

Evidence-based intervention for preschool children with primary speech and language impairments: Child Talk – an exploratory mixed-methods study

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Scientific summary

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Scientific summary

Background

This research programme focuses on defining, characterising and categorising interventions offered in the UK for a group of children with a highly prevalent form of communication difficulties, which is known to impact on their long-term life chances. These children exhibit speech and language impairments that exist in apparent isolation from other developmental conditions (primary speech and language impairments or PSLI).

Speech and language therapy is the lead profession responsible for diagnosing and managing interventions for these children, although, clearly, that process takes place in collaboration with parents, early years practitioners (EYPs), community psychologists and paediatricians and health visitors. In recognition that speech and language develops in a social context and through dialogue, the approach to intervention has shifted over the years from a focus purely on the child to a focus on the child's interactions with the adults who surround him or her and the environment in which this occurs. However, government reviews have confirmed a postcode lottery in terms of what forms of care are actually delivered. Research has established that speech and language therapists (SLTs) adapt or create their own versions of the programme. Taking an eclectic stance rather than adhering to any particular theoretical approach, they build on principles from theory, piece together interventions and resources from a variety of sources and interpret published resources varyingly. Additionally, research reviews have indicated a lack of consistency and detail in terms of how interventions are described, both in practice and within the research literature. Consequently, there is wide variation in how services are delivered and interventions are described and configured and to what effect.

The overarching aim of this research programme was to improve speech and language therapy services for preschool children with PSLI through the development of an evidence-based framework that could inform SLTs' decision-making and increase the relevance and effectiveness of interventions for individual children and their families.

Definitions of evidence-based practice emphasise the relationship between systematic research evidence, clinical expertise and user perspectives. To develop an evidence-based framework we proposed to investigate and integrate all three elements.

The first aim of the Child Talk study was to develop an evidence-based typology of SLT-led interventions for preschool children with PSLI that also incorporated the experiences of families. The second aim of Child Talk was to develop a framework and toolkit that could be used to establish effectiveness and cost-effectiveness and that can be used by services nationally to plan services and future evaluations. The resulting objectives were to:

- determine current evidence, practice and user perspectives with regard to SLT-led interventions for preschool children with PSLI
- identify how we can best engage preschool children in the process of developing appropriate interventions
- develop a model(s) of intervention that can integrate current evidence, professional expertise and family perspectives in ways that allow the intervention to be individualised to children's and families' communicative, physical, social and cultural contexts
- identify tools that can be developed to ensure the appropriate stratification of interventions and the measurement of outcome
- identify the measures required to develop formal economic assessments of SLT-led interventions and care pathways within services
- work with the Royal College of Speech and Language Therapists to facilitate the national take-up and ownership of the framework.

Methods

The research programme mapped and described current practice, identified and summarised the existing research evidence relating to that practice and investigated the perspectives of services users with regard to current practice. Participants in the research included SLTs ($n = 677$), EYPs ($n = 31$), preschool children with or at risk of PSLI ($n = 24$) and parents who have children with or who are at risk of PSLI ($n = 84$). A national survey of registered SLTs regarding current practice together with a multistaged identification of professional consensus on relevant interventions, a systematic review of the effectiveness of interventions and additional studies exploring the views of 'underserved' communities ($n = 52$) on speech and language therapy activities were undertaken. Data collection included surveys, interviews, focus groups and direct observation.

Findings

Clinical expertise

Speech and language therapy interventions with preschool children with PSLI were characterised in terms of nine themes, which were viewed as comprehensive and inclusive by practitioners:

- helping adults to understand the nature of a child's difficulties and the adult's role in supporting the child (*adult understanding*)
- establishing adult-child interactions that facilitate development in the child's speech and language (*adult-child interaction*)
- establishing foundation skills relevant to speech and language development (*foundation skills*)
- improving the child's comprehension (*comprehension*)
- improving the child's expressive language (*expressive language*)
- improving the child's speech (*speech*)
- supporting the development of the child's self-monitoring (*self-monitoring*)
- facilitating generalisation of the child's speech and language skills (*generalisation*)
- enabling the child to communicate (*functional communication*).

For each theme, participating SLTs generated a set of commonly used interventions. Although some were common to most SLTs who work with preschool children with PSLI, substantial variation in type, form and use of interventions was also evident. Similar findings occurred for the stated use of published or standardised assessment instruments, with heavy reliance remaining on direct observation and parental reports. The psychometric robustness of the assessments in common use varied widely.

Although therapists reported that the interventions used were likely to deliver a wide range of speech, language, cognitive and social outcomes, typically only the speech and language outcomes were directly measured. Even these were not routinely collated by service managers. Tools for the measurement of functional communication and social outcomes are available but are not routinely used.

The research evidence

In the systematic review of the research literature, of the 55,271 papers retrieved from the initial literature search, 58 studies (reported in 56 papers) were of satisfactory quality and included evaluations of interventions with preschool children with PSLI. Of the nine identified themes, the majority of these focused only on *speech* and *expressive language*, with smaller numbers of papers targeting the other themes. Differences in terminology, conceptual underpinnings and the outcomes measured confounded synthesis of the findings.

The weight of evidence supports the use of modelling as an intervention to improve *expressive language*. As a whole theme there is evidence to support the use of interventions to improve *speech*. This theme could be subdivided into at least two categories of speech perception and phonological awareness, with

evidence for interventions focused on speech sound systems but less support for phonological awareness. For the theme of *adult understanding* there is a growing body of evidence to suggest that interventions can be effective. Despite the paucity of studies there is also some evidence that interventions for *comprehension* can achieve positive outcomes. For all of the other themes, too few studies were identified to allow any significant conclusions from the synthesis of findings.

User perspectives

Children's perspectives on the speech and language therapy interventions were captured through observations of their body language, vocalisations and visual attention during speech and language therapy activities. These observations provided evidence of the children's level of interest, confidence and willingness to participate and their enjoyment of activities. In structured activities, children were less vocal but more engaged in active listening and watching the adults. In unstructured activities, children were more vocal and exhibited confident and relaxed movements. However, there was less turn taking and active listening and more interruptions and fidgeting and children spent time watching other children rather than focusing on the adults. As one would expect, unfamiliar adults or activities generated signs of uncertainty and even distress. The findings show that, in young children, of whom it is not appropriate or possible to ask questions about their perspectives on interventions, it is nonetheless possible to gain insights into their perspectives on interventions.

Parental opinion was sought from both well-served and, theoretically, underserved communities, although recruitment and engagement was challenging in both. In the former, parents' experiences of therapy were generally positive and parents considered themselves fortunate. However, evidence also suggested that the rationale for the therapy was not always clear to them. In a survey that demonstrated and explained therapy activities, parents reported these to be acceptable and feasible. Parental perspectives in underserved communities suggested that, although parents were confident about how to support children's language development, they were less informed about the nature of speech and language impairments and the function of speech and language therapy.

Further analysis: an evidence-based framework to support targeting of interventions

Identifying nine themes generated from the thematic analysis of SLTs' discussions of their interventions has formed the basis of an evidence-based framework that describes current speech and language therapy-led interventions for preschool children with PSLI in England. We have specified assessment processes, interventions and outcome indicators that are commonly associated with each theme. Evidence of effective interventions that are associated with each theme have also been identified. Although some themes such as *speech* and *expressive language* mapped tightly to the research evidence, others such as *generalisation* were included in only a minority of studies. Some, such as *adult understanding*, were included only obliquely in studies and were rarely described explicitly as part of the therapy process.

A comparison of the themes of interventions described by SLTs with those described by parents and EYPs showed that there were many similarities. Although different emphases were apparent, there was evidence of all nine speech and language therapy themes within the EYP and parent data. This framework can support the decision-making of therapists so that components of interventions are explicitly identified.

Economic and service context

The research programme also examined the availability of information relating to the resources directed towards speech and language therapy services for preschool children with PSLI. We found very poor quality, cover and completeness in terms of data collection and analysis. In particular, the service lacks both a culture of collecting outcome data routinely and measures of professional input and costs associated with SLTs' activities. This makes routine monitoring and evaluation of their service impossible. Not all speech and language therapy services had access to electronic data collection methods and none was able to analyse its service profiles and throughput in terms of the severity of the children's impairments or in terms of which care pathways were delivered by which grade of staff. In such a context, the economic evaluation of services is currently severely limited.

Conclusions

In conclusion, the framework summarises the work of therapists using nine themes. Relevant assessments, interventions and outcome domains, evidence of the effects of interventions and user perspectives have been identified for the framework. The framework should be viewed mainly as descriptive and as a support for the decision-making process of therapists as they select and deliver interventions and measure the outcomes. It should also support discussions between SLTs, users of their services and those who commission the services about how best to organise services. At this stage it is not meant to be prescriptive. However, with further research to establish the impact of using the framework to guide and structure services, it may evolve to act as a benchmark against which speech and language therapy services can be compared.

Commissioners of speech and language therapy services:

- could use the framework to quality assure speech and language therapy service specifications, looking for evidence that services cover each theme and measure outcomes for each theme
- may wish to consider the potential efficiency of assessments; in-depth assessments may take more time but produce a better definition of the impairments and thus result in more finely tuned interventions
- could expect services to show the level of research evidence available to support interventions that are delivered and how interventions have been differentiated for local groups, supported by data gathered on local outcomes.

Speech and language therapists, their managers and the profession at a national level:

- could work together to provide descriptions of interventions that they deliver which are consistent, transparent and accessible to parents and to provide explanations of the underlying rationale
- could use the outcome domains identified in this study to agree a core outcome data set for speech and language therapy with this group of children
- could give consideration to how to use the observational framework to give voice to preschool children's perspectives on the interventions that they experience.

Recommendations for further research, which have been informed by consultation with parents, include:

- An investigation of how best to recruit and engage parents of children with language impairment in the preschool years and the wider family in both research and service evaluation and development. The challenge of recruiting and engaging with parents, and through them their children, is fundamental to all future research and service delivery in this area. This is particularly important for the creation of services that deliver outcomes of value to the families themselves. Parents who took part in a consultation exercise indicated that a high priority for them is information about speech and language impairments.
- A programme of studies to evaluate the effectiveness of interventions in under-researched themes: adult-child interaction, developing parents' understanding, children's comprehension and the generalisation of skills into functional contexts. These studies should include how best to differentiate services, particularly to meet the needs of diverse groups. The systematic reviews have identified particular aspects of the work of SLTs for which the evidence base is poor. Evidence is also lacking about how the differentiation of existing interventions impacts on outcomes. Parents in our consultation exercise indicated that information about which interventions work is their second priority.
- The development of assessment processes that can be used consistently and objectively and in partnership with parents, particularly to enable the identification of interventions appropriate for adult-child interaction, adult understanding and self-monitoring. This area of research may be combined with the previous recommendation regarding the investigation of effectiveness: if research targets the evaluation of interventions then valid and acceptable ways of assessing eligibility and measuring outcomes are also needed. This area of research was not one rated in our parent survey.

- An evaluation of the effectiveness and cost-effectiveness of services that adopt the evidence-based framework compared with the effectiveness and cost-effectiveness of services that are not using the framework. In particular, the research should consider how the specification of outcome domains can drive the development and subsequent commissioning of services. Having developed a descriptive evidence-based framework, the next logical step is to evaluate the impact on services of using the framework. This would involve comparative research that examines how services adopt and adapt their practices to take account of the framework and subsequently the impact on the children and families who access the services. The current national context of outcomes-based commissioning requires urgent consideration of how an emphasis on outcomes can drive service development.

Study registration

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