ORIGINAL ARTICLE

Treatment Efficacy of Social Communication Skills Training After Traumatic Brain Injury: A Randomized Treatment and Deferred Treatment Controlled Trial

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ABSTRACT. Dahlberg CA, Cusick CP, Hawley LA, Newman JK, Morey CE. Harrison-Felix CL, Whiteneck GG. Treatment efficacy of social communication skills training after traumatic brain injury: a randomized treatment and deferred treatment controlled trial. Arch Phys Med Rehabil 2007;88: 1561-73.

Objective: To evaluate the efficacy of a replicable group treatment program to improve social communication skills after traumatic brain injury (TBI).

Design: Randomized treatment and deferred treatment controlled trial, with follow-up at 3, 6, and 9 months post-treatment.

Setting: Community.

Participants: Volunteer sample of 52 people with TBI who were at least 1 year postinjury, who received rehabilitation, and who had identified social communication deficits.

Intervention: Twelve weekly group sessions (1.5h each) to improve social communication.

Main Outcome Measures: The Profile of Functional Impairment in Communication (PFIC), Social Communication Skills Questionnaire–Adapted (SCSQ-A), Goal Attainment Scale (GAS), Craig Handicap Assessment and Reporting Technique–Short Form social integration and occupation subscales, Community Integration Questionnaire social integration and productivity subscales, and Satisfaction With Life Scale (SWLS).

Results: Independent samples *t* test analysis showed significant treatment effect compared with no treatment on 7 of 10 of the PFIC subscales (*P* range, .024 to <.001) and the SCSQ-A (*P*=.005) after the first 12 weeks of the study. After 12 weeks of treatment for all participants, repeated-measures analysis showed significant improvements from baseline on 9 of 10 PFIC subscales (*P* range, .01−.001), SCSQ-A (*P*≤.001), GAS (*P*≤.001), and SWLS (*P*=.011). At 6-month follow-up, scores were significantly better than baseline on 6 of 10 PFIC scales (*P* range, .01−.001), the SCSQ-A (*P*≤.001), GAS (*P*≤.001), and SWLS (*P*≤.001).

Conclusions: TBI subjects who received social communication skills training had improved communication skills that were maintained on follow-up. Overall life satisfaction for participants was improved.

Key Words: Brain injuries; Rehabilitation; Social interaction.

SOCIAL COMMUNICATION impairment is among the most pervasive of communication problems in the chronic stage after traumatic brain injury (TBI).[1] Successful social communication skills involve a complex interaction of cognitive abilities, self-monitoring of speech and language skills, awareness of social rules and boundaries, and emotional control. Studies have reported that social communication difficulties contribute to loss of meaningful relationships and/or inability to maintain fulfilling employment, with the end result being social isolation and loneliness.[2,3] Thomsen[4] found that 10 to 15 years after severe head injury, loss of social contact was the most disabling handicap in daily life. This social isolation was accompanied by significant decrease in life satisfaction, which was not correlated with injury severity.[5] Milton et al[6] noted that inappropriate social communications by TBI subjects interfered with social reintegration. Social contacts in work, school, and leisure are decreased after TBI, and areas relating to social competency and adjustment are impaired.[7] Two studies[8,9] found that higher social integration was associated with higher life satisfaction in people with TBI and recommended development of interventions to improve social interactions.

Several studies have compared social communication skills of TBI subjects with normative control groups.[6,10-17] These studies have identified why they often "talk better than they communicate."[6] Subjects with TBI were less appropriate in their use of language and style of speech, involved partners in conversation less often,[10] and took a greater number of "turns" per conversation,[11] which contributed to difficulty in initiating and sustaining a meaningful conversation. Subjects with TBI also needed more direct questions or prompts from their conversational partners in order to extend a conversation, clarify information, and keep their conversations focused and meaningful.[11,15,17] People with TBI were found to be significantly slower in initiating conversation than normative controls, took more time for task completion, and had a disorganized manner of expression, with more difficulty in catching and rectifying their mistakes.[17] TBI subjects also were reported to have difficulty in making socially effective requests that were sensitive to a listener's needs, and had fewer strategies for convincing the listener.[14] Milton[6] identified such problems as decreased social perception, difficulty following the rules of social interaction, disorganized language output, disinhibition, and poor self-monitoring in communication situations when a TBI sub-

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ject attempts to return to work. McDonald and Flanagan[18] noted that TBI subjects have social perception deficits such as difficulty in understanding a conversational partner's emotions, beliefs, intentions, and inferences. Consequently, their conversations are perceived as being less socially rewarding, less interesting, less appropriate, and more effortful, and thus contribute to a breakdown of social relationships.[17]

The literature indicates that the poorer social communication skills of TBI subjects may lead to their decreased participation in social activities and a decrease in satisfaction with their lives. We[19] previously reported the baseline data for the efficacy study we report here. A cohort of 60 TBI patients, their significant others, and their group leaders, each identified specific social communication skills problems of the patient. Group leaders and family members tended to identify more problem areas than did those with TBI. Poorer social communication skills, as rated by the person with TBI at an average of 7 years postinjury, were associated with decreased social integration, productivity, and satisfaction with life.

Treatment of social communication skills deficits has been discussed in regard to other populations. The work of Trower et al[20] in social skills and mental health describes principles of changing social behavior through training, practice, and skill transference for skills acquisition. Training includes identifying the main problems to be addressed and demonstration of the desired behaviors. Practice involves role-playing, feedback through discussion with group leaders and peers, augmented by video- and audiotape review and feedback. Skill transference is encouraged through homework assignments and reports on progress in real situations. Based on skills theory and experimental research in the area of social interaction, this approach, although not specifically developed for TBI subjects, is found in descriptions of social skills training for this population.

Helffenstein and Wechsler[21] compared the effectiveness of interpersonal communication skills training for 16 TBI subjects in a randomized, controlled design. The 8 members of the experimental group underwent 20 hours of treatment with frequent, immediate, and exact visual and auditory videotape feedback from a conversation partner and an objective observer. Specific skills were modeled and then practiced by the subjects during the treatment sessions. Based on significant improvement in 4 of 6 dependent measures, (ratings of anxiety, self-concept, independent observer rating, interpersonal relationship rating), the authors concluded that the treatment improved interpersonal and communication skills in comparison with the no-treatment group. Measures of participant self-perceived change in skills and independent videotape analysis did not show statistical significance. Maintenance of the treatment effect was reported at 1-month follow-up.

Though less rigorous in research design, other studies have reported treatments to be efficacious in improving social communication in TBI subjects. These interventions have included various types of feedback (including video), reinforcement, practice, and self-monitoring.[22-27] Direct corrective feedback is effective in reducing socially inappropriate comments,[28] and video feedback alone is effective in modifying social behavior.[25] Additionally, it has been suggested that videotape feedback can heighten self-awareness and assist in strategy and skill training.[29]

Outcomes related to participation in society have been reported after social skills training. One study[30] found greater frequency of social contact and increased social activity after training. In another study,[31] TBI participants in a comprehensive outpatient program that included both social skills and pragmatic communication groups made significant progress in achieving individual goals, as well as functional improvement in work and independent living, which was maintained at 1-year follow-up.

Group treatment to address social communication makes it possible for participants to practice skills and get feedback from other members of the group.[32] Treatment groups typically target specific communication behaviors with individualized treatment goals, role playing to practice specific skills, feedback through videotape, and skill use in natural environments. Often, family members and others within the community are simultaneously provided with specific suggestions for appropriate feedback, because real world practice with significant others can help generalize newly learned skills. Some researchers[33] advocate training family members to facilitate positive problem-solving in communications and to help with planning social activities, rather than direct social skills training of the TBI subject. In addition, social skills training for these subjects may be most effective a year or more postinjury, as they develop more insight into, and awareness of, their communication problems after their experiences in social interactions.[26,34]

Several studies have reported interventions that address social communication skills in TBI. Some focused primarily on pragmatic language skills, reported with small sample size and efficacy based on pre- and post-testing.[1,23] Ylvisaker et al[29] describe treatment goals for conversational deficits and social skills as a subset of cognitive rehabilitation therapy, and efficacy is not presented. Two studies[31,35] included pragmatic communication and social skills groups as part of a comprehensive program for TBI subjects, but did not identify the specific treatment effects of those groups in overall outcomes, such as independent living or return to work. Wiseman-Hakes et al[26] showed the efficacy of treatment of pragmatic communication skills using pre- and post-measures for 6 adolescents with TBI. Their intervention used a workbook[36] modified for group treatment. Two other workbooks[37,38] designed for treatment of social communication skills in TBI subjects are commercially available. They provide a collection of exercises and activities, but are not designed to be a time-defined group treatment program.

In this study, we used the treatment workbook, *Social Skills and Traumatic Brain Injury: A Workbook for Group Treatment,*[39] that was developed by a speech-language pathologist and a clinical social worker. It is based on their 10 years of experience in facilitating social communication skills in a group setting with TBI subjects. This program is unique in several ways. It targets the broader definition of social skills, uses a group process approach, emphasizes self-assessment and individual goal setting, and encourages generalization through homework and family or friend involvement.

Our objective in this study was to evaluate the efficacy of a specific, replicable group treatment program within a Traumatic Brain Injury Model System of Care center[40] in a randomized controlled trial (RCT) of treatment and deferred treatment. Our specific hypotheses were: (1) social communication skills training in a group setting would improve specific individual pragmatic communication deficits for people with postacute TBI, (2) overall social integration and satisfaction with life would improve through this group training, and (3) these acquired skills would be maintained at 6 months post-treatment.

METHODS

The study was approved by our institutional review board and was funded by the National Institute on Disability and Rehabilitation Research. Eight hundred seventy-nine potential participants, initially identified from a list of former patients of