

## Editorial

### Making Sense of Bits of Information

Although efforts to develop a knowledge base for evidenced-based nursing practice have increased dramatically, scientific evidence continues to accumulate slowly. The growth of nursing research demands efforts to synthesize study findings, as indicated by the increasing number and sophistication of published studies using meta-analytic techniques. Meta-analytic strategies are a crucial step between the information obtained from individual studies and the integration into the discipline's knowledge base. Through organizing, integrating, and synthesizing findings from studies of the same phenomenon into a coherent and rational pattern, knowledge develops within a discipline. Can a unified body of knowledge exist or must we accept fragmentation of information as inevitable? What phenomena warrant meta-analytic techniques? Are there sufficient studies? Perhaps the primary needs are for replication or secondary analysis?

It has been more than 25 years since Gene Glass formalized the concept of meta-analysis. Primary research findings are aggregated to produce a statistical summary of the state of the evidence on a particular phenomenon. Meta-analysis is a study of study results, not study conclusions, which often can be misleading or inaccurate. Meta-analysis is a complicated procedure and not without limitations that deserve careful attention. How can one summarize past research succinctly when many different versions of the independent variable were implemented, many different populations were studied, many disparate methods were employed, and many different measures of the same outcome were used? Meta-analysis is no substitute for careful evaluation of individual studies and cannot transcend the limitations of the data on which it is based. Judgments are required at all points in the process. Which studies should be included? How are studies identified and retrieved? Are all studies on a given phenomenon included? How are data coded? Are data interpretable? Are data sets comparable? How are findings converted to a common metric?

Nursing science has experienced a surge in the conduct of qualitative inquiry and, subsequently, an interest in the need to synthesize findings. Similar issues arise, if one should, when to, and how to, conduct a synthesis of qualitative findings. There are essentially few guidelines for this task.

Few disciplines have engaged in this endeavor, consequently the techniques for synthesis of qualitative findings has not been refined as well as those of quantitative meta-analytic techniques. What is the nature of interpretive synthesis? A meta-synthesis differs from simple accumulative logic or averaging across studies. The goal of meta-synthesis is understanding or interpretative explanations of phenomenon. Yet, are human experiences comparable and thus suitable for synthesis? What is the process of interpretive synthesis?

Several comparable problems to quantitative meta-analysis arise in qualitative meta-synthesis. These include reliability and completeness of data retrieval, sampling bias, loss of information, glossing over details, heterogeneity of method, heterogeneity of quality, differing levels of analysis, and exaggeration of descriptions and interpretations. What criteria should one use to judge the scientific merit of the study? Problems also arise due to differing levels of abstractness, as well as to various labels applied to a phenomenon. Can one translate the metaphors of one interpretation into another, or by combining interpretations, is the uniqueness of the phenomenon lost? Can one do interpretive synthesis without stripping the context of the phenomenon? Other issues will no doubt surface in conducting a meta-synthesis as this method is refined. Synthesis of study findings is evolving in nursing science. No doubt there will be even more emphasis evident and warranted in the future.

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