Speech and language therapy for children with primary language impairment

A randomised controlled trial and economic evaluation of direct versus indirect and individual versus group modes of speech and language therapy for children with primary language impairment

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Executive summary

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Executive summary

Background

Some 30–60% of children with primary language impairment (PLI) that cannot be accounted for in terms of non-verbal ability, behaviour or emotional problems, hearing or neurological impairments may experience difficulties in school achievement or social, emotional or behaviour problems that persist to adolescence and beyond. Children with PLI that persists to school age provide a stable basis for determining the relative effectiveness of modes of speech and language therapy and their cost-effectiveness.

Objectives

This trial aimed to address the following research questions.

- How do direct individual therapy [speech and language therapist (SLT) working individually with a child], indirect individual therapy [speech and language therapy assistant (SLTA) working individually with a child], direct group therapy (SLT working with a small group of children) and indirect group therapy (SLTA working with a small group of children) compare with regard to the language outcomes for primary school-age children with persistent primary receptive and/or expressive language impairment relative to a comparison group receiving current models and levels of SLT service?
- What is the evidence for long-term benefits for such children from their therapy at 12 months' follow-up?
- How do the four intervention approaches compare in terms of cost?

Methods

Design

This randomised controlled trial had a 2 × 2 factorial design (direct/indirect versus individual/group therapy) together with a control group that received existing levels of community-based speech and language therapy and served as a comparator for the economic analysis. All postintervention language outcome measures were blind assessed. A short-run economic evaluation across the four different modes of therapy was carried out using the primary outcome measure. A comparable method was used for estimating the costs of providing services in the community for children allocated to the control group.

Setting

Research intervention took place in school settings, with some of the children randomised to group therapies transported to join a group in a different school.

Participants

Participants were identified by community speech and language therapy services in Glasgow, Edinburgh and the Lothians. They were initially assessed by members of the project team and thereafter by SLTs blind to intervention mode. Children met the following eligibility requirements:

- age between 6 and 11 years
- attending a mainstream school
- standard scores on the Clinical Evaluation of Language Fundamentals (CELF-3^{UK}) of less than –1.25 SD (receptive and/or expressive) and non-verbal IQ on the Wechsler Abbreviated Scale of Intelligence (WASI) greater than 75, and no reported hearing loss, no moderate/severe articulation/phonology/dysfluency problems or otherwise requiring individual SLT work
- informed, written parental consent.

Intervention

A therapy manual was constructed that provided a range of procedures and activities for intervention in areas identified by a search of the research and professional literature for examples of language therapies of proven effectiveness. SLTs planned activities for children seen by therapists and SLTAs, using the manual.

Main outcome measures

Primary outcome measures of the study were standardised scores on tests of expressive and receptive language. Secondary outcome measures were scores on a test of receptive vocabulary,

together with questionnaire, rating scale and focus group data from parents, teachers, project SLTs and SLTAs, and an audit of therapy sessions.

Results

There was no evidence that the five modes involved in the project were different at the onset in terms of primary outcome measures, although there were significant gender differences. The results from both the intention-to-treat analyses of the outcomes from the 161 children randomised who met the eligibility criteria and the protocol analyses of the outcomes from the 152 children for whom postbaseline data were available revealed that there were no significant postintervention differences between direct and indirect modes of therapy on the one hand, or between individual and group modes on the other on any of the primary language outcome measures, after adjustment for the effects of severity of language impairment at pretest. However, there was evidence of some benefits from direct therapy from an SLT in secondary outcome measures. Parents and teachers were positive about the children's progress and their experience of the project. All four intervention modes were acceptable to parents and schools.

Intervention delivered three times a week for 30–40 minutes over a 15-week period also yielded significant improvements in age-corrected standardised scores for expressive language, although not for receptive language, relative to those receiving community-based SLT services. Children with specific expressive language delay were more likely to show improvement than those with mixed receptive–expressive difficulties, and non-verbal IQ was not a significant moderating variable.

The within-trial economic evaluation identified indirect therapy, particularly indirect group therapy, as the least costly of the modes investigated in the study, with direct individual therapy as the most costly option. This is unsurprising given the differences in the ratio of trained professional staff to children and in the cost of labour between different staff grades. However, these cost differences should not be overinterpreted as these estimates were based on the pattern of resource use inherent in the trial design with allowance for how the different modes of therapy could be delivered in practical settings.

Conclusions

Implications for healthcare

Well-trained, well-supported and well-motivated SLTAs can act as effective surrogates for SLTs in the delivery of services within primary schools to children with PLI who do not to require the specialist skills of an SLT. Generalising the central estimates of the relative cost of different therapy modes to other educational/health systems is possible, but the precise differences reported in resource use need to be qualified by the level of programme intensity and other characteristic features of education and therapy services that may differ from those observed in this trial.

Recommendations for research

- There is a need for further research into effective interventions for receptive language problems and also for investigations of the efficacy of the relationship between dose and treatment effect in both expressive and receptive language.
- There is also a need to investigate models of integrative service delivery, for example, the partnership between SLTs and schools, cluster models of delivery via integrated community schools, and the involvement of class teachers, classroom assistants and parents/carers.
- There is a need for studies to identify the characteristics of children who are most likely to succeed with indirect intervention approaches, and also to evaluate alternative methods of working with those who may benefit from different modes.
- Finally, research to refine the therapy manual would also be helpful.

Publication

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