

How to Evaluate the Quality of Scientific Research

Unfortunately, not all scientific research is created equally. The quality of research published on a topic often varies, which may lead to inconsistent results. This guide will help you critically analyze the quality of a scientific study to verify the credibility of results and establish accurate conclusions.^{1,2}

Signs of **HIGH** quality research

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The research question and hypothesis (theory studied) are clearly defined
 Ensures results are relevant and meaningful
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Authors disclose qualifications & conflicts of interest
 Supports credibility and transparency against potential biases
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Study discloses and discusses limitations
 Usually a paragraph or two near the end of the discussion / conclusion section that accounts for factors that may have influenced results
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Conclusions use all available evidence (not just one study)
 Helps to confirm validity and reliability of results
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Research is published in a reputable, peer-reviewed journal
 Peer review indicates it went through thorough examination by other experts in the field and rounds of resulting edits before being published


Signs of **LOW** quality research

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Unclear methodology, including participant characteristics, interventions, and/or measurements
 Lack of details prevents replicability of study to confirm results
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Inappropriate data collection and/or analysis methods
 Measurements that lack validity (accuracy), reliability (consistency), introduce bias (leading questions), or are inappropriate for the research question limit results & conclusions
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Overgeneralized & broad conclusions beyond research scope
 Results should not be extended beyond populations or situations included in the research study
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Suggests causal relationships without an experimental design
 Most study designs only allow an association to be determined, with randomized control trials being the only study design that can conclude an intervention caused an outcome
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Results and conclusions include partial or biased language
 Findings should only state facts backed by evidence and should avoid inserting opinions or theories

References

1. Paipongna, M, Johnson, S. Navigating Science in the Media. International Food Information Council - Food Insight. Published September 9, 2023. Accessed November 4, 2024. LaMorte, W.W. (2021, April 21). Association versus Causation. Boston University School of Public Health.
 2. Denison, G. What is quality research? A guide to identifying the key features and achieving success. Prolific. Published Oct 24, 2023. Accessed Jan 10, 2025. <https://www.prolific.com/resources/what-is-quality-research-a-guide-to-identifying-the-key-features-and-achieving-success>