



## Understanding Research

*How Credible Is A Study? Knowing Certain Factors Can Help You Decide*

**S**tudies are more than tools of social and behavioral science. They can influence policy and, when widely reported, can shape popular opinion. But not all studies are equal.

Some use methodology designed to determine cause and effect with reasonable certainty. Other studies use methods that yield findings that are less conclusive. The credibility the people doing the research may influence the reliability of the work. The size of the sample matters. What a study specifically measures must also be carefully considered when reporting and interpreting its findings.

Determining the credibility of a study is sometimes difficult. But looking at certain factors can help.

### Sources

When detailed information about a study is lacking, the reputation of researchers and institutions can be a helpful guide. Those who are known in their fields for quality work are more likely to perform credible studies.

The experience of a researcher or institution in the topic being studied is another consideration, although some young researchers produce very high quality work.

It is also important to know a little about who financed the study.

Groups with a strong political or commercial agenda, for example, are likely to have an interest in research that

### Not All Studies Are Created Equal

*Studies vary in their design, strengths, and weaknesses*

**Randomized Experimental Design:** Best method for determining cause and effect. Compares *treatment group* – those who received an intervention – to a *control group* who did not receive it. Participants are randomly assigned to groups. Allows researchers to state with more confidence that the intervention was responsible for the outcomes.

**Quasi-Experimental Study.** Compares groups in a program with groups that are not. Does not use random assignment. Groups with similar characteristics are studied; treatment is given to one, but not the other. Groups must be carefully matched to determine whether the treatment caused any differences that are reported between them.

**Pre/Post-Test Only Intervention:** Consists of only one group who receives a treatment and is measured before and after the intervention. Useful for studying complex systems as they exist in the community. But without control groups, it is difficult to know if the changes observed are due to normal development, other programs, services, or other factors.

**Observational Designs.** Researchers simply observe and measure differences between groups of people with contrasting experiences. Helpful when it is impractical or unethical to randomly assign groups. (It's unethical, for example, to assign children to poor child care). Does not effectively address whether other factors contributed to outcomes.

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supports their viewpoints.

### What Publication Suggests

Studies published in reputable research journals undergo peer review and meet the standards of the publishing organization. These studies, as a result, earn a high-level of credibility.

If a study is unpublished or appears in a publication that does not require peer review – a chapter in an edited book, for example – the fact it has not been reviewed by independent experts should be considered when evaluating the weight to give its findings.

### Sampling Is Important

Researchers gather information on a sample of people to determine the effects of a program for the full population. Knowing the size of the sample and how it was collected helps determine the reliability of a study and whether its results can reasonably be applied to one group or another or to larger numbers of people.

The minimum size of a sample depends on how large the effects being studied are. A general guideline for a minimum sample size might be 30-50 people. The larger the sample, the smaller the difference needed between groups to attain statistical significance. In other words, the evidence is sufficient to say the differences were not merely due to chance.

Even more important than the size of the sample is how it was collected. If researchers are to assume that the findings for a sample of people can be generalized to a larger group, they must be careful to select a sample that fairly represents that group.

An important aspect of sampling is the response rate – the proportion of people selected to be in the study who

actually participated. A low response rate means that a portion of the sample was not studied and suggests that those who did not respond are different in some systemic way from people who did respond.

### Statistical Significance

Statistics are used to test whether the results researchers find are likely due to the intervention studied and not other factors. When studies report a statistically significant outcome it means that it is unlikely the outcome is simply due to chance.

Say, for example, a study finds that 75% of children given health care had acceptable school attendance but that only 50% of children who did not get health care had acceptable attendance. If researchers report the difference as statistically significant, it means the outcomes of the two groups were not simply due to the fact that any two groups of children would not have identical attendance by chance, even if health care made no difference at all.

In some cases, a finding that may not be statistically significant because the sample size was too small may still be meaningful because it suggests an important change in an outcome. Other times, a result may be statistically significant because of a large sample size but the difference really is not very large or important from a

practical or policy standpoint.

### Multiple Studies Better

No single study tells the whole story. Science is about the aggregation of specific studies, each building upon the other and each representing different aspects or circumstances of an issue to increase the body of evidence on a particular topic. A deeper, more complete understanding of any issue important to children and families comes when many specific studies are examined together, such as in a literature review.

### Quality Matters

Quality is important when weighing outcomes reported by researchers. Studies of higher-quality – randomized experimental studies, for example – should be given more weight when compared to other methods, especially when deciding cause and effect.

But observational studies and quasi-experimental studies may be better indications of what actually happens in society.

Sometimes it is difficult to find rigorous studies done on new topics because the body of research evidence is still thin. Available studies may be useful in providing information that suggests what is going on, but they should not be considered definitive until more studies are done on the topic and a more complete picture is drawn.

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## references

*This report was based on the following publications:*

Schaefer, S.A. (2001). *Understanding Research: Top Ten Tips for Advocates and Policymakers*. Washington, DC: National Association of Child Advocates.

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