Methodological Issues and Challenges in Data Collection and Analysis of Qualitative Meta-Synthesis

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Qualitative meta-synthesis is an emerging method for synthesis of findings of qualitative studies. Based on a qualitative meta-synthesis study on the lived experiences of immigrant Asian nurses working in Western countries (Xu, 2007), this paper discusses several methodological issues and challenges encountered during the data collection and analysis processes and strategies used to resolve them. These issues and challenges include, but are not limited to: adequacy of qualifying studies and inclusion criteria; availability and accessibility of qualified studies; publication bias; quality versus quantity of primary studies; studies containing both quantitative and qualitative data; studies based on identical samples; separation of relevant data for analysis; and validity of synthesis findings. The strategies used (or desired) to resolve these issues and challenges were illustrated with exemplars from the published meta-synthesis study. This paper argues and concludes that: (a) the quality of qualified available studies is more essential for a qualitative meta-synthesis study and the quality versus quantity issue must be dealt with in context and perspective; (b) creativity and flexibility consistent with the principles and spirit of qualitative inquiry is required in resolving these issues; and (c) working within multiple constraints, the meta-synthesist frequently has to settle with less than ideal solutions during the research process in the real world. [Asian Nursing Research 2008;2(3):173–183]

Key Words methodology, qualitative meta-synthesis, qualitative research

INTRODUCTION

There is a general consensus in the community of qualitative researchers that qualitative meta-synthesis (QMS) is a valuable method to synthesize findings of qualitative studies (Bondas & Hall, 2008; Finfgeld, 2003; Polit & Beck, 2004; Sandelowski & Barroso, 2007; Walsh & Downe, 2005). QMS is the equivalent of “meta-analysis” in the tradition of qualitative inquiry, with “a shared interest in synthesizing empirical studies” (Noblit & Hare, 1988, p. 10) and with “a shared desire to use systematic, comprehensive, and communicable approach to research integration” (Barroso et al., 2003, p. 154). In the current literature, QMS refers to both a research method and a product of qualitative synthesis studies (Sandelowski & Barroso). However, this paper is primarily concerned with QMS as a research method.
Despite the agreed-upon value of meta-synthesis, various methods and procedures regarding how to conduct QMS exist (Kearney, 1998; Noblit & Hare, 1988; Paterson, Thorne, Canam, & Jillings, 2001; Sandelowski & Barroso, 2007). Even what such an approach to qualitative research integration should be called is still under debate (Thorne, Jensen, Kearney, Noblit, & Sandelowski, 2004). While Paterson et al. called it meta-study, other scholars such as Polit and Beck (2004) named it meta-synthesis. Furthermore, Sandelowski, Docherty, and Emden (1997) used “metasynthesis” or “meta-synthesis” interchangeably and then changed to “qualitative research integration” later (Thorne et al.). Still others called such studies “meta-ethnography” (Noblit & Hare), “grounded formal theory” (Kearney), and “aggregated analysis” (Estabrooks, Field, & Morse, 1994). It appears that we are in a position of “terminological land mines” (Thorne et al., p. 1343). For the purpose of this paper, qualitative meta-synthesis (QMS) is used without value judgment; its selection was based solely on its wide use in the qualitative literature.

Historically, Stern and Harris (1985) were the first in nursing to use a meta-synthesis approach to qualitative study findings, calling it “qualitative meta-analysis” with reference to the amalgamation of a group of qualitative studies (Zimmer, 2006, p. 313). From an etymological point of view, “meta” means “beyond” or “transcending” in Greek and “synthesis”, also from Greek, means “a merging” or a “bringing together” (Finlayson & Dixon, 2008, p. 65). In other words, a meta-method is one that comes after and transcends the original, primary studies.

In fact, the term QMS has been used as an umbrella term, referring to a family of methodological approaches to developing new knowledge based on rigorous analysis of existing qualitative research findings. To this author, a more precise definition of QMS is “the theories, grand narratives, generalizations, or interpretive translations produced from the integration or comparison of findings from qualitative studies” (Sandelowski, Docherty, & Emden, 1997, p. 366). More specifically, the aim of QMS is “to create larger interpretative renderings of all of the studies examined in a target domain that remain faithful to the interpretive rendering in each particular study” (Barroso et al., 2003, p. 154). No matter what the specific label given or used by various scholars, this genre of research refers to a “study of studies” that attempts to synthesize or integrate findings of qualitative studies to seek new insight beyond the findings of each included primary study, thus conceptually achieving the effect of the total being greater than the sum of the parts.

The rise of QMS is of no surprise. Two important phenomena provided the essential impetus to its current status: (a) the proliferation of qualitative studies over the past 20 years; and (b) the rise of evidence-based practice as a new paradigm, methodology and pedagogy (Sandelowski & Barroso, 2007). In this age of evidence-based practice, meticulous, rigorous, empirical integration of evidence, including qualitative evidence, is paramount in order to improve clinical outcomes.

Much has been written about the value of QMS as a qualitative method of inquiry (Noblit & Hare, 1988; Paterson et al., 2001; Sandelowski & Barroso, 2007), including papers on specific methodological and procedural issues (Barroso et al., 2003; Sandelowski, 2006; Sandelowski & Barroso, 2002). Yet, there are essentially infinite issues and challenges encountered in conducting this kind of inquiry arising from each meta-synthesist’s unique experiences. In addition, while textbooks on qualitative research methods are of essential value, they are usually general in nature and seldom address the “nitty gritty” and the nuances regarding the many methodological issues encountered in the real world.

Based on a QMS study on the lived experiences of immigrant Asian nurses working in Western countries (Xu, 2007), this paper examines some specific methodological issues and challenges encountered during data collection and analysis and the various strategies used to address them. It is hoped that this paper will: (a) provide some helpful tips, insight, and strategies to scholars interested in conducting QMS studies; and (b) facilitate the debate on methodological advances in QMS.
ISSUES AND CHALLENGES IN DATA COLLECTION AND ANALYSIS

Issues and challenges with data collection
Adequacy of qualified studies and inclusion criteria

The very first questions a meta-synthesist has to answer are, “Is there a body of literature existing on a topic of interest, and is the body of literature sufficient?” In other words, before conducting a QMS study, the meta-synthesist needs to make sure that there are an adequate number of studies that are available after sufficiently exhaustive literature searches. According to Cooper (1998), failure to conduct a sufficiently exhaustive search is the most important threat to the validity of any research integration. In fact, these questions are directly related to inclusion criteria. The importance of establishing appropriate inclusion criteria cannot be underestimated because these criteria determine inclusion parameters of primary studies to be selected for the QMS study and directly impact its quality and scope.

Functionally, setting up inclusion criteria for a QMS study can be compared to establishing sampling criteria for an empirical primary study. Inclusion criteria can be conceptualized into several categories: temporal (i.e., time cut-offs for included studies), spatial (i.e., setting and/or geography), research participants (i.e., Asian nurses), language of publication (i.e., English language only), and so forth. The impact of the aforementioned factors on a QMS study must be thought through carefully by the meta-synthesist during the study conceptualization and design stage, informed by the purpose and objective of the proposed study.

Data collection for a QMS study is an iterative process. Depending on the initial search results, the meta-synthesist must adjust search strategies based on the purpose and objectives of the study. For instance, if there are too many studies on the topic of interest, it may be appropriate and wise to shorten the timeframe to include only studies published in more recent years (after carefully weighing the cost and benefit of such a decision). One potential derivative issue is that some important studies may fall outside the adjusted time cut-offs. Along the same line of reasoning, whether to limit studies to certain geographical areas also depends on the purpose or objective of the QMS study.

The language in which available studies are published is another important inclusion criterion to consider for a QMS study. The decision on this factor directly affects the scope and quality of the study. Therefore, the meta-synthesist should seriously consider the implications of his/her decision. Essentially, restricting analysis to studies published in the English language should never be a default without serious consideration and adequate justifications. Often, it is not the meta-synthesist’s intention to exclude studies published in other languages, but rather a pragmatic decision for several reasons: (a) lack of foreign language skills on the part of the investigator; (b) unavailability of access to non-English literature; and (c) prohibitive costs (i.e., financial resources, time, etc.) (Barroso et al., 2003; Paterson et al., 2001). Compounding this issue is the fact that some databases exclude studies conducted in some countries or languages (Paterson et al.).

Quality of primary studies appears to be an elusive criterion when evaluating them for inclusion. Debates are ongoing with regard to criteria on quality for qualitative studies (Finfgeld, 2003; Polit & Beck, 2004). Consequently, Sandelowski and Barroso (2007) explicitly stated that scholars should not use criteria of quality to determine inclusion or exclusion of primary studies into a QMS study. In addition, no strict rule exists as to what specific number is considered adequate for a meta-synthesis study. Sandelowski et al. (1997) and Paterson et al. (2001) suggested a minimum of 10–12 primary studies.

For my study on the experiences of Asian nurses working in Western countries (Xu, 2007), I conducted a systematic, extended, and exhaustive search with the assistance of an experienced health sciences librarian. The literature search included the following electronic databases: the Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE, PsychINFO, Sociological Abstracts, and ERIC. To minimize bias against non-published research literature, a search through ProQuest Dissertations and Theses was also conducted. The following terms and their
variations and combinations were used as search terms: “Asian nurses”, “foreign nurses”, “foreign-born nurses”, “internationally educated nurses”, “international recruited nurses”, “international nurses”, and “immigrant nurses”. These electronic searches did not set any specific cut-off dates to maximize the number of potentially qualified primary studies. In addition, ancestral searches (i.e., tracing relevant studies through references in qualified studies) were conducted. Finally, targeted journals that had published studies on the topic were hand-searched. The final outcome of this 1-month long search yielded 16 qualified studies after using different combinations of search terms and revising/refining search strategies in the various databases. However, two of the 16 studies could not be included (see following sections).

During the intensive, lengthy literature search process that was an emotional rollercoaster ride, the value of a professionally trained and experienced librarian suggested by Barroso et al. (2003) and Sandelowski and Barroso (2007) was validated, especially in formulating and revising search methods and strategies and dealing with the dynamics of literature searching in electronic databases.

Two criteria were set for inclusion in my QMS study: (a) empirical studies published in English that had a qualitative research design or contained qualitative data; and (b) studies that focused on the experiences of Asian nurses working as clinicians in Western countries. Limiting the analysis to studies published in the English language was a practical and realistic decision because: (a) the vast majority of the studies on the topic of interest are published in English; and (b) my only language abilities are limited to English and Chinese. Nor did I have the financial resources or time to hire language experts for my QMS study. In addition, because the purpose of the QMS was to synthesize the lived experiences of Asian nurses working in Western countries, it was logical to limit studies to those studies meeting the geographic criterion. Finally, it was a conscious decision to include studies of all qualitative research traditions/designs and even quantitative studies with qualitative data because: (a) the number of qualified primary studies was very limited; and (b) there was no consensus among qualitative methods scholars on when to exclude studies of different qualitative research traditions in a QMS study, although to include qualitative data from quantitative studies is controversial.

Availability and accessibility of qualified primary studies
Another question the meta-synthesist has to answer is, “Is the researcher able to access the qualified studies?” Sometimes, part of the existing literature is unavailable or irretrievable for logistical and financial reasons or literature cannot be retrieved within the required timeframe. Because the primary studies to be obtained are the only data source, determination of an existing body of relevant studies and its accessibility is a prerequisite for a QMS study. In other words, if there is no literature on the topic of interest, it is not feasible to conduct a meta-synthesis. If there are only a limited number of studies that are available, the feasibility of conducting a QMS study may be problematic. Sometimes, these critical issues are overlooked, especially by novice scholars, and this may lead to the unexpected abortion of a QMS project that has already started.

Publication bias
The types of publications to be included in a QMS study are an important issue to consider. Conceptually, the researcher needs to include as many types of study as possible in order to avoid publication bias: peer-reviewed studies, unpublished studies (i.e., theses, dissertations, unpublished manuscripts, conference papers, etc.), government or agency reports, and so forth. However, it is recognized that publication bias favors reviewed published studies primarily for two reasons: (a) published studies are frequently assumed to have a higher quality because of the peer-review process (and rightly so to a large extent); and (b) published studies are easier to retrieve because of their wider availability. While these are valid reasons for such assumptions, limiting a search to published studies should never be treated as a default because an emerging scholar may choose not to pursue publication of his/her dissertation or thesis even if it is deemed to be of high quality. Further, some
scholars strongly argue that dissertations and theses as a category are quality studies because of the quality assurance mechanism in academia and should be pursued aggressively in a QMS study (Estabrooks et al., 1994). Along a similar line of argument, Beck (2002) consciously looked for unpublished research reports to prevent publication bias.

In fact, scholars have different positions on unpublished studies, especially dissertations and theses. While some scholars favor published studies for the aforementioned reasons, others justify their extra efforts to dig into unpublished literature that paid off (Beck, 2002; Paterson et al., 2001). Yet, one downside is that retrieving these studies takes time and requires careful planning. Another issue is that not all of the located unpublished studies are retrievable even when cost is not an issue. Finally, the associated cost of retrieving unpublished dissertations and theses can be prohibitive, particularly if they have to be physically retrieved before their relevance can be accurately determined.

**Quality vs. quantity of primary studies**

This is perhaps one of the most challenging issues that defies ready or universal answers because the definition of quality is still under debate among qualitative researchers (Sandelowski & Barroso, 2007). An ideal situation is that there are an adequate number of quality studies on the topic under investigation. Yet, more likely than not in the real world, an investigator will run into issues regarding the quality and/or quantity of available studies. If the number of studies is adequate but their quality is dismal, then it will be difficult or impossible to conduct a QMS study. If there are some quality studies but their number is low, then it is a judgment call for the investigator to decide if such a scholarly endeavor will be fruitful. The meta-synthesist must have an estimate of the accumulated risk in the latter decision. To the meta-synthesist, the ultimate question is, “Can the limited number of studies provide sufficient data for substantive, meaningful analysis?” This author believes that the quality of qualified available studies is more essential for a QMS study although their quantity is also important.

**Studies in other languages**

In principle, inclusion of studies published in languages other than English will enrich any QMS study. As Cooper (1998) indicated, failing to conduct a sufficiently exhaustive search is the biggest threat to the validity of any synthesis study. However, this remains ideal in many situations because of the language limitations of the meta-synthesist and availability of literature in other languages. However, there is also a Eurocentric or West-centric mentality in American academia (including nursing) that researchers need to be made aware of and should be guarded against. Essentially, this mentality assumes that non-English studies or studies by scholars from developing countries are second class or unworthy of inclusion. Consequently, no serious attention is paid to the work by these scholars or they are intentionally ignored or disregarded categorically. More importantly, this unconsciousness or subconsciousness provides a handy excuse for failure to obtain linguistic ability.

In my own QMS study (Xu, 2007), five out of the 14 studies finally included were dissertations and theses, with an additional primary study based on a dissertation. The purchasing price from University Microfilms International (UMI) (now ProQuest) for each dissertation or thesis was about $40 for an unbound copy, with an average retrieval time of 2–3 weeks. The cost was paid for by a faculty research grant. I did not use any criteria to determine the quality of studies meeting the inclusion criteria. However, as a group, these unpublished studies were of high quality, provided rich and “thick” data for the QMS study, and validated the position of Beck (2002) and Paterson et al. (2001) on the value of dissertations and theses for a QMS project. Two of the 16 originally located studies could not be retrieved for inclusion in the final sample. One highly relevant study, a master’s thesis from the University of Birmingham in the United Kingdom, could not be borrowed or purchased through my home institution for non-cost reasons. The second was not included because the primary author refused to provide relevant information to separate data of Asian nurses from that of non-Asian nurses (see following sections). Based on the 14 studies in hand, it was determined
that the quality and quantity were sufficient for a QMS study.

**Issues and challenges with data analysis**

*Studies containing both quantitative and qualitative data*

By definition, QMS is an integration or synthesis of findings from qualitative studies. By logical extension, a QMS study may include study findings from the qualitative portion of a mixed method study. However, what if a study has primarily a quantitative design but includes a qualitative portion such as an open-ended question section at the end of a survey study? Can such a study still be included in the meta-synthesis study? This author’s answer is yes because a more accurate definition of QMS is the synthesis of qualitative findings. Additionally, such a position is of practical value, especially when the number of studies meeting the predetermined criteria is limited. However, this position is open to debate.

*Studies based on identical samples*

What if there are two qualitative studies that are based on the same sample? Should they be included as two separate studies? The answer from this author is yes only if the two studies report on separate sections or different aspects of study findings. The rationale is that the qualitative findings from the two studies are not redundant despite the fact that they are based on the same sample. Other scholars have also adopted such an approach in their meta-synthesis projects (Beck, 2002; Sandelowski & Barroso, 2007).

*Separating relevant data for analysis*

Not all data from qualitative studies meeting pre-set inclusion criteria are ready for analysis and interpretation in a QMS study. A more complex issue is the difficulty in “finding the findings of qualitative studies” (Sandelowski & Barroso, 2002). Therefore, extracting relevant data based on the purpose and objective of the study from retrieved studies becomes a critical aspect of conducting a QMS study. It is understandably frustrating to a meta-synthesist that specific relevant data cannot be separated for analysis due to lack of identifiers despite an overall determination of the relevance of selected studies. Apparently, identification of participants was at the center of this issue. Because of the need to protect the anonymity of participants, many qualitative studies report data in an aggregate format without specific participant identifiers. Such a need is legitimate, understandable, and is required by an institutional review board (IRB), especially when the study sample size is small. However, it appears that such measures could be over-done sometimes to the point of phobia.

*Validity of QMS findings*

Triangulation is one of the best strategies to ensure validity of study findings in general (Polit & Beck, 2004). Essentially, “Triangulation refers to the use of multiple referents to draw conclusions about what constitutes truth” (Polit & Beck, p. 431). This strategy also applies to QMS studies (Walsh & Downe, 2005). For example, independent coding and data analysis by multiple qualified researchers should be employed whenever possible. Inevitable discrepancies should be discussed and resolved through a consensus process rather than by a simple majority vote. Essentially, the meta-synthesist strives for reproducibility of findings that can be validated independently by any other qualified researcher. Such quality is an essential feature and indicator of rigor of science. The same principle should be followed in social science in spirit, if not exactly in procedure.

For my QMS study (Xu, 2007), I included Miraflor (1976), which was quantitative in design but had rich data from a section of open-ended questions at the end of a survey. In addition, the two studies by Alexis and Vydelingum (2004, 2005) based on the same sample of subjects were included because they reported different aspects of the findings. Similarly, Yi (1993) and Yi and Jezewski (2000) were also included because the latter was a journal article based on the former that was a doctoral dissertation and provided much more in-depth data.

On the other hand, I had to exclude one relevant Australian study. From the original author’s sample description, the primary study was based on five registered nurses including Asian nurses. Since there were a very limited number of studies on the chosen topic...
of interest, I very much wanted to include this report in the meta-synthesis study. Since there were no participant identifiers from the quoted raw data in the original study, I contacted the primary author to clarify: (a) how many of those five participants were Asian nurses; and (b) whether study findings were applicable to Asian nurse participant(s) if the answer to (a) could not be provided. On the grounds of protecting the human subjects, the primary author refused to disclose the requested information, despite repeated efforts to convince her that releasing this information to a fellow researcher presented no risk to the participants because this information would only remain within the research realm. In contrast, I was able to include two UK-based studies (Alexis & Vydelingum, 2004, 2005) after a confirmative reply from the primary author in a request for similar information.

I was unable to execute “investigator triangulation” (Polit & Beck, 2004) due to limited resources and a tight timeframe. Investigator triangulation “refers to the use of two or more researchers to analyze and interpret a data set” (Polit & Beck, p. 431). In retrospect, I believe that conducting investigator triangulation could have enhanced my QMS study (Xu, 2007). For my future research, I certainly plan to incorporate this important validity measure. Meanwhile, I strongly recommend that other researchers adopt this measure in their QMS projects whenever possible.

Table 1 summarizes the specific challenges encountered and the strategies used (or desired) in data collection and the analysis process during this author's QMS study (Xu, 2007).

**DISCUSSION**

QMS is a relative newcomer as a method of inquiry. Many scholars are still debating its procedures and the rigor of this burgeoning methodology (Polit & Beck, 2004). Yet, a growing consensus is that QMS is a valuable and rigorous method for synthesizing existing qualitative research findings to contribute to nursing as a discipline and profession in a number of ways. First, QMS can provide a means for theory development, especially the development of mid-range theories and theoretical frameworks (Paterson et al., 2001; Polit & Beck; Zimmer, 2006). In fact, three types of meta-synthesis (two of which are related to theory) have been identified: theory building, theory explication, and descriptive (Finfgeld, 2003). Second, meta-synthesis can identify gaps in the existing knowledge base and achieve insight at a higher level that cannot be obtained from single primary studies. Third, meta-synthesis can provide a scientific foundation for evidence-based nursing practice (Bondas & Hall, 2008; Estabrooks et al., 1994; Paterson et al., Sandelowski, 2006; Sandelowski & Barroso, 2007).

Based on the existing literature and the author's experiences of conducting a QMS study, as well as reflection on the experiences, several emerging issues need to be clarified and addressed in order to advance QMS as a valid method of inquiry.

**QMS vs. literature reviews**

To new scholars, QMS may not appear to be much different from a disciplined literature review such as a systematic or integrative literature review. While QMS shares some similarities with disciplined literature reviews, it is fundamentally different in that it requires the primary studies on which the QMS is based to “dialogue” and “interact” with each other (Zimmer, 2006) through the meta-synthesist’s creativity. Further, QMS emphasizes an interpretative approach (Paterson et al., 2001; Sandelowski & Barroso, 2007) rather than simple descriptions. Moreover, it rises above each of the individual studies to reach a higher level of understanding and insight: a new “grand narrative” (Sandelowski et al., 1997, p. 366). Thus, the outcome of the total is greater than the sum of the parts. This is qualitatively different from any type of traditional literature review that adopts a linear (additive or reductive) logic with little or no “interactions” among the reviewed primary studies.

**QMS and evidence-based nursing practice**

Meta-analysis has served as the cornerstone for aggregating findings of available quantitative studies to provide the scientific foundation for evidence-based practice. In fact, meta-analysis is the essential
method for all the systematic reviews collected in the Cochrane Library (Wiley InterScience, 2008). On the other hand, QMS is increasingly being recognized as another tool for such a scientific endeavor (Paterson et al., 2001; Sandelowski & Barroso, 2007) although its primary purpose is to achieve a grander narrative and deeper insight into the phenomenon under study. Similar to the relationship between QMS and

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| Limited number of qualified studies | • Evaluate quality of available studies.  
• Assess issue of quality vs. quantity in context: Is the topic under study a new area of investigation? What’s the estimated number of relevant primary studies out there?  
• Use quality rather than quantity to guide decision regarding adequacy of available studies if choice has to be made.  
• Consider a meta-synthesis study premature if there are fewer than 10–12 quality studies on an interesting phenomenon. |

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| Pay careful attention to setting inclusion criteria.  
• Be specific—set parameters for time cut-off, location, subjects, language of publication, nature of publication (published vs. unpublished), etc., and adjust as needed.  
• Use judgment regarding inclusion of studies based on different qualitative traditions or designs. If there are limited studies, include different designs; otherwise, limit to studies of same or similar designs. |

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| Conduct systematic and sufficiently exhaustive search of literature by using multiple databases and combination of electronic and hand searches.  
• Consult a professional librarian for best search terms and strategies.  
• Update literature search if possible before data analysis.  
• Use multiple means to obtain hard copies of qualified studies, taking into consideration cost and retrieval time. Contacting the original author(s) is frequently the quickest and most economic way. |

| **Data analysis** | |
| Studies containing both quantitative and qualitative data | |
| If the primary study is of mixed methods, extract the qualitative component for inclusion into your study.  
• If the primary study is quantitative in nature with some qualitative data collected from, for instance, open-ended questions, caution is called for. Consult an experienced qualitative researcher. |

| Studies based on identical samples | |
| Include both or all studies if each reports on different aspects or parts of the results. In sum, include each study if their findings are not repetitive. |

| Separating relevant data for analysis | |
| Contact original author(s) for assistance in separating data by the variables you are interested in. |

| Validity of findings | |
| Employ multiple measures such as triangulation to enhance the credibility of findings. |
traditional literature review, QMS and meta-analysis also share some similarities in that both are systematic, scholarly efforts to investigate a phenomenon of interest at an aggregate level: a “study of studies”, in other words. However, these are two distinctive methods; QMS is interpretive in nature rather than aggregative while meta-analysis is deductive and averaging, reducing findings to a quantitative common metric called effect size.

Data collection and analysis
Data collection and analysis is integral to a QMS study that involves a dynamic process that is ever evolving and changing. As indicated above, there are many methodological issues associated with data collection and analysis for QMS as a method of inquiry. Each decision by an investigator regarding these issues affects the quality of a QMS study and therefore should be made with due care and justification. To a large extent, these issues of data collection and analysis are inherently associated with some of the bigger methodological challenges linked with meta-synthesis still under debate (Polit & Beck, 2004; Zimmer, 2006). For instance, is it appropriate to put studies of various qualitative research traditions or designs into one QMS study for analysis (Finfgeld, 2003; Finlayson & Dixon, 2008; Paterson et al., 2001; Polit & Beck; Sandelowski & Barroso, 2007; Walsh & Downe, 2005)? What is the generability of qualitative studies in general and QMS in particular (Sandelowski, 2006; Sandelowski & Barroso, 2007; Sandelowski et al., 1997)? Can qualitative studies be synthesized because the hallmark of such inquiries is variability, not standardization (Sandelowski & Barroso, 2007)? What is the definition of quality and how do we evaluate qualitative studies? In fact, debates are still ongoing regarding the criteria on quality for qualitative studies (Finfgeld; Finlayson & Dixon; Paterson et al.; Polit & Beck; Rolfe, 2006; Sandelowski et al.). Sandelowski and Barroso (2003) believe that, before achieving a consensus on the definition of quality and its criteria for qualitative studies, “excluding reports on the basis of ill-conceived and debatable notions of quality is to introduce the single most important source of bias into systematic reviews or integrations of qualitative research findings” (p. 155). Consequently, Sandelowski et al. explicitly cautioned scholars not to exclude studies from a meta-synthesis study “for reasons of quality” (p. 368); instead, they argued that quality should be used as a criterion to compare design features across individual studies.

Disaggregating data
Obtaining or extracting needed data from exciting primary studies is the prerequisite for data analysis in a QMS study that examines issues of age, gender, race, ethnicity, national origin, or other demographic variables. However, many published studies have no identifiers for the raw data in primary studies, making the determination of their relevance and appropriateness for inclusion difficult or impossible. It is argued that an appropriate balance needs to be struck between the need for human subject protection and the need for research. Within the legal and ethical boundary of protecting human subjects, it does not facilitate research to dogmatically cite the IRB rule as a shield against requests for data disaggregation. Moreover, each request should be treated on its individual basis, balancing benefits and risks. Under the current ethical tenets and policies at national and institutional levels, protection of human subjects must be ensured. The question is, “Can relevant demographic information of subjects be released if such information will stay within the research realm with no or minimal risk to subjects in the primary studies?”

Competing QMS approaches
There are multiple QMS approaches (Kearney, 1998; Noblit & Hare, 1988; Paterson et al., 2001; Sandelowski & Barroso, 2007). While all of these approaches share the basic principles of qualitative research, each has somewhat different procedures of data collection and analysis derived from different disciplines, as well as different qualitative research traditions (Thorne et al., 2004). Researchers should realize these differences and their causes, and choose the meta-method that is most suitable to the purpose and objective of their QMS studies. It is also helpful to manuscript reviewers, editors, and readers.
to explicitly identify what approach to data collection and analysis is used in one’s QMS studies.

CONCLUSIONS

The following conclusions have emerged based on the author’s experiences with a QMS study (Xu, 2007). First, the quality of available primary studies is more important for a QMS study although their quantity cannot be ignored. In fact, both are important issues that must be put into context and dealt with in perspective. Similar views are shared by Finfgeld (2003). Second, creativity and flexibility consistent with the principles and spirit of qualitative inquiry in general and QMS in particular is required to resolve the challenges associated with data collection and analysis of a QMS study because unexpected issues are bound to arise. Third, working within multiple constraints, the meta-synthesist frequently has to settle for less than ideal solutions during the research process in the real world. In other words, adequacy rather than perfection should be the guiding principle.

QMS is still in its infancy and is continuing to evolve. The formalized procedures of QMS are being developed through research by such scholars as Sandelowski, Thorne, and others. However, such scholarly endeavors are not without controversy, even in the community of qualitative scholars and researchers. For example, one prominent qualitative expert even questions the necessity and possibility of integrating findings of qualitative studies of different research designs/traditions (J. Morse, personal communication, April 18, 2008) because qualitative studies are characterized by variability and idiosyncrasies that inherently resist synthesis and synthesis is even paradoxical to the basic assumptions of qualitative studies.

As scientific literature grows at an accelerating pace accompanied by increasing accountability from various stakeholders, the urge and pressure to synthesize in the age of evidence-based nursing is mounting. In fact, meticulous, rigorous, empirical integration of evidence is paramount to improved clinical practice (Whittermore, 2005). QMS as a method of inquiry has been accepted as legitimate and rigorous, not just a trivial scientific exercise for the “faint-hearted” (Paterson et al., 2001, p. ix). Yet, QMS is still evolving and on its way to maturation. It is predicted that, with the maturation of this method of inquiry, more researchers will adopt it to advance knowledge in nursing and beyond that it will impact both knowledge development and clinical practice.

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