



AOTA Evidence Briefs

Brain Injury

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

BI #1

Promoting of bicycle helmets by providers alone may not be effective

Cushman, R., James, W., & Waclawik, H. (1991). Physicians promoting bicycle helmets for children: A randomized trial. *American Journal of Public Health, 81*, 1044–1046.

Level: IA1a

Randomized controlled trial, 20 or more participants per condition, high internal validity, high external validity

Why research this topic?

Among bicycle-related injuries, head injuries account for about three fourths of deaths and serious conditions. At greatest risk are children and young adults. There is strong evidence to recommend helmets, yet their rate of use is relatively low.

What did the researchers do?

The researchers, all affiliated with the Children's Hospital of Eastern Ontario (Ottawa, Ontario, Canada), evaluated the effectiveness of physicians promoting the use of helmets by children. For participation they targeted families with one or more cyclists aged 5 to 18 years who were making a routine visit to their physician's office. The resulting sample consisted of 339 families, randomly assigned to the intervention group (167) or the control group (172). All families received an envelope containing a one-page survey seeking information about cyclists by age and about bicycle and helmet ownership and use. Those in the intervention group also received counseling from their physician promoting helmet use, and take-home pamphlets. Participants in the control group received only the usual care.

Two to 3 weeks later, a research assistant called families in the intervention group to ask whether they had purchased helmets, where they had purchased the helmets, what brand they had purchased, what the helmets cost, and whether they were using the helmets.

What did the researchers find?

At follow-up, 12 of the intervention group families (7.2%) had purchased helmets, compared with 11 (7%) of the control group families. The difference was **not significant** (see *Glossary*).

The researchers reported that the outcome may have been influenced by a coincidental media campaign promoting helmet use and by a \$5 discount on helmets offered by the provincial medical society.

What do the findings mean?

- For *therapists and other providers*, the findings suggest that promotion by providers alone is not effective. Citing evidence that community programs promoting helmet use are effective, the researchers concluded that physicians—and by extension, other providers—should participate in multidisciplinary community campaigns.

What are the study's limitations?

The researchers' method of selecting study participants was systematic; that is, they selected the participants randomly. This feature raises confidence that the results of the study can be attributed to the intervention.

Glossary

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 be nonsignificant, 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. Since significance is closely determined by sample size, often nonsignificant results would 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 one that 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. However, if you read the study you may find that the treatment group was able to walk, on average, six feet, while the control group was able to walk, on average, five feet. While the outcome may be statistically significant, a clinician may not feel that a one foot increase will make his or her client functional.

■ 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 Beatriz C. Abreu, PhD, OTR, FAOTA, and colleagues.

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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