

Speech and language therapy: does it work?

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Speech and language therapy is a relatively new discipline. The profession was born some 50 years ago, uniting those working with mostly head injured soldiers returning from the second world war. Interest in communication at that time was led by neurologists, ear, nose, and throat surgeons, and many teachers. As in many other disciplines, the foundations of the profession were based on concern for those with the disorders and an empirical approach to remediation.

We undertook a literature review to establish the state of knowledge about the efficacy of speech and language therapy in major client groups and to identify important areas for research.¹ Not surprisingly, in view of the profession's youth, research has dealt more with the analysis and identification of speech and language disorders and the development of hypotheses underlying therapeutic programmes than with evaluating their efficacy, relevance, and validity.

We wanted to take a systematic approach to reviewing the research,² but there are not enough controlled studies for us to confine ourselves to this approach. We therefore extended our review to studies displaying the state of knowledge and the main therapeutic challenges.

This review attempted to cover a broad range of published and grey literature and hence required interrogation of many different databases because the literature related to speech and language therapy appears in journals covering linguistics, psychology, social sciences, and education. Other reviews examining the efficacy of speech and language therapy have not reflected the wealth of literature because they have limited the search to Medline and associated medical databases.³ The main findings of the review are summarised in the box.

Acquired dysphasia

Four recent group studies of acquired dysphasia and all but one single case study show favourable effects of language treatment. Of the group studies, three were conducted in single clinical institutions with restricted selection of patients and homogeneous methods of treatment.⁴⁻⁶ The most recent study was conducted in five United States Veterans Administration hospitals with a high frequency of speech therapy and rigid entry criteria.⁷ In contrast, earlier multicentre studies have concluded that general, non-specific, low intensity treatment, directly provided by professionals, while effective, is no better than volunteer treatment.⁸⁻¹⁰

After reviewing the research evidence we conclude that speech and language therapy is effective if targeted to patients with specific deficits and needs and is provided intensively. In his review of the literature Wertz concluded that the patient who will benefit is likely to have had a single thromboembolic infarct in the left hemisphere, have moderate aphasia of three months or less onset, and be given three hours' treatment a week for at least five months.¹¹ However, patients who have received intensive targeted treatment have shown improvements beyond what is generally considered to be the normal period of spontaneous recovery. Additionally, in general, dysphasic patients and their

relatives require support and encouragement, and a speech and language therapist may help these patients to communicate more effectively using a variety of different approaches.

All studies have been faced with the question of what constitutes good recovery. While many standardised tests of language ability exist, these do not necessarily inform us about the functionality, efficiency, effectiveness, and naturalness of a person's communication and the general ability to cope with life.

Children with speech and language disorders

Children with speech and language disorders, along with those with communication deficits related to learning difficulties, attract most of the NHS's investment in speech and language therapy. Nevertheless, these disorders are among the least researched. The specific speech and language therapy techniques that have been tested have mostly been found to be effective, but major issues still need to be addressed. Fundamental problems exist over the terminology and classification of speech and language disorders in children. These relate not only to the description of the disorders themselves, but also to the therapeutic programmes and theoretical underpinnings, resulting in similar concepts and issues being named differently by different authors.

Follow up studies suggest that some children with speech and language impairments may well have diffuse complex problems initially but that these evolve into more specific difficulties later in life.¹² A strong association seems to exist between early speech and language problems and later difficulties with certain educational tasks such as reading.

There is strong evidence that at an early age (about 2 years) a number of children with speech and language disorders will grow out of their difficulties. While they may benefit from speech and language therapy in the short term—and their development may be expedited—there may be no difference in the long term between this group and similar children not receiving therapy.

The difficulty for researchers and practitioners is to identify those children who have disorders that indicate a broader range of underlying difficulties that will not resolve spontaneously or may lead to a different range of difficulties later in life. On the basis of research into the patterns of speech and language development¹³ therapists are increasingly confident that these children can now be identified so that treatment can be targeted more effectively. Two randomised controlled trials are under way to compare the outcomes between children receiving early speech and language therapy and those receiving delayed intervention.¹⁴

Studies examining the role of parents and teachers indicate that they can help therapists in delivering therapy, but the time that has to be spent by the therapist in training and supporting these groups may be considerable. This has caused some conflicting conclusions about the cost effectiveness of dedicated teaching programmes.¹⁵⁻¹⁷

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Summary of characteristics of speech and language disorders

<i>Condition</i>	<i>Prevalence per 100 000*</i>	<i>Cause</i>	<i>Key findings</i>	<i>Controversies</i>
Dysphasia	150	Cerebrovascular accident Head injury	Intensive targeted therapy is effective for some specific dysphasic syndromes. Generally promoting a variety of communication approaches and providing support are also important	Need to define "good recovery." Effects on functional speech and quality of life not fully evaluated and lack of consensus over patients who would benefit most
Children with speech and language disorders	968 at 3-9 years	? Genetic ? Environmental ? Cognitive ? Psychological ? Minimal brain damage	The few tested techniques have been found to be effective. Strong association between early speech and language problems and later difficulties with reading. Parents and teachers can help with delivering therapy after training	Identification of children who will not recover without treatment. Problems of classification and terminology. Disagreement about cost effectiveness of providing therapy through parents and carers because of demands on therapist's time
Abnormal speech associated with cleft palate and velopharyngeal competence	120	Genetic Idiopathic	Treatment effective for children with velopharyngeal competence. Intensive structured therapy most effective	Speech and language therapy needed after surgery is rarely detailed
Dysarthria	280	Cerebrovascular accident Head injury Cerebral palsy Degenerative Neurological disorders	Immediate gains for people with Parkinson's disease. Treatment improves ability to communicate in severe dysarthria and quality of speech intelligibility in mild dysarthria	Little research on treatment of other specific conditions. No studies on value of psychosocial approaches
Laryngectomy	3	Carcinoma of larynx Trauma	Early speech therapy is possibly more effective. Therapist is also key worker in supporting patients with valves	Little evaluation of different speech and language approaches
Learning disabilities		Toxins Infections Chromosome abnormalities Metabolic disorders Prematurity	Few techniques have been tested but those that have seem effective	Continuing difficulties in specifying which treatment will be effective with which child. Little evaluation of the effectiveness of treatment of adults. More evidence required to investigate generalisation of learned behaviours
Stammering	1000 (adults)	? Genetics Neurophysiological Psychological	Therapy effective in the short term. Most effective approach is that which combines working on improving speech along with changing attitudes to stammer	Lack of agreement on what constitutes good therapeutic outcome. Half of stammerers have difficulty maintaining their improvement 12 months after treatment. Is there a spectrum of stammering disorders?
Dysphonia	28-89	Psychogenic Neurological Organic injury	Studies have found improved outcome of organic and non-organic dysphonia after therapy, but the studies lack rigour	More research needed into prevalence, clinical course, and prevention of voice disorders

*Figures quoted have been converted to prevalence per 100 000 population from available data.

Cleft palate

Most research into cleft palate has used speech as an outcome measure for evaluating the success of different surgical procedures. The speech and language therapy component of the overall package of care is rarely distinguished, and the assessments of speech are usually so simplistic that it is hard to make any judgments. Despite these difficulties, the published evidence suggests that speech and language therapy for children with cleft palate who have velopharyngeal competence, or borderline competence, is effective. Therapy for children with an inadequate mechanism, however, does not seem to be effective. Two studies show that intensive structured and targeted treatment leads to a better outcome than speech and language therapy delivered on an ad hoc basis.^{18 19}

Dysarthria

Dysarthria is the most commonly acquired disorder of communication, but the amount of related research is disappointing. Most is focused on the difficult subject of dysarthria associated with Parkinson's disease, with little on the other conditions found in a general case load.

Group and single case studies indicate immediate gains from speech and language therapy in people with Parkinson's disease.²⁰⁻²² Measures include improving the volume and clarity of speech and general communicative style. Studies show that, after speech and language therapy for severe dysarthria caused by an acute cerebral incident, most subjects improved their ability to communicate, either through alternative communication methods or improved vocalisation.

Within the speech and language therapy literature much emphasis is placed on the importance of accommodating the psychosocial aspects of dysarthria within treatment programmes. We have not found any studies examining the value of these approaches or any comparisons of different psychosocial interventions.

All studies of extending the ability to communicate in dysarthria by providing communication aids found the aids to be effective.^{23 24} Not surprisingly, different augmentative communication systems were found to suit different clients depending on age and personal circumstances.

The treatment of patients with mild dysarthria—that is, slurred or incoherent speech—has concentrated on improving intelligibility as well as reducing the bizarreness of speech. Different approaches have been tested in both group and single case studies and have been found to be effective in improving the quality and clarity of speech.²⁵

Laryngectomy

The surgical management of laryngectomy has changed radically over the past decade, and the research into speech and language therapy for this group of patients is impressive. Because of the changes in management, however, the associated therapy techniques are being reviewed and developed and require continued investigation. The speech and language therapist often helps with long term support, and, again, this support should be included in any evaluation.

Therapists have traditionally been concerned primarily with teaching oesophageal speech to those who have had their larynx removed, but they are now often the key workers concerned in supporting patients treated with a tracheoesophageal puncture. This entails the therapist teaching the patient the physical management related to the valve along with helping him or her to develop appropriate voicing methods.²⁶

One of the largest studies after laryngectomy was a retrospective study of 55 patients; this compared the outcomes in those who received speech and language therapy soon after surgery (two to three weeks) and in those who received therapy one year or more after surgery. Subbarao *et al* concluded that therapy should be started as early as possible.²⁷ However, the reasons for delay were not clearly elucidated in the paper, and some of those receiving delayed therapy might have had a different psychosocial or surgical history.

Again, speech and language therapists spend much helping patients with their psychosocial adjustment to laryngectomy. Different forms of psychosocial support, and their cost effectiveness, have not been appropriately evaluated.

Learning disability

Bryen and Joyce reviewed 43 language intervention studies in people with learning difficulties published during the 1970s.²⁸ They found that, while many of the studies aimed at and succeeded in increasing the patient's vocabulary during a structured session, only one third of studies considered generalisation of this ability into everyday conversation. Studies that did consider this aspect showed that intervention was successful to varying degrees.

More recent studies have emphasised the effect of the intervention on function, and experimental studies, usually using small numbers of children, continue to indicate that speech and language therapy for children with learning disability can help them acquire new vocabulary and language structures. The term learning disability does, however, cover a wide range of ability, and there are continuing problems in specifying which interventions are likely to work with which child.

Therapists also aim to improve the communication of adults with learning disability, especially by developing alternative and augmentative communication and by manipulating the environment to provide more communicative opportunities. Little attempt seems to have been made to evaluate this work.

Stammering

There has been much research (mostly from the USA) into widely different approaches for the treatment of stammering. A meta-analysis integrated 42 studies covering the treatment of 756 stammerers and concluded that treatments for stuttering were beneficial and that the benefits were comparable to those of other treatments in health sciences.²⁹

Techniques that combine teaching patients a strategy for modifying their speech production with psychological intervention and therapy aimed at improving attitudes seem to be most effective. All the different speech and language therapy approaches were preferable to no treatment.²⁹

Maintenance of improvement is a problem in roughly half of all stammerers, but relapses were often found to occur late—for example, 12 months after treatment. Therapists are now investigating methods of reducing the relapse rate, and both refresher courses and follow up appointments seem promising. Nevertheless, many questions remain unanswered about the underlying causes of stammering, the categorisation of different stammering behaviours, appropriate outcome measures, and the lengths and intensities of different treatments.

Dysphonia

There is no definition of a normal voice. An abnormal voice is one where the quality, pitch, loudness, or flexibility are interpreted as being unpleasant or inappropriate to the age or sex of the speaker. Disorders of the voice may be classified as organic or non-organic. Organic disorders may be caused by disease, congenital disorders, injury, hyperfunction, or vocal abuse. Non-organic disorders include psychogenic and stress related vocal dysfunction. Voice therapy includes relaxation techniques, breathing exercises, and vocal modelling, along with teaching in vocal hygiene and counselling.

The efficacy of speech and language therapy for patients with dysphonia has not been seriously questioned as the disorders often resolve quickly with treatment,³⁰ and there seems to be a general acceptance that "therapy works." Nevertheless, there are a few experimental studies that give objective support to this belief.³¹⁻³³

Increased use of instrumentation is helping in the diagnosis and treatment of voice disorders and may facilitate better selection of patients for treatment and more accurate monitoring. More research is needed into the prevalence and natural history of voice disorders, together with more rigorously controlled experimental studies of specific treatments of different types of voice disorders.

Conclusion

Speech and language therapy is often viewed as a group of prescribed and precise activities. Indeed, it is often referred to as a single entity, similar to a drug, as if it were made up of chemicals required in a certain dose. One of the challenges we in the profession face is to describe in detail the components of therapy in order to evaluate the most active and desirable features and to eliminate the aspects that have no effect or are possibly harmful. Even such descriptions, by themselves, may be inadequate as it becomes increasingly evident that different approaches by individual therapists may be

more, or less, effective with different clients with similar speech and language problems but differing personal and psychosocial needs. The box gives an indication of some of the key strategies in speech and language therapy, but each of these can be approached in a different way.

Illustrative strategies used in speech and language therapy

- Assessment and diagnosis of communication or swallowing disorders and identification of retained abilities
- Advice and support of patient and carer to prevent, maintain, or improve communication and swallowing
- Therapy to restore and improve impaired speech, language, voice, fluency, or swallowing
- Teaching compensatory strategies to improve intelligibility and general communicative effectiveness
- Therapy to improve functional communication by using adaptive techniques, such as augmentative and alternative communication systems
- Therapy to restore, improve and maintain social consequences of the speech disability
- Manipulation of the environment—for example, by making physical surroundings more conducive to communication by amending carer's communication

Research into speech and language therapy has mostly used outcome measures related to improving speech or language itself, but the goals of therapy are usually broader—for example, providing alternative methods to communicate, improving interaction strategies, and advising patients and relatives. Thus, evaluations of the real impact of intervention have often ignored aspects that may be of value. Outcome measures that target these broader domains of speech and language therapy have only recently been developed.³⁴

Research in speech and language therapy, as in other professions, shows a considerable disparity in volume across the specialist areas. Researching the efficacy of treatment for dysphasia attracts relatively more investment, whereas work evaluating therapy for those with learning difficulties and developmental speech and language disorders has only recently attracted interest and, even now, the amount of research and the methods used are inadequate for the task.

This disparity may be related to the different clinical domains of these disorders. Disorders more closely allied to medical and surgical disciplines were exposed earlier to the philosophy of objective investigation, and much of the early work in speech and language therapy was fostered by, or associated with, medical research programmes, often using the related resources and methods. Difficulties more traditionally associated with education, or social science, have attracted studies that have concentrated more on the philosophy of treatments and the generation of hypotheses.

The challenge to researchers to address the effectiveness of speech and language therapies becomes ever greater as we become more aware of the underlying deficits associated with many communication disorders;

as multimodal treatments develop; as we harness physiological, psychological, and social strands; and as we broaden our therapeutic objectives. Research done as recently as a decade ago may look simplistic and inappropriate. A broad range of methods, including well designed qualitative and quantitative studies, will help us in ensuring that effective help for those with communication disorders is available.

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