effectiveness of this practice on child language outcomes or on the ability of services to reach the target populations. This indicates the need for further research to inform the evidence base in speech and language therapy public health practice.

What are the potential or actual clinical implications of this work?

The current lack of evidence for early language development health promotion services within the speech and language therapy profession provides a caution to services when deciding where to direct speech and language therapy resources in the field of public health.

Introduction

Public health services for language development

Over the past twenty years within the speech and language therapy profession there has been considerable development of services designed to promote optimum early language development and thus reduce the prevalence of primary language delay (Ferguson & Spence, 2012; Fuller, 2010). Law et al. (1998) defined 'primary speech and language delay' as when the "speech and language skills of a child are delayed relative to other skills, usually in the absence of a clear aetiology." (p. 17). For the purposes of this article, the term 'primary language delay' is used. Historically, prevention of primary language delay has largely been the remit of public health services, and the role of the speech and language therapist has been to support public health service providers such as health visitors or general practitioners in a consultative capacity. Indeed, it is still largely recognised as being a multi-agency and disciplinary responsibility (see, for example, Department for Children Schools and Families, 2008; Law, Reilley, & Snow, 2013).

Since the turn of the millennium, however, speech and language therapists have begun to extend their direct practice to the pre-referral stages and language therapy initiatives aimed at preventing primary language delay (termed primary prevention services) are now being developed. In the UK in particular, this was largely a result of the development of Sure Start, a multi-agency, government led initiative established to address the negative effects of child poverty (Glass, 1999). Targets for children were established, which were later encapsulated into five key outcomes that every child in the UK should be entitled to achieve, namely; to be healthy, stay safe, enjoy and achieve, make a positive contribution and achieve economic wellbeing

(Department for Education and Skills, 2004). These targets included milestones for language development. Given that UK based speech and language therapists were able to provide highly skilled services in this respect, local Sure Start programmes funded posts, with a clear aim of providing primary prevention services (Fuller, 2010).

In addition to this organic growth in service development, professional bodies have increasingly recognised prevention of primary language delay within the context of overall health promotion as an element of speech and language therapy service delivery (e.g. American Speech-Language-Hearing Association, 1988; Royal College of Speech and Language Therapists, 2006). Health promotion is defined by the Ottawa Charter as 'the process of enabling people to increase control over, and to improve, their health' and is considered to be a key element of public health service delivery (World Health Organisation, 1986). Ferguson and Spence (2012) found that speech and language therapists considered health promotion to be a core element of their service provision. In addition, Law et al. (2013) have made a recent call to action for Speech and Language therapy services to be contextualised within a public health framework. They argue that health promotion should be considered an integral part of speech and language therapy services. In addition, the Allied Health Professionals public health strategy (Allied Health Professions Federation, 2015) recognises the role of allied health professionals in health improvement campaigns, access to education and supporting self-management within 3 of the four domains of public health. Speech and language therapy services that work with parents to support early language development and work towards primary prevention of language delay may, therefore, be defined as health promotion practice falling within the overall remit of

public health.

Prevalence and prognosis of early language delay

This emergence of health promotion services for early language development has arisen in response to the need to address the language development of children, particularly in areas of social disadvantage. The needs of these children are well documented in the literature; firstly, children in areas of social disadvantage are reported to be at higher risk of language delay than their more advantaged peers (e.g. Hart & Risley, 1995; Locke, Ginsborg, & Peers, 2002; Roy, Chiat, & Dodd, 2014). Secondly, language disadvantage in the early years, coupled with the negative effects of low socio-economic status exacerbates disadvantage further, with negative long-term effects on education, employment and social and emotional wellbeing (see Smith, 2015, for a review). This is particularly relevant in Western Society where there is a greater dependence on communication skills for economic wellbeing in adulthood (Department for Children Schools and Families, 2008; Law et al., 2013). Thirdly and finally, it has been proposed that the environment, and the parenting environment in particular, can mediate against the negative effects of social disadvantage (Hart & Risley, 1995; Raviv, Kessenich, & Morrison, 2004).

Despite the fact that practice has been reported in this domain, there is very little information on the nature of health promotion services with families in the peer-reviewed literature. Public health services which have been reported have been either based within an education setting (e.g. Dockrell, Stuart, & King, 2006), delivered by professionals who are not speech and language therapists (Suskind et al., 2013) or have been delivered to children who failed a screening assessment for language

development (Wake et al., 2011). Given the potential impact of the home environment and the call for public health based services, the objective of this study, therefore, was to examine the scope of current health promotion practice delivered directly to families by speech and language therapists and to critically appraise the reported evidence of effectiveness on child language outcomes.

Using systematic review methods to scope practice

Systematic reviews are recognised within the health professions as a valuable resource for both clinicians and commissioners and systematic review methodology has been exploited in the speech and language therapy profession to address a wide range of research questions. A recent search of the Cochrane Library identified 45 speech and language therapy reviews (28 registered on the Cochrane Database of Systematic Reviews and 17 from the database of abstracts of reviews of effects).

Within the profession, however, limitations of using the original systematic review have been highlighted. The limitations have been reported to be due to the small number of robust research studies in many clinical domains and the heterogeneous nature of studies in terms of participants, language, culture, service structure and provision (Marshall, Goldbart, Pickstone, & Roulstone, 2011).

In the case of emerging clinical practice, such as direct public health speech and language therapy initiatives (in this case concerned with primary language delay), there is justification for a systematic scoping of innovation. Scoping review methodology has been developed by a number of researchers over the past 10 years (Arksey & O'Malley, 2005; Levac, Colquhoun, & O'Brien, 2010). This methodology

provides a greater breadth of focus than the traditional systematic review and has now been recommended as a valid systematic method of reviewing literature by the Cochrane Public Health Group (Armstrong, Hall, Doyle, & Waters, 2011).

The reliability and clarity of the systematic review process was a feature highlighted by Arksey and O'Malley (2005) as being valuable to other types of review. In order to incorporate this transparent and systematic approach into scoping methodology they proposed a five stage methodological approach for scoping studies that has now been incorporated into the Cochrane Public Health review body guidance (Armstrong et al., 2011). This comprises: 1, identifying the research question, 2, identifying relevant studies, 3, study selection, 4, charting the data and 5, collating and summarising the results. An optional consultation stage was also proposed (stage 6). This approach did not involve any critical appraisal of the literature as Arksey and O'Malley (2005) noted this would not be feasible with larger amounts of data. Levac et al. (2010) proposed, however, that some critical appraisal was necessary as without this appraisal of quality of studies, it would be impossible to identify gaps in the research.

It is therefore proposed that a review of the current literature that is systematic in its approach, has the breadth of the scoping study but with a critical appraisal element would yield a comprehensive account of what is taking place at the client/clinician interface. In this way, data on innovative practice that may be reported in articles that would be rejected from many systematic reviews, including the grey literature, may be extracted. Data from these reports concerning the type of intervention offered and the advice given is valuable to the profession as it informs on current innovative

practice and, together with the critical appraisal element, highlights the current evidence base in this clinical area.

In this study, therefore, a systematic scoping review was carried out using the guidelines originally proposed by Arksey and O'Malley (2005) and updated by the Cochrane Public Health Group (Armstrong et al., 2011). The first five stages of the review are reported below. Due to limited staffing and time resources, the optional sixth stage of consultation was not included.

Methods:

Review Question

The review question was defined as follows:

> What is the current scope of practice and evidence-base for family targeted primary prevention practice within the speech and language therapy profession for primary language delay in children aged 0-3?

This question was defined using the first stage of Arksey and O'Malley's (2005) methodology for a scoping review. Specifically, Armstrong et al. (2011) identified that a scoping review question should identify three aspects, namely, the concept to be scoped, the target population and the health outcomes of interest. In this study the concept was defined as family targeted health promotion services within the speech and language therapy profession, the target population as children aged 0-3 years and the health outcome as child language development within the typical developmental age range.

Identification of relevant studies

In accordance with the guidelines given by Armstrong et al. (2011) studies were identified as follows:

Where: identification of peer reviewed literature.

Eight databases in total were used to identify relevant studies from the peer-reviewed literature. An initial search was carried out using the Cochrane Library to identify if any previous systematic reviews had taken place (from the Cochrane Database of Systematic Reviews and the Database of Abstracts of Reviews of Effects). A search was also carried out on the Cochrane Central Register of Controlled trials. This was followed by a search of the wider literature using the following databases: Child development and adolescent studies, CINAHL, PsychInfo, Medline and the Psychology and Behavioural Sciences Collection.

Where: Other sources

In addition to the peer reviewed literature search stated above, the review was extended to the grey literature within the UK as follows:

1: A search of local evaluation reports and synthesis reports on the National Evaluation of Sure Start website (NESS)

2: A search of interventions described on the What Works website (Communication Trust)

3: A search of interventions listed on the Centre for Excellence in Outcomes website

4: A hand search of the RCSLT Bulletin

A call for information was also placed on the Royal College of Speech and Language Therapists' (RCSLT) website discussion forum, and in the RCSLT Bulletin.

Time span

The search was limited to articles published between 1995 and 2015. As the grey literature was UK based, it was postulated that the majority of primary prevention practice within the UK speech and language therapy profession would have been developed after this date (as a result of funding opportunities and government policy drivers). The peer-reviewed literature was also limited to this timespan for a number of reasons. First, the aim of the review was to capture and report on current and recent practice. Second, changes in guidance on evidence based practice that have occurred over the past fifteen years render historical articles less valuable to the review.

Language

Reports were limited to the English language (or articles for which a translation was available) as translation services were not available to the author.

Study selection: Eligibility criteria

Eligibility criteria were established for this study using the aspects described above. These are summarised below in Table 1, and discussed below:

Concept

The focus of this review was services developed with a primary focus on giving information to the family or home environment. The service did not have to be based in the home (e.g. in the case of a public awareness campaign), however, the target recipient of the information given in the service needed to be the family. This focus was defined because the influence on the home environment, particularly the parental linguistic environment, is established in the literature (Hart & Risley, 1995). It is recognised, however, that there are many speech and language therapy services with Early Years settings as a primary focus, and that a separate, similar review is indicated to support development of an evidence base for these services. Services were excluded from the review if the participants were identified following a screening procedure, as a reliable tool for screening for Primary language delay has not yet been developed (Nelson, Nygren, Walker, & Panoscha, 2006). It is argued, that services targeted towards a screened population are, therefore, significantly limited in their ability to be effective as the target population is not based on a reliable risk for language development.

Interventions were only included if they reported involvement of a speech and language therapist. The case has been made for speech and language therapy involvement in public health services (Law et al., 2013). These services have been developed against a backdrop of established practice without speech and language therapist involvement (see, for example, Olds, 2006). Whilst these projects often measure language development as an outcome of their effectiveness, the focus of the intervention is more broadly defined as child development, and encompasses a range of outcomes. The focus of this review was specifically for language services to support language development.

Target population

The focus of the review was interventions for children aged 0-3 years. The first 3 years of life has been highlighted as highly influential for language development. Furthermore, as many children above the age of 3 years attend an Early Years setting on a regular basis, the primary focus of many universal/universal plus services for older preschool children is often the Early Years setting itself (e.g. Dockrell, Stuart, & King, 2010). It is noted that although the focus was on services aimed at children within this age range, services that accepted older preschool children (e.g. as siblings of younger children) were not excluded from the study.

Children with no prior diagnosis of developmental disorders were the focus of this review as the general population is the focus for universal development. Whilst some preventative practice for populations with a specific diagnosis may be considered to be a targeted form of public health, the focus for such practice in this review was based on environmental risk factors (for example, socially deprived communities, children of young parents, or children of parents with disabilities).

Health outcomes:

As stated above, all reported outcomes and study designs were included for scoping analysis. Studies that had used child language outcomes as an evaluation method, however, were identified for further critical analysis, in order to inform on current evidence supporting health promotion services for early language development.

Table 1: Review eligibility criteria for systematic scoping review

In addition to these criteria, articles identified on the NESS website were removed for the following reasons:

1: The report was in draft format

2: The report did not give an author or date of publication

3: The report was a duplicate

4: A more up to date report of the programme described was available

Study selection procedure

Titles of all articles were screened for relevance to the review question and eligibility criteria. After articles were extracted based on the title screen, where available, abstracts were then screened according to the same criteria. The full text of the remaining studies / reports were then assessed for inclusion in the review, again, according to the eligibility criteria.

Extraction and charting of data

The objective of the review was to provide information on the scope of universal practice in this area. Of particular interest were aspects of service delivery considered to be key components of a complex intervention. These included the nature of service delivery; that is, how or where the service was delivered and the information that was given in the service. Given that a health promotion service is, by nature, relevant to a universal or specifically targeted population, the extent to which reach of the service was reported was also of interest. To facilitate the summarising and reporting of the data, data was therefore extracted from the selected studies and charted according to

the following questions: what is the nature of the service delivery (how is the service delivered), what information is given (what are the components of the service) and what is the reach of the intervention (has the reach of the service been evaluated and reported)?

A benefit of a scoping study is to provide a numerical analysis (or frequency analysis) of reported practice (Arksey & O'Malley, 2005). In accordance with this guidance the data was charted and themes concerning nature of service delivery, information given and evaluation methods were added as columns to enable frequency of theme to be established.

Collating, summarising and reporting results

As recommended by Arksey and O'Malley (2005) data was collated and summarised through numerical analysis and narrative synthesis involving extraction of themes around service delivery, information given and evaluation methods. In order to inform on the quality of evidence for this field of practice studies identified as using child language outcomes were also critically appraised using checklists that have been developed by the Critical Appraisal Skills Programme (2014). These checklists enable a robust and systematic critical appraisal of research evidence and are available for a number of research designs, including randomised controlled trials, cohort studies, qualitative research and case control research designs. Each checklist has 2 screening questions that enable the appraiser to establish the validity of the results of a study. The checklists then enable an appraisal of the quality of the results of studies (and include, for example, questions concerning control for bias or confounding variables) and an evaluation of whether the results are helpful for future service development.

The checklists were adopted for this study as they facilitated a systematic and replicable approach to critical appraisal.

Results

A flowchart outlining the study selection process is shown below (Figure 1). A total of 1612 reports were found in in the review, 1496 from the peer reviewed literature and 102 from the grey literature. A further 14 reports were found from other sources, including conference records (8) and through personal communication (6). When duplicates were removed the total number was reduced to 1233 reports. After reviewing the titles and abstracts 72 reports were included for full text analysis. Fourteen of these studies were excluded at this stage as they did not meet the eligibility criteria. The remaining 58 articles were charted for data extraction and analysis. Data charts may be found in the appendices (Appendix 1 and 2). These 58 articles reported a total of 105 different services.

Three studies were sourced from the peer reviewed literature (Conway & Gooden, 2012; Oetting, Pruitt, & Farho, 2010; Smith & Gibbard, 2011), with many of the studies rejected due to their being based on a population of children identified as language delayed as a result of screening or formal language assessment or due to not reporting speech and language therapist involvement. Just over half of the studies

Figure 1: Flow chart of study selection process

identified (29) were sourced from the National Evaluation of Sure Start website. With the exception of the Oetting, Pruitt & Farho (2010) study, which took place in

the USA, all identified reports were of services delivered in the UK. This suggests that, within the UK, a substantial amount of practice has taken place within the context of Sure Start local programmes. No purely family focussed health promotion services for early language development were identified on the Communication Trust's "What works" website, although 6 were identified from the "Centre for Excellence in Outcomes" (C4EO) website. The "What works" website is specific to speech and language therapy interventions, whereas the C4EO website provides information on a range of children's services. Fourteen reports were selected from the Royal College of Speech and Language therapists' monthly magazine, the Bulletin. A further five studies were identified from conference reports and one study was communicated personally as a result of the call for information. A number of reports highlighted more than one service, resulting in a greater number of services identified than reports.

The nature of the service; how is it delivered?

Numerical and narrative analysis of service delivery resulted in a range of services being identified in the literature. The nature of service delivery, that is, how the service was delivered fell into one of 7 themes. These were publicity campaigns, drop in clinics, services delivered through the running of groups, home visits, community based training courses, the production of free gifts and information leaflets and one-off events. Table 2, below highlights the number of services identified according to nature of service delivery.

Table 2: Number of services identified according to nature of service delivery

Publicity campaigns

Six reports were identified describing major community-wide public awareness raising campaigns. Some of these campaigns made use of local media and advertising to publicise their message, such as bus-side and roadside posters (e.g Abba & Hughes, 2006). Other services described a city wide strategic approach to public awareness raising. For example, Stoke Speaks Out (2012) involved a wide range of stakeholders to ensure that the whole community spreads the same communication friendly messages to parents and children.

Drop – in clinics

Twelve reports were identified describing speech and language therapy drop-in clinics where families were able to directly access speech and language therapy advice without the need for a referral.

Group-based service, and input at other groups/services

The most popular method of service delivery was group-based delivery, with 26 reports describing some form of specific language group-based intervention. Groups were for parents and children. Some groups targeted specific target populations, e.g. Featherstone and Manby (2004) provided a group-based service specifically for refugee families, and Potter and Barner (2004) provided different groups for families with children of different ages (toddler groups and baby groups). Furthermore, some groups were offered as a set number of weeks (e.g. Cahill, 2006), others as an on-going service (e.g. Rogers, 2003), and others as a one off event (e.g. Sure Start Myton and St. Andrews, 2004).

There were 11 additional reports of speech and language therapy involvement within other existing groups. The nature of this input varied from a member of the speech and language therapy team being present in other groups, in order to be able to answer questions that parents may have (e.g. Rooke, 2005), to the full delivery of a language group within another group on a regular basis (e.g. Tyrrell, 2005).

Home Visits

Five reports were identified where a preventative service was delivered as a home visit.

Community-based training courses

Community-based training programmes were another popular preventative approach. Twenty-five reports were identified where training to parents and community members was provided.

Distribution of leaflets and other promotional material

Eighteen reports were identified where promotional materials were distributed to parents and community workers. These varied, with leaflets being particularly popular, and CDs and DVDs also being distributed. Some were produced by the service (e.g. Rooke, 2005), other services report using externally sourced material, for example, the Royal College of Speech and Language Therapists (2007) report the use of the Talking Tips posters produced by the National Literacy Trust's Talk to Your Baby campaign.

One-off projects and events

Two reports were identified where a one-off project or event was provided to promote language development. Featherstone and Manby (2004) describe a party for young children where parenting advice, including advice on language development, was given. Murtagh and Roberts (2010) reported on a video production project with teenage mothers on communication with babies.

What information was given?

Sixteen articles made some mention of the information given to parents and families. Of these, the amount of detail given ranged considerably. For example, some reports only highlighted the aims of their intervention, such as 'aims to promote or encourage language development' or to give parents 'realistic expectations of their child's language development' (Royal College of Speech and Language Therapists, 2005). The most detailed reports of information given were found in the peer reviewed publications (Conway & Gooden, 2012; Smith & Gibbard, 2011) and the services identified on the C4EO website (e.g. Barking and Dagenham play and communication service, 2012; Stoke Speaks Out, 2012). Other articles specified aspects of information given. These included language skills that were being encouraged, for example; listening, turn taking, and eye contact (Cummings et al., 2005; Wadsworth et al., 2004). Several reports highlighted the promotion of singing within the service (e.g Cummings et al., 2005).

There was some report of specific interaction advice given in groups. This included advice for parents on letting the child lead in play based activities, commenting on the child's focus of interest and giving children choices to encourage communication (Cahill, 2006).

What evaluation was carried out?

Of all the reports of services identified, twenty-nine reported an evaluation method to measure outcomes of the service. When contact monitoring or use of polls was included (as an evaluation of reach), the number of reports documenting evaluation methods rose to thirty-six. Some studies reported more than one method. Table 3, below gives a numerical analysis of the evaluation methods used in the reports identified.

The most popular method of service evaluation reported was a parental evaluation questionnaire, with eighteen of the evaluation reports stated above using this approach

Table 3: Number of evaluation procedures identified according to method

to gain feedback from parents on their service (e.g. Barking and Dagenham play and communication service, 2012; Conway & Gooden, 2012; Smith & Gibbard, 2011). The use of parental questionnaires was identified in services reported in the peer reviewed and grey literature. Very little information, however, was given on the parental questionnaire, and only Smith and Gibbard (2011) provided a copy of the evaluation questionnaire in their report. Furthermore, the sampling procedure, management of bias, question style and validity of the questionnaires was not reported.

It is recognised that some of the parent questionnaires may have contained qualitative components. In addition to these, eleven reports documented the use of other

qualitative methods to evaluate their services, such as focus groups and parental interviews. In addition, Lees (2002) used parent diaries as a method of evaluation. Whilst these reports specified how they generated the data in their studies (e.g. interviews or focus groups), however, there was no report of the qualitative methodological approach to data analysis or steps taken to ensure credibility and transferability of the data.

Other methods of evaluation were also identified in the review. One service evaluated their interventions through SLT rating methods alone (Cordis Bright Ltd., 2003). Conway and Gooden (2012) reported using 'observation' as an evaluation method, although what was being observed and how this was evaluated was not reported. Wadsworth et al. (2004) reported evaluating services through case histories of children who had accessed the speech and language therapy services although, apart from interviewing the parents of the children, the methods used in developing the case histories was not reported. Murtagh and Roberts (2010) also monitored the prevalence of post-natal depression amongst participants in their project with teenage mothers.

Six of the studies identified used some measure of child language or interaction outcomes to evaluate their service. Measures used included child interaction scores from an observational checklist, parent report based vocabulary inventories, parent report based child language profiles, screening tools, foundation stage profile scores and standardised language assessments. In addition, whilst not a child language outcome, the referral rate to speech and language therapy was also used as an outcome measure as an indicator of language needs amongst the target population.

The reports varied according to the level of information given on the evaluation method, and the amount of control in the study.

Evaluation of reach of service.

One service reported the use of a poll to evaluate the reach of the service (Abba & Hughes, 2006). The only other measure of reach was contact monitoring, with fifteen of the evaluation reports reporting contact outcome details of activity monitoring. Whilst these reports were able to give some indication of how widely services were being used, no other studies reported any proportion of the population that was being reached, or gave any measure of whether the service had reached their targeted population.

What was found from the questionnaire and qualitative evaluations?

As a result of the evaluation studies the following outcomes were reported. The reports highlighting use of parental questionnaires as an evaluation method, results included parental satisfaction with the service (Cummings et al., 2005; Wadsworth et al., 2004). Wadsworth et al. (2004) reported that parents felt they were able to listen more to their child and have more conversations as a result of the service they received. They also reported that parents felt they had increased knowledge of language development, interaction and play. Wadsworth et al. (2004) also noted that project staff reported positive changes in children. Featherstone and Manby (2004) highlighted increased parental awareness of positive parenting strategies as a result of their service, including having a special time every day to play and talk, turning off the television, singing, looking at books and taking children to the library.

What was found from the interaction or Child Language outcomes? Interaction or child language outcomes reported increases as a result of the services offered. For example, Smith and Gibbard (2011) reported that parents of children who had received their service reported that their children had a higher expressive vocabulary on the Sure Start Language Measure than children of families who had not received the service. Wiseman (2007) reported that a larger proportion of children achieved higher scores on a language profiling tool. The Stoke Speaks Out project (2012) reported a reduction in the proportion of children entering school with delayed speech and language.

What was found from reports of evaluation of reach?

The poll reported by Abba and Hughes (2006) reported that 40% of those questioned were aware of the publicity campaign that they had carried out.

Critical appraisal of study design of evaluations using child language outcomes.

Of the six studies identified using interaction or child language measures, two reports did not yield adequate information on the study design to enable further critical appraisal. These were both services identified from a conference report (Talk to Your Baby; 2009). None of the remaining studies reported a randomised controlled trial design. One study (Baxter and Cahill; 2008) used a within subjects repeated measures design, for which a CASP checklist is not available. This report did not state any measures to minimise bias or control for confounding factors. The three remaining studies reported a cohort study design (Barking and Dagenham play and communication service, 2012; Smith & Gibbard, 2011; Stoke Speaks Out, 2012) and were critically appraised using the CASP checklist for cohort studies (Critical

Appraisal Skills Programme, 2014). The first two questions of the checklist support critical appraisal of the validity of the results through examining if the study addresses a clearly focussed issue, and the sampling and recruitment methods of the study. Whilst all the reports addressed a clearly focussed issue, the Stoke Speaks out project (2012) was the only study which adequately defined the recruitment process to ensure that that the cohort was representative of the population defined and that everyone who should have been included was included. As the Stoke Speaks Out project (2012) was able to demonstrate validity, the CASP checklist questions examining the results in more detail were assessed for this study only. This checklist highlighted that this report did not report the steps taken to minimise bias or account for confounding variables (for example, changes in education practice, or effects of other services). Furthermore, there was inadequate information on the outcome measures gained and no statistical analysis of outcomes beyond frequency was reported. There was, therefore, no estimate of effect size of the intervention. None of the studies, therefore, were judged to be of a high quality due to the low level of experimental control and the high potential for bias in the outcomes.

Discussion

This systematic scoping review has highlighted that a range of family focussed primary prevention practice for environmentally based language delay is being, or has recently been delivered within the speech and language therapy profession. The scoping method has enabled a comprehensive account of the nature of service delivery offered, with a range of delivery methods. Reports on the information given were more limited. Unsurprisingly, more information was given in the reports that were peer reviewed. Evaluation methods have been identified, again, with a range of

methods employed. The quality of evaluations reported, however, was low and there were no studies reported with adequate levels of control to minimise bias in the outcomes. This lack of quality in reporting and study design result in an inability to draw any conclusions regarding the effectiveness of speech and language therapy health promotion services for early language delay.

Methods of service delivery

The range of methods of service delivery identified informs current speech and language therapists' consensus on what are considered to be appropriate forms of service delivery. This may not necessarily indicate speech and language therapist's views on 'best practice' as service design may have been limited by resource constraints. It does, however, provide some indication of what speech and language therapists consider to be effective when designing innovative health promotion services. For example, the review highlighted that group based delivery is the most popular form of service delivery, but that drop in services and parent training were also considered to be a feasible method of service delivery. As a component of a complex intervention, research into the effectiveness of these different methods of service delivery would be informative. In the literature, evidence is reported for the effectiveness of staff training in educational settings (e.g. Fricke, Bowyer-Crane, Haley, Hulme, & Snowling, 2013). Similarly, whilst group based service delivery has been reported as a cost effective model in other speech and language therapy services, including with parent groups (e.g. Gibbard, Coglan, & MacDonald, 2004) the effectiveness of group based intervention for health promotion services is unknown.

This study has also highlighted that the effect of these different methods of service delivery have not been evaluated in terms of their ability to reach the targeted population, a pertinent issue in public health practice. For example, the question of whether a group-based service design is more or less accessible to families from socially deprived communities than a home visiting service has not been adequately examined in these service evaluations. Further research examining the evidence for the different methods of service delivery, and how service delivery interacts with other components of a complex service, e.g. the extent to which it reaches the target population, would inform future modelling and evaluation of services as advised by the Medical Research Council (Craig et al., 2008).

Information given

The scoping review indicated that there was some consensus amongst speech and language therapists in the information that was given to parents, although detailed reports of the information given were scarce. Information given in these preventative services reflects advice given in post referral services, for example, the interaction advice reported by Cahill (2006) noted above. Further research might examine whether information given to families within a public health initiative is as effective as the same advice given at a post referral stage. In order to progress research and development in this area, however, more detail on what information is given in these services is needed.

Evaluation of reach

As the agenda of public health practice is often to reduce health inequalities, the extent to which services reach vulnerable populations is key (Kara & Arvidson,

2015). Given the number of services in this study that have been identified from the National Evaluation of Sure Start website, it is argued that the development of services aimed at preventing primary language delay in the UK has often been funded on the grounds of reducing these health inequalities. It is pertinent, therefore, to question whether these services actually do reach a significant proportion of the population and, particularly, those that need it the most.

This study has highlighted that there was very little reported evaluation of the proportion and characteristics of families that accessed the services. Future research into public health based services might involve an evaluation of access to and reach of the services developed. In particular, the effect of different service delivery methods (e.g. group based versus home visit) on reach would inform the development of future services.

Evaluation of services

Concerning evaluation methods, parental questionnaires constitute the most popular form of evaluation employed in the reports identified. Whilst parental questionnaires are not an adequate measure of effectiveness of an intervention on child outcomes, or parental behaviour, they may inform evidence-based practice (as a measure of the views of the client). Given the popularity of questionnaires and their potential to inform patient preference, it is argued that a critical appraisal tool to assess the quality of outcomes reported using this method needs to be adopted for clinical application within the speech and language therapy profession. This tool might assess the appropriateness of questionnaires as a method to address the evaluation question, the sampling procedure, management of bias, question style and validity. It is suggested

that a more robust approach to carrying out and critically appraising parental questionnaires might ensure that the results gained from this popular approach to evaluation are captured for future development and research.

A range of outcomes were identified in the reports, from parental and staff opinions through to child language outcomes. It is suggested that future service evaluations consider the outcome measures used in light of the aims of the service evaluated. Some outcomes, for example, referral rates to speech and language therapy, may be considered to be an indicator of effectiveness of health promotion services. This outcome measure may, however, be influenced by other factors in the environment, such as service cuts, health visitor practice or changes to speech and language therapy referral guidance. Where these confounding variables are not accounted for, it is not possible to conclude that any effects on the outcome measures are due to the intervention itself.

The critical appraisal that was carried out in the scoping review highlighted that there is poor quality of reporting of study designs and outcome measures in this field of practice. Again, this means that it is not possible to draw any conclusions regarding the impact or effectiveness of health promotion services targeted at the home environment. In addition to the peer-reviewed literature, reports identified on the Centre for Excellence in Outcomes website were also critically appraised (as reports on this website are peer reviewed for quality). It is noted that reports cited as 'validated', the highest status on the C4EO website, were judged to be of low quality using the CASP checklists. Whilst it is useful to have resources such as the C4EO for interventions, particularly in areas where there is a low evidence base, it is suggested

that databases such as the C4EO website have a level for high quality studies such as would pass the CASP quality appraisal process.

Summary

This review has also highlighted that there is currently insufficient evidence supporting the effectiveness of current speech and language therapy health promotion services on child language outcomes in children aged 0-3 years due to lack of high quality reporting and study design. Further research examining the effectiveness of these services is, therefore, recommended as a research priority given the drive towards public health practice within the Speech and Language Therapy profession.

This is the first time that a systematic scoping review has been used within the field of speech and language therapy. It is argued that this approach has enabled a broad scope of practice to be captured and summarised in a way that the original systematic review methods do not. In addition, it is proposed that this is a valuable methodological approach for summarising the early stages of practice development, and for scoping practice in areas where, either there is a lack of robust evidence, or where there is a high level of heterogeneity in practice or evaluation. The systematic scoping method is recommended as a first step, therefore, in summarising the literature for speech and language therapy interventions.

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