

Critical Review:
Is group therapy for social skills training effective for individuals with traumatic brain injury?

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This critical review examines the evidence regarding the effect of social skills training in a group therapy setting for individuals with traumatic brain injury. A search of the literature yielded five papers with study designs including mixed (between and within) randomized clinical trial, cohort study, within group pre-posttest study, and expert opinion. Overall, the literature reviewed indicates that group therapy for social skills training results in objective improvements in social competence, maintained on follow-up. Clinical implications and recommendations for further research are provided.

Introduction

Individuals with a chronic traumatic brain injury (TBI) commonly present with a marked impairment in social communication, impacting many areas of their everyday functioning (Sohlberg & Mateer, 1989). Several approaches to social communication rehabilitation have been discussed in the literature. One approach, social skills training, has shown promising efficacy in use with psychiatric populations, and was more recently examined in brain injury (Ylvisaker, Turkstra & Coelho, 2005).

It has been argued that teaching social skills to individuals with traumatic brain injury may not be successful, as they typically possess the relevant declarative social knowledge for interaction (Ylvisaker et al., 2005). Instead, their difficulty may derive from being poorly regulated, unmotivated, or having difficulty generalizing knowledge to daily living as a consequence of their injury (Ylvisaker et al., 2005). Conversely, a well-designed, comprehensive, social skills treatment group may encourage motivation and provide participants with an atmosphere necessary for success. Specifically, social skills training programs developed around group therapy provide an avenue for participants to practice social behaviours considered relevant to their social success, and solicit feedback from other group members (Ylvisaker et al., 2005; Dahlberg et al., 2007).

Research on social skills and TBI is especially relevant in recent history, as sports injuries and military personnel are constantly contributing to the growing population of youth and young adults with brain injury (Hawley & Newman, 2010; Harmon et al., 2013). Poor social skills ultimately has a profound cost on society and impacts overall life satisfaction (McDonald et al., 2008). A large

population of younger individuals with brain injury will be looking to return to school and the workplace, and this return is often hindered with prevalent social deficits. Thus, improving social skills is a critical component of reintegration as an active member of society.

Objectives

The primary objective of this paper is to provide a critical review of the existing literature on the efficacy of social skills training in a group setting, and the possible implications on social communication skills for individuals with TBI. The secondary objective is to determine if improvements in social communication skills are maintained over time. Finally, evidence-based recommendations concerning the clinical value of these findings and suggestions for additional research will also be discussed.

Methods

Search Strategy

Computerized databases, including PubMed, CINAHL, and SCOPUS, were searched using the following key terms: ((Acquired Brain Injury) OR (Traumatic Brain Injury) OR (Brain Injury)) AND ((social skills training) OR (social communication skills training)) AND (group therapy). The search was limited to articles written in English. Examination of reference lists from retrieved articles revealed further studies for review.

Selection Criteria

Studies selected for inclusion in this critical review were required to investigate the impact of any type of social skills training rehabilitation program run in a group setting on social communication skills among individuals with traumatic brain injury. No limits were set on the demographics of research participants (i.e., time post-injury, age, severity of TBI) or outcome measures.

Data Collection

Results of the literature search yielded five articles congruent with the aforementioned selection criteria: mixed (between and within) randomized clinical trial (RCT) (2), cohort study (1), within group pre-post test study (1), and expert opinion (1).

Results

In a within-group pre-posttest study, Wiseman-Hakes, Stewart, Wasserman, and Schuller (1998) examined the effects of peer group training of pragmatic skills in adolescents with an acquired brain injury. Participants (n=6) varied in presentation, though the majority sustained a closed head TBI and were in acute inpatient recovery. Subjects participated in six weeks of group therapy, modeled after the commercially available, individual therapy program "Improving Pragmatic Skills in Persons with Head Injury". The program was modified for use in a group setting to include peer support and feedback, ensure a naturalistic therapeutic context, and promote transfer and maintenance.

Participants were rated objectively for pragmatic communication skills throughout observations in a variety of group settings. Results of repeated measures ANOVAs on pre- and posttest scores revealed objective improvements in pragmatic communication skills, maintained on follow-up. Furthermore, behavioural changes were observed clinically. The statistical analysis was appropriate for this study.

Results suggest potential for the use of group intervention to help decrease social difficulties. Though the sample was small, effect sizes were significant and maintained on follow-up. Assessment observations took place in a naturalistic group setting, individualized to each participant (e.g. in the classroom or during leisure). Generalization of communication behaviours was observed and reported by therapists, parents and teachers. In a subset of participants, statistically significant changes were seen exclusively with social behaviours taught in therapy. Limitations to interpreting the data include the possibility of spontaneous recovery, as participants were primarily in the acute phase of recovery. No reliability data exists for the primary objective outcome measure (i.e. RICE-RSPCS). Finally, therapists were not blinded to the clinical status of participants during rating and intervention, ultimately contributing to the possibility of observational bias. Overall, the results of this study provide a suggestive level of evidence.

Dahlberg et al. (2007) conducted a mixed (between and within subjects) randomized clinical trial to evaluate the effect of a replicable group treatment program designed to treat social communication skills post-TBI. Participants included 52 adults with moderate to severe TBI, at least 1 year post-injury. Individuals were randomly assigned into a treatment group or a 3-month deferred treatment (control) group. Therapy was provided in a small group setting (i.e., 8 participants) for 12 weekly 1.5-hour sessions. Each group was co-lead by members of different clinical backgrounds (i.e., social work and speech pathology) and participants were provided with the resource *Social Skills and Traumatic Brain Injury: A Workbook for Group Treatment*. Generalization was encouraged through involvement of family and friends and completion of weekly assignments in the home or community. Follow-up testing was completed at 3, 6, and 9 months post-treatment.

Social communication skills were assessed objectively by blinded raters viewing videotaped interactions and subjectively by participants and significant others, through a questionnaire. Other measures included individual community integration and life satisfaction. Treatment versus no-treatment comparisons through independent samples t-tests ($p < .05$) revealed both subjective & objective improvements in social communication skills. The largest objective improvement was noted in general participation, though this was inconsistent with subjective reporting. Results of repeated measures general linear modeling showed that treatment effects were maintained on follow-up, measured subjectively and objectively. Statistical analysis was appropriate for this study.

Strengths of this study include the randomized controlled design and statistical power. Use of published treatment materials allows the treatment protocol to be replicated, although transferability of the treatment protocol when provided by less experienced group leaders may be questioned. Though the study was well designed overall, several limitations should be regarded when drawing conclusions. Many outcome measures could not be blinded due to their inherent nature (i.e., questionnaires), though the primary objective outcome measure for social communication skills was double-blinded to limit bias, and was sensitive enough to detect improvement. The authors appropriately dealt with missing data by completing an intent-to-treat analysis. Further limitations include assignment of subjects without blinding, though no significant bias was identified. Strict criteria excluded those with past or current psychiatric, psychological or substance abuse issues. This is not representative of the broad population with TBI, and consequently, generalization is unknown. Overall, the results of this study provide a compelling level of evidence.

In a cohort study, Braden, Hawley, Newman, Morey, Gerber, and Harrison-Felix (2010) examined the effects of Group Interactive Structured Treatment (GIST) on communication skills in 30 individuals with TBI or TBI-Plus (i.e., TBI with concurrent comorbidities). Aside from added involvement of consistent support personnel, GIST is identical to the treatment offered by Dahlberg et al. (2007). Authors aimed to determine if social communication skills training in a group setting would improve specific communication skills in individuals with TBI-Plus, and if these gains would be maintained at follow-up. The study also investigated the impact of support person involvement and any changes in overall satisfaction with life.

Participants were involved in GIST over 13 weeks for 1.5 hours per week, in small groups of 7-8 people. Assessment throughout intervention and at follow-up consisted of objective and subjective measures of social communication skills as rated by participants, support persons, and group leaders. Outcome measures were generally consistent with those used by Dahlberg et al. (2007). Results from appropriate paired t-tests revealed improvements in subjective measures of social communication skills and life satisfaction that were maintained at follow-up. Statistical analysis was appropriate for this study.

One purpose of this study was to address several limitations present in Dahlberg et al.'s (2007) initial RCT. Braden et al. (2010) expanded inclusion criteria to allow a more representative population of persons with TBI. In spite of this, TBI-Plus participants made similar changes in outcomes compared to the original study participants. Authors regulated consistency of a structured support person in intervention, though this did not significantly improve objective social communication measures. This feasibility study does provide evidence to support further investigation of the GIST intervention, though several limitations should be noted. Small numbers and a lack of control group limit interpretation of findings, as results could be related to a general support effect, and not specific to intervention. Compared to the initial RCT by Dahlberg et al. (2007), there was an increased dropout rate (43% at 6-month follow-up) possibly due to the complexity of multiple diagnoses. Lastly, TBI-only and TBI-Plus participants were separated in group therapy sessions, which may not reflect the actual population and group dynamics. Overall, the results of this study provide a suggestive level of evidence.

An expert opinion paper by Hawley and Newman (2010) describes the GIST protocol in detail, and

outlines early success of the program in use with military personnel post-TBI. This unique cohort often describes a lack of interest in other individuals and significant difficulty resolving interpersonal conflicts. Thus, authors suggest it is important to apply GIST as a flexible treatment model, allowing therapists to use clinical judgement to adapt as necessary.

Hawley and Newman were both involved in the previous study by Braden et al. (2010) and have acquired many years of experience working with this therapy model. The article could be referenced in parallel with a clinician running GIST group therapy as it thoroughly describes the format of intended therapy, as authors deem most successful. Hawley and Newman propose that a GIST model could be applied to others areas of therapy (i.e., parenting or marital relationship skills), though efficacy research is necessary.

In an RCT, McDonald et al. (2008) evaluated the effects of a social skills treatment program designed to remediate social behaviour and perception and address psychological issues in individuals with acquired brain injury. Participants with chronic, severe TBI (n=39) were randomly allocated to a social skills training treatment group or one of two control groups; social activity alone (placebo) or waitlist control (deferred treatment). Treatment consisted of a 12-week program with two hours each week devoted to training social behaviours. The remaining therapy time was devoted to group training of social perception and individual sessions with a clinical psychologist targeting emotional adjustment. Generalization was encouraged through weekly homework assignments.

Blind raters evaluated filmed spontaneous encounters using behaviour and conversational rating scales which intended to measure the degree to which the conversant adapts to social context. Three relative-report scales measured generalization, all with established validity for use with TBI. Results of repeated measures ANOVA on pre- and posttest scores indicated significant improvements for the skills training group, in a direct, objective measure of social behaviour. Of note, a reduction in self-centered behaviour and greater effort to involve the conversational partner were seen. Social activity alone did not lead to differential improvement. The statistical analysis was appropriate for this study.

Though this study produced modest evidence for use of social skills training, several limitations should be noted. With initial sampling, requirements for extensive availability limited participant numbers and skewed the sample towards those who were chronically "under-occupied" (McDonald et al., 2008, p.1656). Violation of initial randomization was necessary due to logistical

constraints. No intent-to-treat analysis was completed. Improvements in social behaviour were noted as measured directly, though the impact did not translate to subjective awareness. This could be due to a lack of power, as dropouts resulted in participant numbers below the optimum for power requirements. Overall, the results of this study provide an equivocal level of evidence.

Discussion

Before drawing conclusions from the studies critically appraised in this paper, there are several limitations to consider when comparing directly across studies. One consideration is the variability of study participants relating to time post-injury and severity of brain injury. Dahlberg et al (2007), McDonald et al. (2008) and Braden et al (2010) all included outpatient subjects in the chronic stage of recovery, more than 1 year post injury. In the earlier study by Wiseman-Hakes and colleagues (1998), the majority of participants were acute, <8 months post-injury. As the study was designed, it is not possible to determine if improvements are attributable to the group therapy or spontaneous recovery in the acute stage. Inclusion criteria for severity of brain injury were unspecified by Braden et al. (2010) and Wiseman-Hakes et al. (1998). When specified, (Dahlberg et al., 2007; McDonald et al., 2008) participants had a moderate-severe to severe TBI. Finally, social skills deficits are variable and extremely difficult to define, and the presence was either noted by a case manager, by a significant other, or through self-report in each study examined. The nature of traumatic brain injury lends itself to a heterogeneous population, and a challenge in research is to restrict the study population enough to determine the conditions in which treatment will be most efficacious (ie. time post-injury, severity, deficits, etc.). It is of importance, however, to not restrict inclusion criteria in a manner that questions generalizability to the general TBI population as with Dahlberg et al. (2007) and McDonald et al. (2008).

All four studies (Wiseman-Hakes et al., 1998; Dahlberg et al., 2007; McDonald et al., 2008; Braden et al., 2010) ran small groups, led by experienced clinicians. Each intervention targeted generalization through weekly homework in the community, or by involving family and friends directly in therapy. Length of treatment ranged from 6 weeks (Wiseman-Hakes et al., 1998) to 13 weeks (Braden et al., 2010) with frequency from once a week (Dahlberg et al., 2007; McDonald et al., 2008; Braden et al., 2010) to 4 days each week (Wiseman-Hakes et al., 1998). The intensity and delivery of therapy was similar

throughout the studies reviewed, however a lack of widely used outcome measures in social communication skills is a common methodological limitation. Improvements in social communication were primarily measured objectively. Though the rating process was completed in a similar manner, rating scales were not always reported to capture consistent social skills deficits. Dahlberg et al. (2007) and Braden and colleagues (2010) used an identical measure that broadly assessed 10 areas of communication skills. This measure was designed specifically for use with TBI, and held high concurrent validity and good interrater reliability. McDonald and colleagues (2008) were ultimately measuring the degree to which the conversant adapts to social context. Wiseman-Hakes et al. (1998) measured a full range of treated and untreated pragmatic communication skills, though their primary outcome measure had no reliability data. Only Wiseman-Hakes and colleagues (1998) completed assessment observations in natural settings, personalized to each participant, whereas the remaining papers described measures obtained in a contrived manner or therapeutic setting. This diversity in outcome measures and assessment limits the comparison between studies. Furthermore, a lack of reliable outcome measures in this area and the broad therapy target of “social skills” presents a challenge for further research.

Although limitations pose a challenge for comparison between studies, and regardless of common difficulties in this area of research, the critically reviewed studies portray similar outcomes. Despite criticisms noted by Ylvisaker et al. (2005), there exists a definite trend in the literature towards improvements in social communication skills with targeted group treatment, which are maintained over time. While Dahlberg et al. (2007) and McDonald et al. (2008) investigated social skills training compared to no treatment, Wiseman-Hakes et al. (1998) and Braden et al. (2010) studied the benefits of social skills treatment within a single group. Ultimately, a significant objective improvement in social skills was noted in all studies except Braden et al (2010), where improvements were noted but were not statistically significant. Subjective improvements as noted by significant others, therapy group leaders or participants were reported by Dahlberg and colleagues (2007), Braden et al. (2010) and Wiseman-Hakes et al. (1998), though McDonald and colleagues (2008) noted no subjective changes in social functioning and participation by relative or self-report.

Conclusion

The studies reviewed collectively offer a suggestive level of evidence supporting the use of social skills training within a group setting to target impaired social skills in

individuals with TBI. More research is necessary surrounding the optimal timing of therapy and the impact of intervention on moderate versus severe brain injury. Further testing would also be beneficial concerning the role of a support person on intervention success, maintenance and generalization.

Recommendations

Based on the above limitations, it is recommended that further research be conducted on group-based social skills training containing the following:

- Greater sample sizes representative of the general population with TBI, to improve ability to generalize findings.
- Intervention provided by clinicians of varying experience to increase transferability to a variety of group leaders.
- Use of valid and reliable outcome measures that aim to assess the broad area of social skills.

Clinical Implications

Due to the moderate strength of evidence provided by the reviewed studies, it is recommended that clinicians consider group therapy as an appropriate context for training social skills when social communication challenges exist post-TBI. Due to the aforementioned limitations, however, it is suggested that Speech-Language Pathologists and other potential therapy group leaders use the compiled evidence with caution when planning therapy. Although further controlled research is necessary, published material such as GIST (Braden et al., 2010) has shown promising results in a therapeutic setting. Hawley & Newman (2010) provide detailed information for clinicians with regard to the layout of GIST and a workbook is available to aid in therapy. As evident in research however, it remains a challenge to clinically assess social deficits and capture change throughout treatment. Thus, further research is necessary concerning objective assessment measures specifically for TBI and the unique challenges this population may acquire post-injury.

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