

**Critical Review:  
Group Therapy for Post-Stroke Aphasia Rehabilitation**

Kristina Howatt Gerber  
M.Cl.Sc SLP Candidate

University of Western Ontario: School of Communication Sciences and Disorders

This critical review analyzes the literature regarding the efficacy of group therapy as a treatment option for post-stroke aphasia. Group therapy is often recommended by speech-language pathologists as either a supplement or alternative to individual therapy for individuals post-stroke. Studies employing a variety of experimental designs were included in this review; randomized clinical trials, single-subject designs and non-randomized clinical trials. Evidence reported in this review is inconclusive, but suggests that group therapy is associated with positive outcomes in the treatment of post-stroke aphasia. Recommendations for application to clinical practice and future research are included.

***Introduction***

Post-stroke aphasia is a debilitating condition for patients, with significant implications for conversational partners as well. Therapy approaches for post-stroke aphasia vary greatly, and clinicians may base intervention recommendations on a variety of factors. Many clinicians recommend that patients participate in group therapy in addition to individual therapy, to target language through social participation and conversational skill development (Elman & Ellis, 1999). These recommendations may be based on the expectation of inherent communication requirements of a group treatment context. Clinicians may therefore assume face validity of group treatment and attribute positive language outcomes on the basis of communicative participation in group therapy. Before making recommendations for group treatment, clinicians must be aware of their presuppositions. Treatment recommendations should not be made based on assumed face validity, but should instead be based on sound research evidence.

Qualitative research suggests that post-stroke aphasia patients' rehabilitative goals are particularly weighted in the International Classification of Functioning, Disability and Health (ICF) domains of *Activity* and *Participation* (Worrall et al, 2010). It is argued that this weighting reflects the values placed on everyday life activities and relationships for people with aphasia (Worrall et al, 2010). Targeting these priorities through appropriate therapy approaches is an important role of the speech-language pathologist during language rehabilitation. A group therapy approach may offer participants an opportunity to practise communication related to everyday life activities and relationships in a supportive clinical environment, with the guidance of speech-language pathologists and other rehabilitative professionals.

Currently, the literature regarding group aphasia treatment reports a wide range of service delivery models and treatment protocols. Further, there is a preponderance of studies with single-subject designs or small samples. Many of these limitations are inherent, based on the small and heterogeneous post-stroke aphasic population, yet they significantly impact the methodological quality of the body of research and make it difficult to fully understand the potential language outcomes of group therapy. Researchers are faced with the challenge of developing studies that offer a high level of methodological quality while appropriately representing the aphasic population, and clinicians must be critical when applying findings to evidence-based practice.

***Objectives***

This paper seeks to critically evaluate the existing literature regarding the efficacy of group therapy as it relates to post-stroke aphasia rehabilitation. Further, recommendations for application to clinical practice and future research will be discussed, based on the analysis findings.

***Methods***

Search Strategy

Articles related to the topic of group therapy for post-stroke aphasia were found by first completing a computerized database search using SCOPUS, CINAHL, EBSCOhost, PubMed, and ProQuest Nursing and Allied Health using different combinations of the following search terms:

(group OR community-based OR social) AND (language) AND (treatment OR therapy) AND post-stroke aphasia.

Data identified by these search terms often did not involve *group intervention*, but was selected on the basis of comparing two intervention *groups*. This included drug interventions, and comparison of individual therapy approaches using *group* data. Two studies that met intended search criteria were selected from this search (Ross et al, 2006 and Vickers, 2010).

To focus the search, Chapter 14 (Aphasia) of the Evidence Based Review of Stroke Research (EBRSR) (Salter et al, 2013) was consulted. The authors identified six studies comparing the efficacy of group intervention with individual intervention. Two studies that met criteria were selected from this source (Wertz et al, 1981 and Elman & Ellis, 1999).

### Selection Criteria

Studies selected for inclusion in this review were required to investigate any form of author-identified “group treatment” or “group intervention” for adults with post-stroke aphasia. Studies were required to compare groups involved in group intervention with a control, and provide some form of language or communication outcome measures with pre-post comparison measure.

### Data Collection

The literature search resulted in the selection of the following types of studies, in accordance with the previously-described selection criteria: Randomized Clinical Trial (2), single-subject design (1), non-randomized clinical trial (1).

## **Results**

### Randomized Clinical Trials (RCTs)

Randomized clinical trials (RCTs) are a gold standard for objective clinical research in aphasia because they allow for careful control over manipulation of the dependent variable, or treatment, in order to address cause and effect relationships and compare findings between populations.

Wertz et al (1981) compared the efficacy of group and individual treatment for post-stroke aphasia rehabilitation in an RCT. Patients (n=67) from 40-80 years, four-months post-onset of a single-CVA aphasia were recruited from regional medical centres. The participants were randomly assigned to a group or individual treatment condition, and baseline assessment was administered. Full medical, sensory and neurological assessments were completed, as well as a battery of commonly-used tests of language and

communicative function. Scoring was completed by clinicians who were blinded to group allocations pre- and post-intervention. Acceptable inter- and intra-rater reliability were reported for all measures. To account for participant attrition, the groups were further subdivided into cohorts, based on the length of time during which they received treatment. The same clinician at each treatment site provided group and individual therapy.

Appropriate descriptive and comparative statistics were reported, comparing pre- and post-treatment measures within and between groups and cohorts and assessing the variable of time in treatment. Analysis of variance showed significant improvement in language and communication outcomes following treatment, for both groups, and significantly better outcomes for participants in individual therapy on one measure only. Further analysis identified no significant time-by-group interaction, suggesting that both groups improved at the same rate.

The authors clearly acknowledged limitations of the study. Although the sample size was small, the researchers argued that the participant pool was highly restricted in order to involve as homogenous a group as possible.

This study employed an appropriate, carefully-planned design and a wide range of appropriate statistical measures and analyses. It provides compelling evidence that group language therapy is efficacious in treating aphasia, with results very similar to those achieved in individual therapy.

Elman et al (1999) completed an RCT to determine if group communication intervention would result in linguistic and communicative change in chronic aphasic participants. By randomly assigning participants (N=20) to immediate and deferred treatment groups, researchers ensured that no one group was being denied the treatment. The possible effect of social stimulation due to group participation was controlled for by placing the deferred intervention group into social stimulation environments that did not target language or communication specifically, and re-administering pre-treatment measures to ensure no change in scores was attributable to social stimulation alone. Further, and post-randomization, participants in both the immediate and deferred intervention groups were subdivided by aphasia severity in order to analyze potential treatment by severity interactions.

Assessment data using gold standard language and communication measures was collected at intake, two and four months of treatment, and at four-six weeks

follow-up. Statistical analysis included appropriate t-tests to compare the effects of social stimulation and ANOVAs to compare intervention. Findings suggested that significant change was associated with participation in the intervention, but not social stimulation alone. Treatment was found to have a positive effect on measures of social participation, social isolation, and perceived support. An effect of severity was identified for a measure of activities of daily living, whereby greatest changes occurred for the most severely-impaired participants.

This study was well-designed in that it allowed for careful manipulation of the intervention variable, and identification of further variables, such as time and severity of impairment. The authors acknowledged a number of research directions that were not addressed by their study design, including comparison of group and individual treatment, and identification of which aspects of the communication treatment group are responsible for treatment effects. Overall, this study provides compelling evidence that improvement of language and communication can be attributed to participation in group communication intervention for post-stroke aphasics.

#### Non-Randomized Clinical Trial

Non-randomized clinical trials allow for comparison between groups who have not been randomly-assigned to groups. Instead, individuals are divided on the bases of differing on some variable. Non-randomized clinical trials are a quasi-experimental design, and thus, do not have the same qualitative value as randomized clinical trials, but are still a valuable research tool, and can be used to compare convenience samples, as done by Vickers and colleagues (2010).

Vickers (2010) examined the benefits of participating in group therapy through a comparison of survey and questionnaire results administered in interview format to aphasic participants and non-participants in a Communication Recovery Group (CRG) of the author's design. Patients (n=40) were recruited based on participation in the author's CRG (28) and via colleague referral and posters. A variety of aphasia aetiologies were included, without clear indication of which differences may exist between the different aetiologies. Aphasia severity ratings on a standard aphasia battery and interview were compared for the experimental and control groups and no significant functional differences were identified between groups. All measures used were judged by the authors to be appropriate for use on a population with aphasia, and an included scale of friendship was normed on a large population with representative acquired disabilities.

Appropriate descriptive statistics were reported. No significant differences were identified in the demographic or functional characteristics of the experimental and comparison group. Significant benefits of aphasia group were identified, including increased social participation, reduced perceived social isolation, and greater perceived support. An ANCOVA measured the effect of individual therapy, and found that group therapy might offer a separate benefit, over and above the associated benefits of individual therapy. The authors clearly acknowledged limitations of the present research, with respect to using one unpublished and non-standardised outcome measure.

This study employed an appropriate design and statistical analyses. It provides suggestive validity and clinically compelling evidence that participants in aphasia groups, following the Communication Recovery Group intervention model, experience benefits that non-participants do not.

#### Single Subject Design

Single subject designs allow for systematic control over the variable, but rather than comparing group outcomes to a control group, each participant acts as his or her own control, comparing individuals' pre-manipulation scores with post-manipulation scores. This type of study is a valuable compromise when the population sampled is specific and limited in size, as the post-stroke aphasic population is.

A single-subject design was employed by Ross et al (2006) investigating the effects of a social model approach to group therapy for individuals with chronic aphasia. The sample (n=7) was comprised of participants with a wide range of post-onset times (four-twenty-nine months). In an effort to provide blinding, the researcher responsible for data collection using outcome measures did not take part in participant selection or intervention. Intervention involved collaboration of a multi-disciplinary team.

Data collection consisted of administering widely-recognized measures of communicative ability and well-being. The measures were administered at pre-intervention, post-intervention and 3-month follow-up time points.

Appropriate statistical analysis of the results included t-tests to compare group scores from pre-intervention to post-intervention and follow-up. Analysis suggested that there was no significant change in participants' conversational abilities. Statistically significant improvement was noted on one measure of perceived

change in communicative ability and on measures of conversational experiences. Participants showed change in different people spoken to, conversational situations, and widening of conversational topics. There was wide variability for individual outcomes comparing the period post-intervention with follow-up, which may have been less salient in a larger sample.

This study employed an adequate design and statistical analysis to answer the clinical question. The authors identified limitations, including the small sample size, and related individual variability. The data presented are of suggestive validity, but do provide compelling evidence for clinical applications. Results suggest that group therapy can offer measurable and perceived change in communicative ability and experiences, and that a range of professionals should be included in the planning and organization of group therapy, supporting a socially-based model with a multi-disciplinary team.

### ***Discussion***

This review set out to analyze the literature regarding the efficacy of group therapy in rehabilitating post-stroke aphasia. Despite a number of limitations facing aphasia researchers, the literature presents suggestive evidence, supporting group therapy as an intervention capable of contributing to positive rehabilitative change in language and communication. Each of the four studies reviewed found some beneficial change in aphasic clients from pre- to post-test periods.

Although the findings across studies were congruent with one another overall, a range of outcome measures were used across the studies. Each study considered language and communication outcomes of post-stroke aphasia, on the basis of pre-treatment and post-treatment assessment. Many of the studies used overlapping gold standard assessments, but there were some assessment tools that varied from study to study, making it difficult to extrapolate and compare results across studies. Additionally, one study in particular (Ross et al, 2006) assessed measurable objective language and communication outcomes, in addition to subjective measures of perceived change. In finding positive perceived outcomes in cases where objective change was not observed, there may be some aspect of self-awareness, in terms of a placebo effect, or better understanding of the goals and targets, that should be better explained to clients and their families during treatment.

Further, each study employed a different model of group treatment. Although the over-arching goals of each group included improvement in conversational abilities and language, each clinician took a different

approach to intervention. For example, Wertz et al (1981) defined group treatment as “4 hours of direct therapist contact in groups of three to seven patients designed to facilitate language use in a social setting without direct manipulation of speech or language deficits”, while Ross et al (2006) stated their group treatment was “specifically designed to support people with chronic moderate aphasia to develop total communication and conversation skills, enlist an understanding of disability and rights, and engage in social participation...A 2-hour session per week was

provided for 11 weeks for the group of seven participants.” In these two studies alone, it is clear the intervention and service delivery varied greatly between studies, and even, in the case of Wertz et al and the range of group sizes, within studies.

Inherent limitations will continue to restrict the validity of studies in this disorder area; a small population and lack of ethical no-treatment control groups are primary limitations. Results of the studies presented above suggest that group therapy can be effective in a number of forms, and future research should consider identifying which aspects of group therapy are the mechanisms of change to which treatment effects can be attributed.

### ***Conclusions & Clinical Implications***

Literature regarding group communication treatment as a rehabilitative intervention for post-stroke aphasia shows suggestive evidence with clinically-compelling results for improving language and communication outcomes. Regardless of the variable strengths and limitations of the evidence reviewed herein, each of the studies reviewed provided important findings to direct future research and clinical decision-making.

The current review presents findings from a sample of the limited and difficult-to-navigate existing literature. The review is intended to act as guidance in the clinical decision-making process, used in addition to careful consideration of resources and client factors that may impact treatment decisions. Clinicians must exercise caution when extrapolating findings to their own practice.

Future research should seek to identify which aspects of group treatment are responsible for treatment effects. Further, the review suggested that individual differences including, but not limited to, participant pre-morbid functioning, pre-intervention severity, and time involved in intervention may all impact group intervention efficacy, and warrant further investigation. Further research in this area may also serve useful in

determining the optimal candidates for group versus individual intervention.

In applying findings to their own practice, clinicians should recognize that group communication intervention, following onset of post-stroke aphasia, can be a useful rehabilitative intervention for improving client functioning in a range of domains. Client-reported goals suggest that language and communicative function, as they relate to social participation, should continue to be targets of intervention and research. Because all of the studies employed different approaches to therapy, the results only reflect outcomes for therapy administered following those specific protocols. Clinicians must critically analyze the literature in selecting the protocol for any groups they elect to play a role in. They must also consider the value of collaborating with research institutions to collect research evidence if group treatment is being administered, and further the body of research with the aphasic population.

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