How to Build a Better Mousetrap: Introduction to the Special Issue on Methodology and Design

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Pediatric psychology is over 25 years old. Now, a systematic look at our research paradigms, including their strengths and weaknesses, might serve as an opportunity for us to recognize our many accomplishments. This systematic look could also provide us with ideas for future growth. With improvements in research methodology, we have more opportunities to influence public policy and the health care system. Our scientific contributions shape our clinical practice and facilitate our ability to improve the lives of children and families.

Much pediatric psychology research is published in the Journal of Pediatric Psychology (JPP), a highly competitive journal. More than 80% of the manuscripts submitted for publication to the journal are rejected, despite the hundreds of hours and many years that culminate in one manuscript. Methodological shortcomings are among the most prominent reasons for rejection. Thus, the purpose of this special issue is to provide formal guidance on improving the quality of our research in pediatric psychology.

Over 20 years ago, the Journal of Consulting and Clinical Psychology published a classic special issue on methodology. Its goal was to improve the research process and scientific foundation of clinical psychology. This special issue of JPP represents a similar attempt for the field of pediatric psychology. The manuscripts accepted for this issue are meant to provide the readers with a convenient structure for both improving their own work and evaluating contemporary research. Whereas JPP typically contains information about the results of research, this issue highlights the process of research. That is, how does a scientist ask a question and collect data that will allow us to begin to understand the answer to a question? The complexity of the issues raised by these articles serves as a reminder of our exponential growth as a scientific field.

The call for articles on methodology and design elicited a wide range of work focusing on issues ranging from complex statistical procedures to the need to report basic demographic information. In general, the work selected after peer review for inclusion in this special issue may be classified into three broad categories: (1) design and methodological issues, (2) novel approaches to research, and (3) contemporary statistical strategies. The reader should note that this categorization provides a broad overview and that the articles commonly contain ideas relevant to multiple domains, as well as common themes across domains.

Design and Methodological Issues

Design and methodologic problems are highlighted in four of the articles. These articles call attention to the many facets of a research project that require attention to provide our colleagues with information about our methodological rigor. The articles by Holmbeck, Li, Schurman, Friedman, and Coakley and Sifers, Puddy, Warren, and Roberts provide an especially succinct overview of common problems in pediatric psychology research. Many of the
difficulties these authors cite are easily remedied in the review process (e.g., reporting demographic variables, detailing consent procedures), or by more diligent scientists, who can easily address these issues in the process of completing their work (e.g., use of multiple informants, keeping careful tabulation of recruitment rates). Many of these shortcomings can be alleviated without additional financial or human resources and could further elevate the standing for our scientific field. Holmbeck and his colleagues examine the advantages and disadvantages of multisource and multimethod data in pediatric psychology research. The authors cogently point out that the majority of articles published in JPP use one source of data from one respondent, despite the many limitations of this approach. They make suggestions for more comprehensive work and offer specific recommendations for data management and analytic strategies. Minor points, such as the potential for contamination of data about mood when work is completed in the hospital/clinic setting, enhance the contribution of this work.

A second article on general methodological problems by Sifers et al. systematically reviews articles published in 1997 in JPP, Journal of Clinical Child Psychology, Child Development, and Journal of Abnormal Child Psychology, to determine the reporting rates of 18 basic demographic variables. This work clearly demonstrates a significant problem: many published articles lack basic demographic information on participants. These authors also point out that many articles do not report participation or attrition rates for both target and comparison groups of subjects. Knowledge about participation rates is critical in determining whether a sample is representative of the population under study. These problems severely limit conclusions that can be drawn from data and limit the degree to which psychological research can influence public policy and inform clinical care.

A third article, by Chambers and Johnston, provides fundamental information about children’s use of Likert rating scales and examines how developmental issues can affect responses that depend on the tasks’ requirements. This type of basic research examining response sets must be carefully considered when conducting research in pediatric psychology, especially when investigators want to assess a specific construct without the benefit of a reliable and valid measure. More research examining the issues outlined in this article will have significant potential to improve our measurement models.

Finally, an article by Aylward carefully examines common methodological problems in outcomes research of at-risk infants. Although the reader who does not conduct investigations in this specific area may think this work irrelevant, much of the discussion reviews broader issues (e.g., sources of bias, cause-effect inferences, selection of measures). Aylward also provides a thoughtful discussion of analytic strategies that might be useful in promoting rigorous outcome studies, including odds ratios, risk ratios, and the use of effect sizes.

Novel Approaches to Pediatric Psychology Research

One article by Heary and Hennessy provides the reader with a review of work using focus group methodology. This article makes specific suggestions regarding applications of this approach and offers guidelines for use. Although the focus group approach has tremendous potential as a qualitative research paradigm with numerous advantages over traditional one-to-one interviews, these authors recognize the limits to our understanding of this research tool with children. The focus group paradigm has been underutilized by pediatric psychology researchers and offers considerable potential as a tool for understanding issues studied in the field.

Contemporary Statistical Issues

The final section of this issue highlights statistical approaches for the use of data to answer clinical and theoretical questions. Whereas these four articles handle very complex issues, the authors have made considerable efforts to provide statistical information in a format that encourages understanding and utilization.

Rosnow and Rosenthal discuss the use of contrasts and correlations as a tool to evaluate theory and inform clinical practice. These authors provide a step-by-step analysis of a complex set of procedures designed to test competing theories. This article will permit future work to carefully examine theories in pediatric psychology that have not been evaluated using substantive quantitative data. Of special value is the ability of this approach to answer specific questions with less data (fewer sub-
measures by suggesting that blunting or repression has occurred (Canning, Canning, & Boyce, 1992; Phipps, Fairclough, & Mulhern, 1995), this article takes a novel tack and provides the reader with an analytic strategy for detecting these changes. The work clearly defines response shift, provides specific examples, and should increase clinical and empirical awareness of this issue.

Conclusions

We hope that this special issue not only validates our considerable work but also inspires ideas for future directions. This group of articles serves as a blueprint for teaching methodology and design to the next generation of scientists in pediatric psychology. As our field matures, we are compelled to use increasingly sophisticated approaches to our science, but we must simultaneously remember basic principles of clinical research that have served to improve our contributions during the past 25 years. When the special issue on methodology and design was published in *Journal of Consulting and Clinical Psychology* in 1978, each article provided fundamental knowledge about critical tools and ideas for conducting research in this area. We hope that this volume provides similar information that will facilitate improvement of our scientific process.

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References

