

Planning better research projects: Advice for young researchers



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Researchers invest precious hours designing studies, fulfilling institutional review board requirements, gathering data, and writing each manuscript. Research involves a tremendous amount of work, and there is little more frustrating than to have one's work rejected because of flaws inherent to the design and execution of the study. Attention to the items summarized below can improve the value of your work and the chance of acceptance. The old adage in carpentry is "measure twice, cut once." A similar adage in planning research studies could be "plan carefully so you only have to submit once."

An appropriately planned study that addresses important knowledge gaps does more to improve patient care and is more likely to be accepted and cited. A little more time spent in the planning stage can save countless hours during the execution of the study. It has been said that a well-planned study almost "writes itself" when it comes time to produce the manuscript because the existing state of knowledge, goals, study design, limitations, and implications for clinical practice were already apparent from the beginning of the project.

The use of historical controls may exaggerate treatment effect because of other advances in health

care and longevity and should be avoided where possible. Also, enrollment criteria may be stricter in the study group than those that were applied to the historical group. Analysis of retrospective data is inherently flawed as the publication of data is affected by study outcome.

There are several key items to consider when planning a research project.

- Is the hypothesis clinically important? If the study does not address a clinically important knowledge gap, your efforts may be wasted.
- Is the study design feasible economically and can it be completed in the specified timeframe with the resources available?
- Is the study adequately powered to answer the question?
- What research has already been done on the topic and what were the flaws in previous study designs? Focus your efforts on existing gaps and what your research could add to the existing body of knowledge.
- Identify the need for an appropriate control group or reference point.
- Avoid selection bias.
- Use statistical methods appropriate to the data.
- Honestly convey the outcomes. Negative studies or unexpected results can be important.

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