

EDITORIAL

The importance of clear methods descriptions in research papers

The raising pressure on researchers to be “productive” has dramatically changed the research culture in the last decades. Historically, research environments allowed time to *re-search*, explore and develop knowledge for the sake of knowledge development and scientific discourse. Demands for constant fund seeking and expectations to get high citation indexes spur investigators to do “fast-track research”, that should be readily applied in the workplace. The length of papers has shortened, which spurs superficial reporting of studies. However, evidence-based nursing is important to achieve high quality patient outcomes, and evidence relies on rigorous study designs being clearly described in research papers.

High research quality depends not only on unambiguous problem statements and clear research questions based on sound literature reviews. It is also crucial to *reassure a good fit between research problem, research paradigm and methods*. A description of the *theoretical framework* guiding the study and unambiguous conceptual definitions of the concepts under investigation are critical to assure transparency and transferability – even in quantitative studies.

To demonstrate application of *ethical guidelines* it's not enough to just report ethics board approval. Moreover, the appropriateness of procedures used to safeguard study participants, e.g. what was done to reduce risks and maximize benefits of for the participants/subjects has to be explained in a paper.

The *methods section* should demonstrate the *most rigorous possible design to achieve the study purpose*. How about consistency between research question(s), hypotheses, state of the art literature and the conceptual framework of the study? Are hypotheses specific and clearly worded? What are the key variables and do they match with the study population? To ensure interpretability of study results, the readers must know if the *methods and numbers of data collection points* were appropriate in light of the research problem. Well-written research shows what was done to minimize bias or threats to internal, construct and external validity. What was the attrition rate? Was blinding used? And if: who or what was blinded? *Sample-representativeness* can be judged given the sampling strategy and procedures are highlighted, and if the participants/population is described in detail. Reporting the results of a power analysis is needed to judge the appropriateness of sample sizes and treatment effects.

When it comes to *measurement*, operationalization of variables, scoring procedures and reports about instruments - including results of psychometric testing - are important. How about the match between instrument choice with regard to the purpose, sample and context of the study? What was done to reassure validity and reliability of measurements? In diagnostic studies, reporting specificity and sensitivity information of instruments is important.

Generalizable *intervention studies* depend on specific *descriptions of standardized study interventions*: What was done, when, how often, by whom? How was the intervention controlled to make sure it was performed equally and/or as outlined in the study proposal? Was the researcher part of the intervention team? How were persons trained to perform the intervention, and what was done to reduce bias? In RCTs, best evidence relies on addressing all elements – manipulation, randomization, control – as equally important and by using appropriate statistical analyses.

The *results section* provides information on specific analyses used, such as statistics and test methods. To demonstrate evidence of study findings, reporting the specific analysis methods applied including assumptions of statistical tests, significance levels, effect sizes and precision of estimates (confidence intervals) is crucial to substantiate the study results. Representativeness of tables and figures should be attentively reviewed. A sound research paper also transparently shows what was done to prevent Type I and II errors. Journal reviewers ask if risk adjustment measures were used to determine specific effects on patients, respectively on patient-groups. How about intention-to-treat analyses, and how were missing values handled? Control of possible confounding factors and the reporting of their influence on outcome variables – e.g. by using multi-level analyses, strengthens the main study results.

In summary, researchers and reviewers should ask: How well was validity established? Does this study foster meta-analyses by providing in-depth information for further studies? Why – or why not – do you have confidence in the truth-value of the study, and does it truly support evidence-based practice with meaningful results for patients and the nursing discipline?

Polit DF, Beck CT. *Nursing research. Generating and assessing evidence for nursing practice*. 9th ed. Philadelphia: Lippincott Williams & Wilkins; 2012.

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