

Quality in Research: Asking the Right Question

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Research is the underpinning upon which clinicians, educators, and scholars build their work. It defines our field and frames the very way we think about it. Therefore, researchers have the responsibility to deliver quality products; we trust them to ensure rigor in their methods and soundness in their thinking. This column is about research questions, the beginning of the researcher's process. For the reader, the question driving the researcher's inquiry is the first place to start when examining the quality of their work because if the question is flawed, the quality of the methods and soundness of the researchers' thinking does not matter. The research is flawed. The quality of a house is not important if the foundation upon which it is built is flawed.

The characteristics of rigorously developed research questions are taught in every basic research course, yet writing one is not easy. It takes practice and mentorship, which is why learning how to conduct research takes considerable academic time as well as hands-on experience working with more senior researchers. The purpose of this column is not to short cut this process in anyway, rather to describe for the reader some problematic research questions. In reviewing the hundreds of manuscripts that *JHL* receives every year, I have come to understand just how difficult writing a research question is and how many ways it can go wrong. I hope this discussion will provide readers with some guidance in their evaluation of the appropriateness of research questions and provide novice researchers with some insights about writing research questions.

What Does Asking the Right Question Mean?

Asking the right question implies that there are "wrong" questions to ask, which runs contrary to the ideal of scientific inquiry. We want to believe that any question considered "wrong" could truly be meaningful if looked at with an open mind. Indeed, some of the greatest innovations and

discoveries of the past centuries have been the result of someone looking at a situation without the assumptions that others have made (e.g., Copernicus and Galileo), as Kuhn (1962/2012) articulated in his seminal work *The Structure of Scientific Revolutions*. It is not this sort of "wrong" question that I am referring too in this column.

What I mean by the "wrong" question is a question that does not add to our knowledge base. These types of questions may be uninformed by the existing literature and/or poorly articulated. The "right" question is one that needs answering, thus adding to our knowledge base. It is **not** (a) a question that already has been so adequately addressed within the current body of knowledge that re-researching it is not only redundant but also irrelevant and/or (b) a question that is constructed so ambiguously that researching it provides results that are at best confusing and at worse meaningless. Although other possible problems concerning poorly constructed research questions exist, these are the predominant ones submitted to *JHL* and the ones discussed below.

Redundant and Irrelevant Research Questions

In developing an evidence base, it is important to ask the same question more than once, as one study does not create a body of knowledge (Dodgson, 2017). Replication studies are valid and important in building our knowledge by confirming the findings of others (Polit & Beck, 2017). In fact, *JHL* publishes many of these types of articles every year. For example, a phenomenon well researched in Western cultures that has not been researched in Asian, African, or Middle Eastern cultures can contribute valuable insights and broaden our knowledge base. Researchers must examine a question

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from a number of perspectives before a body of knowledge can be developed. It is not these types of research questions that I am referring to as problematic.

The problematic issue occurs when a research question addresses aspects of the lactation field that have been researched extensively over many years. A large body of research already exists in an area that we have widely accepted as “known,” for example, the importance of an adequate latch-on for milk transfer, the role that stress plays in “let-down,” or the lack of breastfeeding knowledge leading to inappropriate practices. Unless the researcher has done something unique or found something new, this type of research is redundant.

Students submit many of the manuscripts *JHL* receives that have redundant and irrelevant research questions. If the student has done their review of the existing literature well and asked their research question/aim/objective carefully, it is possible that their study may add to the existing body of literature. More often these studies have adequately developed research questions about something already well established in the field, which may have been a useful and essential student learning experience, but does not add anything new to the existing literature. *JHL* does not publish these.

It is the researcher’s responsibility to know the existing knowledge base in their area of study well enough to understand what is known and what needs more data before the topic is well established. Too frequently, novice researchers or those conducting research not adequately educated in research methods rely on a few literature reviews (secondary sources of information) to provide a background for developing their study, instead of digesting the original research (primary source material). This creates a shallow understanding of what is known, one filtered through whoever wrote the literature review’s perspective. Literature reviews may be a scholarly analysis or something much less rigorous and are always considered secondary sources of information, which are useful in pointing researchers in researchable directions, but not to be relied upon beyond that role.

It is the role of peer reviewers and editors to have a broad and deep enough knowledge of the field to determine if the researcher has framed a question(s) that offer readers a new perspective or adds an important nuance to the existing body of knowledge. In this way peer reviewers and editors are gatekeepers, providing a check and balance for each other. However this system does not always work effectively, leaving the reader to evaluate the researcher’s understanding of the topic being researched. The expertise of the researcher cannot be assumed. Therefore, readers need to examine the references that researchers have used to determine if they are up to date and relevant, if primary sources have been used, and if the researcher’s description of the topic of study is congruent with the reader’s understanding of the topic. The reader must read critically.

Poorly Defined Research Questions

The purpose of a research question is to define what will be studied, with enough specificity that there will be no ambiguity or confusion about exactly what variables (quantitative research) or phenomena (qualitative research) the researcher is seeking to study. Additionally, in quantitative studies, the variables being measured must be responsive enough to detect change if it has occurred. Therefore, choosing each word carefully with precise attention to word choices is essential (Polit & Beck, 2017). When this does not happen words are misused, vague, open for interpretation, and/or inappropriately used, there is no way a sound research study can be designed—no matter how rigorous the methodology. The architecture of the research (i.e., methodology) cannot compensate for building upon a flawed foundation. This is why any evaluation of the quality of a research study must always begin with an examination of the question being asked.

An example of a poorly defined research question occurs in the Patel and Patel (2016) article discussed by Gutowski and Chetwynd (2019) in a letter to the editor within this issue. I have chosen this article because it illustrates many of the problematic areas seen in lactation research. The methodology used by Patel and Patel (2016), a systematic review with meta-analysis, is considered a very sophisticated and high-level study design, in other words a very sound methodology that should yield quality data that will add to the existing knowledge base (Chertok & Haile, 2018; Polit & Beck, 2017, p. 648). The researchers conducted this study in accordance with established standards for a systematic review with meta-analysis (Moher et al., 2009). “A basic criterion for a meta-analysis is that the research question being addressed across studies is strongly similar, if not identical. This means that the independent and the dependent variables, and the study populations must be sufficiently similar to merit integration” (Polit & Beck, 2017, p. 648).

Patel and Patel (2016) stated, “The objective of this review was to assess if lactation education or support programs using lactation consultants or lactation counselors would improve rates of initiation and duration of any breastfeeding and exclusive breastfeeding compared with usual practice” (p. 530). Two main problems exist with this objective, both stemming from their use of the word *or*. First, it is immediately obvious that two types of interventions (i.e., lactation education and support programs) are targeted, which can be problematic in that if too wide a net is cast, the results are a comparison of apples with oranges. Education programs are vastly different than hands-on breastfeeding support programs. These researchers further define the interventions included in their analysis as “stand-alone or part of a multicomponent structured program” (p. 531). One question is whether comparing the outcomes to a stand-alone intervention could ever be appropriately compared with the outcomes of a multicomponent intervention; there is a body of public health literature supporting the effectiveness of

multicomponent interventions when compared with stand-alone interventions.

Second, Patel and Patel's (2016) objective defined who carried out the interventions in the studies they chose to include in their meta-analysis as "lactation consultants or lactation counselors" (p. 530), which they further explained were "IBCLCs [International Board Certified Lactation Consultants], CLCs [Certified Lactation Counselors], lactation consultants, or lactation counselors" (p. 531). "When intervention studies are being pooled, it is important that the intervention methods are clearly defined with similar treatment methods, components, and intensities" (Chertok & Haile, 2018, p. 422). As Gutowski and Chetwynd (2019) explained and Patel and Patel (2019) acknowledged in their response, this definition of the interventionist encompasses multiple levels of care providers. It is too broadly defined, leaving too many possible alternative explanations and intervening factors to determine with any validity the meaning of their results.

The issue of broad ill-defined variables is a problem that has plagued the quality of breastfeeding research for many years. Lumping IBCLCs, lactation consultants (a generic term), CLCs, and lactation counselors (a generic term) into one single category of provider is extremely imprecise, creating a single ill-conceived category. The researchers' goal was to determine if anyone of a variety of interventions by any of the mentioned providers made a difference in breastfeeding outcomes compared to usual care, which was not further defined. In other words, is some intervention better than no intervention? Without making the distinction between levels of providers, this is similar to asking if care by either a physician (MD) or a physician's assistant (PA) will make more of a difference in outcomes than no care. I am sure this was an appropriate question at some point in time in the past. In lactation, we have known for many years that some care yields better outcomes than no care (when looking at a populations, not specific individual cases).

A related but slightly different issue is the ambiguity inherent in the use of the generic lactation care providers terms, lactation consultant and lactation counselor. For many years referring to IBCLCs as lactation consultants has been a common practice; however, given the variety of lactation support providers currently working in the field, this is no longer a viable option. Authors must specifically articulate if they are referring to IBCLCs or another type of lactation care provider to avoid confusion and misunderstandings. *JHL* has made this a policy.

Another problematic area inherent in Patel and Patel's (2016) research objective stems from the outcomes measured (i.e., breastfeeding initiation, any breastfeeding rates, and exclusive breastfeeding rates). Over the years, many researchers have not clearly defined their breastfeeding-related outcome measures, prompting an international call in 1990 (Labbok & Krasovec, 1990) for more accurate and consistent definitions in breastfeeding research. It is well established that the benefits of breastfeeding are dose

dependent; therefore, the exact amount of human milk consumed by an infant is a critical factor in determining outcomes. Patel and Patel (2016) do **not** address the issue of how breastfeeding outcome variables were defined in each of the reviewed studies. Labbok and Starling (2012) had previously addressed this issue stating, "In part because of the lack of clear or consistent definitions used in [peer reviewed] publications, generalization and comparison of findings have been difficult, and interpretation of findings is often limited" (p. 397). Given the span of years and the number of studies included in Patel and Patel's (2016) research, breastfeeding variables were not defined using the same definitions across included studies.

The use of the word *or* in a research question always opens up the possibility of confusion, at best. More likely this is an imprecision that will undermine both the internal (i.e., the inferences can be made by the researchers about the intervention, rather than other factors) and external (the generalizability of the findings) validity of the study (Polit & Beck, 2017, pp. 728, 731). This vagueness in both the types of interventions and who carried out these interventions has completely muddled the purpose of their study; therefore, their results also are questionable.

Contrast this vagueness with the precision of this example of a well-developed question: "This systematic review and meta-analysis aimed to describe interventions containing direct support by IBCLCs during the postpartum period and to analyze the association between study characteristics and the prevalence breastfeeding outcomes" (Chetwynd, Wasser, & Poole, 2019, p. 424). In this question, all the components are precise enough that definition of the interventions and interventionist are not ambiguous and measured outcomes are definable variables.

The peer reviewers and the *JHL* editor should have caught the validity problems within the Patel and Patel (2016) article. The fact they did not is evidence that despite our best efforts, not all published articles have the rigor and quality we strive to achieve. Although regrettable, it is perhaps inevitable given the 300+ manuscripts reviewed at *JHL* every year. *JHL* is not alone in having published an article or two like this. It happens in most journals, which ultimately leaves to the reader the job of determining the validity of what has been published. It is essential that readers evaluate the quality and appropriateness of research questions before using study results.

In the case of the Patel and Patel article, wide ranging consequences beyond questioning the findings have occurred, as decision makers have used these results (Gutowski & Chetwynd, 2019). Unfortunately, this article has been one of the most cited articles *JHL* has published within the past 5 years, which means the questionable results created by a poorly constructed research objective have been distributed and embraced as evidence, and used by decision makers. Perhaps one reason this study has been so widely embraced was the methodology; evidence-based medicine

gurus often have identified meta-analysis as the highest form of evidence (Paul & Leibovici, 2014). In other words, the architecture was so stellar that no one adequately examined the foundation upon which it was placed. This illustrates the importance of always examining the research question(s) first and foremost. Ultimately it is the peer reviewers, the editor, and the readers who need to approach any research with a skeptical eye—examining both the architecture (method and process) and the foundation (the research questions) upon which research has been built.

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