Critical Review:
Efficacy of Group Therapy versus Individual Therapy in Making Impairment Related Gains in People with Aphasia

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This review examines the published evidence comparing group therapy and individual therapy in making impairment related gains in people with aphasia. Group therapy has the potential to increase SLP service provision to a larger number of people in need, thus decreasing costs and wait-lists, and allowing therapy to begin sooner after stroke. However, this is only feasible and ethical if group therapy is found to be better than, or equal to, the gains made in traditional one-on-one therapy. The purpose of the current study is to examine all available research in this area to determine if group therapy is a viable replacement for individual therapy in clients with aphasia. Five primary research articles were found to directly compare the intervention methods in adults with aphasia. The findings of this review are mixed, with limited compelling research supporting efficacy of either treatment delivery model over the other. More research is needed directly comparing the two treatment delivery models before conclusive results can be drawn.

Introduction

After a stroke, approximately 38% of those who survive experience aphasia (Allen, Mehta, & McClure, 2012). Aphasia is a language impairment that impacts life participation due to its effects on language across all settings. It is usually targeted with conventional one-on-one speech and language intervention by a speech-language pathologist (SLP). This type of speech-language therapy has been found to be beneficial in improving language outcomes in aphasic patients (Brady, Kelly, Godwin & Enderby, 2016).

Therapy for select aphasia patients can also be administered using a group service delivery model. Group therapy is often seen as a beneficial intervention to primarily promote generalization of skills (Nickels, McDonald & Mason, 2016). Additional benefits of group service delivery include a reduced cost for the client and an increased availability of SLP services. This has the potential to decrease wait times between the strokes occurrence and the reception of services.

There is substantial recent research that studies the efficacy and benefits of both individual and group intervention. The aim of the present study is to determine which model of therapy delivery the current research suggests is better at making impairment related gains in functional communication for people with aphasia. If group therapy is found to be equally beneficial, or more beneficial, than individual therapy, it can become the primary service delivery model recommended to clients with aphasia after a stroke. This would allow both SLPs and patients to garner the cost and delivery benefits group therapy offers. If individual therapy is found to be superior, future research can look to uncover the factors responsible for this difference and look to incorporate these factors into group therapy in order to match the delivery styles effectiveness.

By completing this comparison, SLP's can ensure they are choosing the most appropriate and beneficial therapy for their clients, and treatment can be more valuable and cost-effective for patients with aphasia.

Objectives

The primary objective of this paper is to critically evaluate existing literature studying the efficacy of group therapy compared to traditional one-on-one therapy in improving functional communication in people with aphasia. It aims to provide clinically relevant recommendations for practice in this area.

Methods

Search Strategy

Online databases including Science Direct, PubMed, MEDLINE (Ovid), Nursing and Allied Health Database, PsycINFO, and Scopus were searched using the following keywords: (Individual OR traditional OR one-on-one) AND (speech therapy) AND (compared OR versus) AND (group therapy) AND (aphasia). Reference lists of reviewed articles were also examined to obtain relevant articles.

Selection Criteria

Articles selected for inclusion in this review were required to compare speech-language therapy in group and individual contexts. Study participants must have been adult patients (18 years or older) who had had a left hemisphere stroke and were experiencing aphasia.

Data Collection

This literature search yielded five primary research articles fitting the specified inclusion criteria. The

studies included Randomized Control Trials and an Observational Study

Results

Randomized Controlled Trials (RCT)

Randomized controlled trials are considered the gold-standard of research designs as they strongly validate research outcomes. Assignment to an intervention group is random, and a control group helps to reduce bias and extraneous variables. RCTs are considered level-one evidence by the Oxford Centre for Evidence-based Medicine Levels of Evidence (2009). Some weaknesses of RCTs include more time and monetary costs to complete, and ethical issues surrounding withholding treatment from control groups.

Pulvermüller et al. (2001) conducted an RCT to investigate if constraint-induced aphasia therapy (CIAT) produced greater improvement in language skills than conventional 1-on-1 aphasia therapy. CIAT is an intensive group aphasia intervention that requires participants to engage in a barrier card matching game where the only way to participate is with verbal expression. Participants are not allowed to use non-verbal communication such as drawing or gesturing to get their message across.

The study included 17 participants. All were screened to include only those with a single stroke of the left middle cerebral artery, who were right handed monolingual German speakers, and who had no severe perceptual or cognitive deficits. Randomization in group assignment was employed, however the group that received CIAT by chance had had their strokes for longer than the control group. The authors argue that if anything, this would have negatively impacted the effectiveness of the CIAT. The CIAT group participated in this game-based therapy for 3 hours each weekday for 2-weeks; those in the 1-on-1 group received the same number of treatment hours over approximately 4 weeks.

The researchers measured progress of participants in following directions, naming, language comprehension, repetition, and performance in everyday life using appropriate gold-standard tests including standardized assessments, self-ratings, and through blinded observer ratings of patients' communicative effectiveness. Appropriate statistical tests were employed to compare results.

Results indicated that clients who participated in CIAT had significant and pronounced improvements on self-rating, standard clinical tests, and on blinded-observer ratings of the patients' communicative effectiveness compared to the traditional 1-on-1 group. The CIAT group showed greater improvement on 3 of the 4 dimensions of communication measured by the researchers: following directions, naming, and language comprehension. The 1-on-1 group improved on only one area: repetition. The CIAT groups' performance in everyday life situations also improved on both self-report questionnaires and blinded clinicians' ratings.

A limitation of this study was the different treatment schedules. Given that the treatments were not matched in timing, the effect of group specifically could not be determined. Thus, this study provides equivocal evidence that group therapy is more beneficial than individual therapy in making impairment related gains in people with aphasia.

Wertz et al. (1981) conducted an RCT to directly compare individual and group treatment effects on functional language, verbal and gestural communication. Participants were assigned randomly to receive an individual direct stimulus-response intervention (4 hours of direct therapy and 4 hours of machine assisted treatment) or language stimulation in a group setting facilitated by an SLP (4 hours of group discussion and 4 hours of recreational activities with a therapist).

Their study included 67 individuals from five Veterans Administration Medical Center Speech Pathology and Neurology Services. The inclusion criteria were very strict with both groups being between the ages of 40-80, fluent and literate in English, had had a left-hemisphere stroke with no further medical complications, have adequate hearing, vision and dexterity in one hand, and were 4 weeks post onset with similar severity scores on chosen measures. Assignment of group was random, and assessment was completed by SLPs who were blinded to group assignment.

Outcomes were measured through an index of both verbal and gestural communication and through reports from significant others, not by gold-standard assessments. The study lasted 44 weeks and participants were assessed every 11 weeks. Only 50% of participants completed the 44-week assessment, although completion rates of the earlier assessments were higher.

The results of this study indicated that there was a similar rate of change in both treatment conditions. Those in the individual therapy group scored better on an index of verbal and gestural communication, but on no other measures of language impairment. On

language impairment measures and ratings of functional language by significant others, both groups had similar improvement.

The limitations of this study included high drop-out rates and inappropriate statistical analysis on data. Thus, it provides only equivocal evidence that group therapy and individual therapy are equally effective.

Avent, Wertz and Auther (1998) explored the relationship between language impairment and pragmatic behaviour in aphasic adults in a retrospective RCT study conducted on Wertz et al.'s (1981) original article data. The authors aimed to evaluate performance in both pragmatics and communicative effectiveness after group-based intervention or individual intervention. Individual treatment was conducted by an SLP and consisted of 4 hours of stimulus-response style therapy aimed at improving all communicative modalities including auditory comprehension, reading, oral- expressive language, and writing, plus two to four hours of machine-assisted treatment. Group therapy included three to seven patients for four hours each week and was conducted by an SLP. An additional two to four hours of group recreational activity was also provided to this group. Group treatment goals included facilitating language in social settings.

All study participants chosen from the original sample were four weeks' post-onset at entry, under 80 years of age, literate in English before their stroke, and had no present or previous neurological disease. This resulted in a sample size of 20 participants. Half of the participants received 44 weeks of individual treatment and half received 44 weeks of group treatment. Both groups consisted of both fluent and non-fluent aphasics.

Outcomes were measured based on verbal language, paralinguistic and nonverbal aspects of language use, and overall communicative abilities as measured using appropriate gold-standard tests for the time of the articles publication.

Results indicated that there was no significant difference found between individual or group treatment on an index of communicative effectiveness or in pragmatic performance— with both groups similarly improving. Similarly, there was no difference in improvement between the fluent or non-fluent patients.

This study was well formulated and well conducted for the time it was completed, however, limitations include outdated assessments used to score communicative effectiveness. Gold-standard assessments have changes since this articles publication, as have treatment procedures for both individual and group therapy. Due to the inherent weaknesses of a dated study, this article provides suggestive evidence that pragmatic performance and language impairment can be equally improved in group therapy and individual therapy.

Wilssens et al. (2015) conducted an RCT in order to compare CIAT (a group-based therapy) to semantic therapy (a one-on-one therapy) in improving verbal communication for people with fluent aphasia. Semantic therapy was delivered through BOX therapy— a Dutch drill-based lexical-semantic treatment that aims to enhance semantic processing by focusing on interpretation of written words, sentences and texts.

The study included 9 participants for whom inclusion criteria was specified; with each containing Dutch speakers aged 54-81 who had had a single left-hemisphere stroke and were experiencing fluent aphasia. Participants were randomly assigned to groups and blinding to group assignment was employed by the evaluating SLP.

Outcomes of language comprehension, language production, phonology, and semantics were measured using appropriate gold-standard tests, and appropriate statistical analyses were employed.

The study found that both intensive therapies significantly improved verbal communication. However, individual therapy participants showed a more pronounced improvement in verbal communication on standardized assessment and subjective rating scales, and specifically on measures of language comprehension and semantics. Group therapy participants only had more improvement on language production and phonology.

Limitations of this study include poor generalizability, as it looked at two specific intensive therapy regimes. There are also some weaknesses in baseline matching of groups, including a large range of aphasia duration prior to the study (between 17–138 months), and the inclusion of left-handed participants. Because language localization is thought to be opposite handedness, left-handed participants may not have been experiencing aphasia to the same extent as right-handed participants. Due to these weaknesses, this article provides only equivocal support for its findings.

<u>Observational Studies:</u>

Observational studies follow one or more groups with similar characteristics to observe outcome or predictor variables. Observational studies are often quicker, easier, and more cost effective to conduct and can be used to answer a wide variety of questions. However, they do not use random selection or assignment of treatments, and causal effects cannot be found using observational research. Observational Studies are considered level-two evidence by the Oxford Centre for Evidence-based Medicine Levels of Evidence (2009).

Fama, Baron, Hatfield, and Turkeltaub (2016) conducted an observational study to determine if people with acute, severe non-fluent aphasia initiate more communication during group therapy sessions when compared to individual therapy sessions. Each participant was observed during one individual and one group session on the same day, and initiations were counted and categorized based on type, target, and purpose. The groups were counterbalanced to eliminate priming effects, with half the participants starting in individual and the other half starting in group therapy.

The study included 10 people who had had a left hemisphere stroke in the previous 3 months and were experiencing non-fluent aphasia. It was conducted over 10 sessions and measured by SLP evaluations, not by gold-standard testing. The SLPs who scored the treatments were blinded to the study, and high interrater reliability was reported.

The study found that patients more frequently initiated communication during group sessions. Here, they used more vocalizations and facial expressions, and the purpose was more frequently for social closeness. However, participants in individual therapy used more different, real words than when they participated in group therapy.

This observational study was well-formulated and included appropriate statistical analysis on results. While many nuisance variables were eliminated, limitations of the study included co-occurring suspected apraxia in many participants, as well as not determining the activities used in each treatment session. The activities the SLP used were instead a clinically informed set of tasks selected to target the participants' treatment goals. If a client's goals incorporated initiation, this could have accounted for observed results.

Overall, the study provides suggestive evidence that people with severe, non-fluent aphasia have different communicative behaviors in group and individual therapy, with those in group initiating more.

Discussion

This critical review found mixed results for the effectiveness of group therapy compared to individual therapy in making impairment related gains in people with aphasia. Overall, two studies indicated that therapy delivery style appeared to have minimal impact on functional language or pragmatic outcomes (Avent et al., 1998; Wertz et al., 1981), two studies indicated that group therapy resulted in greater language outcomes (Pulvermüller et al., 2001; Fama et al., 2016), and one study indicated that individual therapy resulted in more pronounced improvement in verbal communication (Wilssens et al., 2015).

Much of the existing literature examined different outcomes, making direct comparison between studies difficult. Group therapy was seen to be more beneficial at facilitating more communication initiation, increasing diversity of expressive modalities, and increasing the purposes of communication (Fama et al, 2016), at improving naming, language comprehension, following directions, and performance in everyday life (Pulvermüller et al., 2001), and at improving language production and phonology (Wilssens et al., 2015). Individual therapy was seen to be better at eliciting more new, real words (Fama et al., 2016), improving repetition (Pulvermüller et al., 2001), increasing scores on indexes of verbal and gestural communication (Wertz et al., 1981), and at increasing language comprehension, semantics, and verbal communication (Wilssens et al., 2015).

The mixed-findings of this review are supported by quite weak evidence, however. While many studies were well designed, it was often difficult to determine which variable accounted for the observed benefits, as outcomes were often tied to many factors other than simply delivery style. Many of the group therapy treatment groups in the literature were CIAT therapy, which reduces generalizability of findings to traditional group therapy, and may indicate intensity rather than delivery style are responsible for the observed findings (Pulvemüller et al., 2001; Wilssens et al., 2015). While this does suggest that language can be improved in a short period of time by using targeted massed-practice techniques, it cannot be conclusively stated that CIAT would be more beneficial than 1-on-1 therapy done in mass amounts. When this intensity was matched, individual therapy was found to be more beneficial, but generalizability

was still limited to fluent aphasia and BOX semantic therapy (Wilssens et al., 2015).

The strength of other findings is questionable due to high dropout rates (Wertz et al., 1981), potential confounding variables (Wertz et al., 1981; Fama et al., 2016), age of studies (Avent et al., 1998; Wertz et al., 1981), and the limited number of participants (Avent et al., 1998; Fama et al., 2016; Pulvemüller et al., 2001; Wilssens et al., 2015). Caution should be exercised when implementing these findings due to the weaknesses in the literature. While much literature exists separately examining the efficacy of individual therapy and the efficacy of group therapy, very little directly compares the two delivery models in one study. Of the literature that does exist, much provides very weak evidence in supporting either therapy more than the other.

Conclusion

It cannot be conclusively stated that either individual or group therapy is the superior treatment delivery model for making impairment related gains in people with aphasia. While there may be some aspects that are better targeted in group or in individual therapy, more research is needed to conclusively determine what these factors are.

Clinical Implications

Speech-Language therapy is a useful service for making impairment related gains in people with aphasia post stroke. In each study, benefits were seen from both treatment styles. However, the overall mixed findings from this critical review suggest that group therapy is not necessarily a suitable replacement for individual therapy in all instances.

While there are some suggested benefits of one delivery model over the other, the supporting evidence is very weak. Future research is required to explore the effectiveness of group therapy versus individual therapy in making impairment related gains in people with aphasia, and ultimately to determine whether group therapy is a suitable replacement for individual therapy. For the time being, clinical decisions should continue to be based on literature evaluating the effectiveness of the specific therapy approach in isolation, rather than compared to delivery through a different modality.

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