AOTA Evidence Briefs
Multiple Sclerosis

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

MS #10

Training to improve social interaction skills for persons with multiple sclerosis

Gordon, P. A., Lam, C. S., & Winter, R. (1997). Interaction strain and persons with multiple sclerosis: Effectiveness of a social skills program. *Journal of Applied Rehabilitation Counseling, 28*(3), 5–11.

Level IB3b

Randomized controlled trial, less than 20 participants per condition, low internal validity, moderate external validity

Clinical bottom line

This study reported **no significant** (*see Glossary*) difference in social avoidance, self-efficacy in social skills, self-esteem, or thoughts before and during social interactions between a group that received social skills training and a group that was waitlisted. Those in the treatment group demonstrated a trend toward improved social skills, though.

The researchers investigated whether social skills training would increase the perceived socialization skills of people with multiple sclerosis. The training focused on topics specific to easing the strain of interaction with people without disabilities: assertiveness training, presentation of self, acknowledgment of one's disability, and interpersonal communication. Each session included rehearsal or role-playing, modeling, feedback, and homework.

Sample

At the outset of the study, there were 26 participants, all of whom had multiple sclerosis, solicited by letter from a pool of 250 multiple sclerosis outpatients of a rehabilitation hospital in a Midwestern city. Seven were men, 19 women. They averaged 44.5 years in age. All had no mental illness or mental retardation, were between ages 18 and 65, were approved by their therapist to be in a study, spoke English, and had the cognitive ability to participate. By the study's end, the sample was down to 22 participants; 2 in the treatment group failed to attend all the sessions, and 2 in the control group failed to return for follow-up.

Procedures

The researchers randomly assigned the participants to the treatment (training) group or the control group. The treatment group met once a week for 8 weeks, with each session lasting 90 minutes. The control group was waitlisted.

Outcomes

Four outcome areas were of interest to the researchers: *social anxiety* (as measured by the Social Avoidance and Distress Scale); *self-efficacy in social skills* (as measured by the Self-Efficacy Questionnaire for Social Skills); *self-esteem* (as measured by the Tennessee Self-Concept Scale); and *thoughts before, during, and after social interactions* (as measured by the Social Interaction Self-Statement Test). The researchers gathered data on the participants before and after the intervention.

Analyses

The researchers compared the treatment group scores on the outcome measures with the control group scores.

Results

There were no significant differences between the groups on any measure. However, the treatment group had a slightly better score on the outcome measures. Further research should be completed to examine this trend.

The study revealed that these multiple sclerosis clients were interested in learning assertiveness skills and ways to discuss multiple sclerosis comfortably.

Significance and **effect sizes (*r*)** (*see Glossary*) for outcome measures comparing the treatment and control groups for Gordon et al. (1997)

Outcome	Significance	Clinical effect (r)	Size of effect
Social avoidance and distress			
Distress	Nonsignificant	0.21	Small
Avoidance	Nonsignificant	0.16	Small
Self-efficacy for social skills	Nonsignificant	0.04	Negligible
Tennessee self-concept scale	Nonsignificant	0.27	Small
Social interaction self-statement test			
Positive thoughts	Nonsignificant	0.49	Medium
Negative thoughts	Nonsignificant	N/A	

N/A = not available

Limitations

The sample size may have been too small to show a **significant** (*see Glossary*) difference. Also, at the start of the study, the participants reported feeling little discomfort in interacting with people without disabilities, and their scores on the self-esteem measure fell within the average range. Thus there was little room for improvement (**insensitive measure bias**) (*see Glossary*). Further, despite randomization, the treatment and control groups may have been different from each other at the beginning of the study, so differences occurring during the study may have been masked. Lastly, changes seen in the treatment group may have been due to the attention (**attention bias**) (*see Glossary*) they received, rather than the content of the intervention itself.

Glossary

attention bias—Also known as the Hawthorne effect, participants who receive some form of attention during treatment will often change their behavior, not because of the treatment per se, but because they are receiving attention. This bias is most frequently seen when the control group is wait listed or receives no treatment.

effect sizes (Cohen's *r*)—An effect size is a measure of clinical significance. It provides information about the magnitude of effect of the treatment. Although related to significance, it is not as influenced by the size of the sample. Therefore, it is possible to have an outcome on which the treatment had a large effect (e.g., the treatment group improved a lot more than the control group) and still have a nonsignificant result. If the results have a large effect but no significance, this means that this effect may be sample specific and not generalizable outside the study. There are many different types of effect sizes. What is reported here is Cohen's *r*. Cohen's *r* can be interpreted in a manner similar to a Pearson's correlation coefficient:

Effect size *r*	Size of the effect
<0.99	Negligible
0.10 – 0.29	Small
0.30 – 0.49	Medium
>0.50	Large

Cohen, J. (1977). *Statistical power analysis for behavioral sciences.* New York: Academic Press.

insensitive measure bias—Certain outcome measures are incapable of detecting clinically significant changes or differences in the population of interest. In some cases most participants achieve the best score at the beginning of the research study, and therefore can't improve anymore, at least by that measure (the ceiling effect). Any changes wrought by the treatment are therefore masked.

nonsignificant or no significance—A statistical term that refers to study findings that are likely to be due to chance differences between the groups rather than to other factors (like the treatment of interest). A nonsignificant result is not generalizable outside the study. Like significance, a nonsignificant result does not indicate the clinical effect. Often studies will show nonsignificant results, yet the treatment group's mean will be better than the control group's. This is usually referred to as a trend in the right direction. Because significance is closely determined by sample size, nonsignificant results would often become significant if the sample size were increased.

significance (or significant)—A statistical term, this refers to the probability that the results obtained in the study are not due to chance, but to some other factor (such as the treatment of interest). A significant result is likely to be generalizable to populations outside the study.

Significance should not be confused with clinical effect. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability to walk may report that the participants in the treatment group were able to walk significantly longer distances than the control group. However, if you read the study you may find that the treatment group was able to walk, on average, 6 feet, whereas the control group was able to walk, on average, 5 feet. Although the outcome may be statistically significant, a clinician may not believe that a 1-foot increase will improve his or her client's function.

■ Terminology used in this document is based on two systems of classification current at the time the evidence-based literature reviews were completed: *Uniform Terminology for Occupational Therapy Practice—Third Edition* (AOTA, 1994) and *International Classification of Functioning, Disability and Health (ICIDH-2)* (World Health Organization [WHO], 1999). More recently, the *Uniform Terminology* document was replaced by *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2002), and modifications to *ICIDH-2* were finalized in the *International Classification of Functioning, Disability and Health* (WHO, 2001).

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For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.