



Understanding Research Studies

You want to take an active role in understanding your or your child's ADHD and new or emerging treatments. So you keep up with information online, even scouring research published in journals. But how do you evaluate whether what you read is valid, or that it actually applies in your case?

ADHD is a popular topic in news reporting, but mainstream media may not always convey the whole story. Studies highlighted in the news can sometimes raise concern. If something you read or hear in the news makes you question your or your child's treatment plan or the way you parent your child, it can be helpful to look at the original study on which the news reports are based, rather than relying on the media to translate the science for you. It is also important to discuss concerns with your treatment provider, especially before making any changes to your treatment plan.

The media sometimes cover and highlight studies that are sensational. So being skeptical and questioning what you read or see is a healthy response.

Here are some tips to help you understand research studies and how to interpret their results.

Not all research studies are alike—Each study has a specific research question and comes with limitations, which are seldom mentioned in news reports. Most research begins with a *hypothesis*, a proposed explanation for the phenomena under investigation. The researchers then test the hypothesis in order to prove or disprove it. In some

cases, the study is considered successful if the hypothesis is disproven because it eliminates one potential factor affecting the phenomena.



Who conducts the study—Some studies are conducted by researchers in government, university, and non-profit organizations. These institutions usually have a reputation for producing high quality studies with results that are tested and reviewed by other experts in the field. Studies from these sources are more likely to be trustworthy.

Who pays for the study—Pay attention to who is funding the studies. If the research is being paid for by a political organization or a for-profit company, you should be more critical of the outcomes. It's possible that researchers paid by these companies may avoid presenting results that do not support the sponsors' claims.



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Correlation vs. causation—These two terms can be confusing. **Correlation** measures whether two items follow the same trend—the more you find of one, the more (or less, the inverse) the other occurs. One [website](#) provides humorous examples of what are called spurious correlations—two events or factors that follow the same trends but really aren't related, either because a different factor is involved or because of coincidence. For example, the divorce rate in Maine seems to follow the same trends as the consumption of margarine in the United States. One does not actually cause the other, but they increase and decrease at the same time.

Causation, on the other hand, refers to two factors where one makes the other happen. It can be difficult for researchers to determine whether one factor causes another or if there is a third factor influencing the results. It's important to be mindful that some news reports may state a causal relationship when it is just a correlation. For example, a recent study found that the more critical parents are, the more severe their children's ADHD symptoms. However, the researchers could not determine how these factors were related—are the parents more critical because their children's ADHD symptoms are so severe, or are the ADHD symptoms more severe because the parents are more critical? The news headlines, however, included such alarms as "Is Your Child's ADHD Your Fault?" and "Overly Critical Parents Lead to Persistence of ADHD in Kids."

What type of study was conducted—There are many different types of studies. Some of the most common are the following:

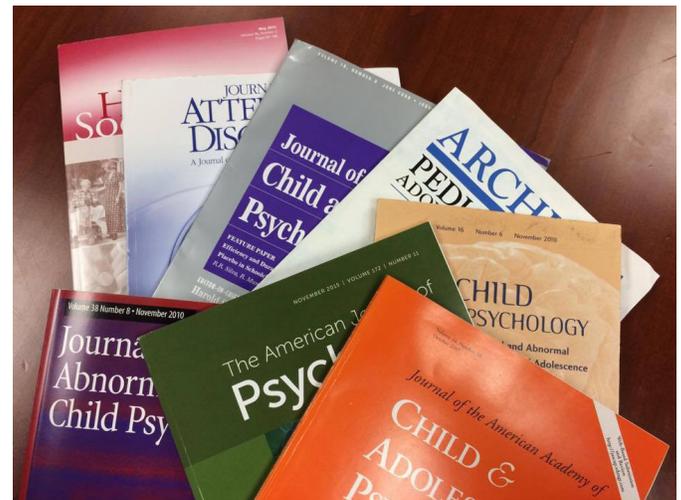
A meta-analysis looks at the many previous studies for trends and common results. This type of study is helpful in determining ADHD prevalence, understanding symptom influences, and improving outcomes of children with ADHD.

Experimental design studies can provide the strongest evidence of a particular treatment. They can look at the effectiveness of a treatment and causal relationships. Conditions are supposed to be controlled in an experiment to help remove outside influence. However, many studies

can be handicapped in their conclusions because they haven't controlled some key variables. Think critically: what other factors—not "controlled" in this study—may have influenced or caused the outcomes? It may also be difficult to take the experimental conditions and apply them to real-world conditions, known as the *generalizability* of the experiment.

Observational research looks at related factors not in a controlled experimental study, but by analyzing data from surveys, school records, or insurance claims. Studies based on data collected over a long period of time can help researchers look more closely at causation. These analyses of data also help researchers assess trends as they formulate new studies that seek more definitive or causal conclusions.

Where is the study published—In addition to looking at the reputation of the researchers conducting the study, it's important to also look at the quality of the journal in which the study is published. It can be difficult, unfortunately, to



determine the quality of a journal. Many scientific journals select the articles they publish using peer-reviews, meaning a panel of experts evaluates the study carefully before it is published. If done correctly, this process helps to validate the research findings. Some publications may also require authors to pay to have their studies published, which is a controversial practice, and may mean that studies published in those journals may not go through a critical review before being included in the journal. Be aware though, that

even journals that have excellent reputations of quality can sometimes publish imperfect studies.

How participants are selected and the number of participants in the study—If study participants are randomly selected from a particular school district, hospital system, urban vs. rural area, etc., then study results are probably generalizable to that specific population. It is becoming increasingly difficult to acquire a random sample that is representative of the general population. Pay attention to the limitations that the researchers identify in their study.



Length of the study—Some studies last only a few days. Other studies can follow people for years to see how various treatments affect them. The longer the study, the more researchers can examine the long-term effects of treatments. But longitudinal studies also present a challenge of interpretation, because it is not possible to control all relevant variables over the course of the subjects' lives.

Conclusions of the study—Understanding whether and how the findings of the study are relevant to you and/or your loved one can be difficult. This is particularly important in studies that deal with treatment; in fact, CHADD's Professional Advisory Board has defined [Levels of Evidence criteria](#) for assessing such studies. Nevertheless, it is critical to consult with your treatment provider for interpretation and possible application to your situation.

The studies CHADD cites in our articles, fact sheets, and newsletters have typically been vetted by the NRC's Health Information Specialists and our Professional Advisory Board members. We take care to make clear the implications to you of the findings therein.

Here are a few links for additional information on understanding research studies:

[9 Questions to Help You Make Sense of Scientific Research from the National Center for Complementary and Integrative Health](#)

[Understanding Research: Ten Tips by the Harvard Family Research Project](#)

For information on evaluating treatments:

[Complementary and Other Interventions](#)

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