AOTA Evidence Briefs
Multiple Sclerosis

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

MS #14

Minimal cost-effective interventions to improve rates of return to work

Rumrill, P. D., Roessler, R. T., & Cook, B. G. (1998). Improving career re-entry outcomes for people with multiple sclerosis: A comparison of two approaches. *Journal of Vocational Rehabilitation, 10,* 241–252.

Level IIB3a

Nonrandomized controlled trial, less than 20 participants per condition, low internal validity, high external validity

Clinical bottom line

Job-placement interventions focused on assessment, self-directed job-seeking, and self-directed use of resources may or may not be successful and cost-effective in returning multiple sclerosis patients to work.

Sample

The 37 study participants were recruited for a Career Possibilities Project by staff members of Multiple Sclerosis Society chapters in Indiana, Kentucky, Ohio, and Wisconsin. The first 23 recruits formed Group 1, and the next 14 recruits formed Group 2. Overall, there were 8 men and 29 women in the groups. Their average age was 42.8 years.

Procedures

For Group 1, the intervention involved a career counseling interview conducted by telephone; teaming each participant with a local employer in his or her chosen field and a vocational rehabilitation counselor; participation by the team in a half-day seminar involving structured and interactive activities to reorient the participants to the world of work; and follow-up support from team members and a rehabilitation professional.

For Group 2, the intervention involved a telephone contact in which a rehabilitation professional offered encouragement and identified some resource agencies; provision of a packet of job-seeking tips; and another telephone contact in which the rehabilitation professional answered questions and encouraged the participant to focus on two or three job titles.

Outcomes

The outcome areas of interest were *self-efficacy* in performing the specific tasks involved in requesting an accommodation under Title I of the Americans with Disabilities Act (as measured by the Accommodation Self-Efficacy Measure); *readiness for vocational planning and placement* (as measured by the Employability Maturity Interview); and *job-seeking activity and employment status* (as measured by a scale that asked questions such as how many job applications the participant had obtained and completed, how many employers he or she had contacted, and whether he or she had secured employment). The researchers administered the first two measures before and after the intervention. They administered the third measure after the intervention only.

Analyses

The researchers compared the two groups on all measures. In addition, they compared the employment status of both groups at baseline with the treatment status of both groups after the intervention.

Results

There was **no significant** (*see Glossary*) difference between the treatment and control groups except in employment. At the 16-week follow-up assessment, 30 percent of the participants from both groups had found jobs—a rate similar to the national percentage of people with multiple sclerosis who are employed.

Significance and **effect sizes (*r*)** (*see Glossary*) for outcome measures comparing the treatment and control groups for Rumrill et al. (1998)

Outcome	Significance	Clinical effect (*r*)	Size of effect
Self-efficacy on ADA	Nonsignificant	N/A	
Readiness for employment	Nonsignficant	0.21	Small
Employment status	Nonsignficant	0.53	Large

Limitations

The sample was a **convenience sample** (*see Glossary*). The sample was too small to demonstrate **significant** (*see Glossary*) differences (**sample size bias**) (*see Glossary*). Also, the sample was unevenly and nonrandomly distributed (**randomization**) (*see Glossary*). Further, the outcome measure of self-efficacy had a ceiling effect; that is, in general, participants scored highest on the test before the intervention, leaving no room for improvement (**insensitive measure bias**) (*see Glossary*).

Glossary

convenience sample—A sample that was selected because it was available and capable. It therefore may not represent the true population.

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.

randomization—Randomization refers to the practice of assigning participants to either the treatment or control group using random allocation. Random allocation methods include flipping a coin or using a random number table. Randomization is meant to prevent the possibility that the experimenter might subconsciously let his or her opinions and preferences influence into which group a participant goes. Randomization also helps to ensure that the two groups are essentially equal on many demographic variables, although randomization does not always create equal groups.

Nonrandomized studies are not considered to be true experiments but are often referred to as quasi-experimental. Serious biases can occur when studies are non-randomized.

sample size bias—Significance is strongly related to sample size. A study that has too small a sample will not show significance (a type II error), even when a treatment effect is present. Some research studies that are nonsignificant demonstrate a trend toward the treatment having the desired effect, suggesting that a larger sample is needed to detect a significant treatment effect. On the other hand, too large a sample can prove just about anything.

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).

This work is based on the evidence-based literature review completed by Nancy Baker, ScD, OTR, and Linda Tickle-Degnen, PhD, OTR/L, FAOTA.

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.

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