ABSTRACT

As faculty members, we frequently find that first-year doctoral students in nursing are confused about how to conduct a systematic integrated literature review. This could be due to its vague definition and a lack of recent literature that provides directions for conducting a systematic integrated literature review. This article aims to provide directions for conducting a systematic integrated literature review by identifying the essential components of published literature reviews in nursing. To achieve this goal, the literature was searched by using the keywords nursing, systematic, and review in multiple databases. A total of 267 articles were selected and are included in this systematic integrated literature review. The articles were then sorted by study design and analyzed in six areas of interests. Finally, a practical guideline for conducting systematic integrated literature reviews is proposed based on the analysis of the literature.

The current curricula of doctoral programs in nursing include classes on research design and critiques and systematic integrated literature reviews. For example, the University of Texas at Austin offers a doctoral core course entitled Critical Review of the Literature. Integration and synthesis of the current literature on a specific research topic is essential for the development of a doctoral dissertation, which is a required skill set for a doctorally prepared nurse.

As faculty members, we frequently find that doctoral students in nursing are confused about performing systematic integrated literature reviews in their first year of study. The reasons could be due to vague definitions of a systematic integrated literature review and a lack of recent literature that provides guidelines for performing systematic integrated literature reviews. Indeed, literature reviews are labeled with various terms, including comprehensive systematic review (Koh, Hegney, & Drury, 2011), critical review (Bonmeterre, Liaudy, Chatellier, Lang, & de Gaudemaris, 2008), integrative literature review (Desborough, Forrest, & Parker, 2011), integrative systematic review (Ingram, Cournaya, & Kingston, 2006), literature review (Taylor, 2004), mixed-method systematic literature review (Wulff, Cummings, March, & Yurtseven, 2011), qualitative (or quantitative) systematic review (Ling, Lui, & So, 2011), systematic literature review (Bae, 2011), systematic mapping review (Brett, Staniszewska, Newburn, Jones, & Taylor, 2011), systematic review (Roe et al., 2011), and systematic scoping review (Griffiths, Richardson, & Blackwell, 2011). These terms are used exchangeably, although they could be inherently different from each other and provide different information. Also, various approaches to literature reviews are rarely differentiated in the literature. In addition, when the literature was searched using the keyword literature review, few articles providing guidelines or directions for performing systematic integrated literature reviews could be retrieved. Most articles were literature reviews by doctoral students or junior faculty members beginning to develop their programs of research. Thus, existing research textbooks are currently the only sources for guidelines for conducting systematic integrated literature reviews, and few guidelines exist that reflect the current status quo of systematic integrated literature reviews in nursing. Nursing faculty mem-
bers often assume that all doctoral students know what a systematic integrated literature review is and what students need to do to conduct such a review.

Through this systematic integrated literature review article, we aim to provide directions for conducting systematic integrated literature reviews by identifying the essential components of the literature reviews that were published in nursing. This review is based on the assumption that the published literature reviews are of high quality because they went through a rigorous peer review process. In this article, we first define systematic integrated literature review. Second, the method used to analyze the existing systematic integrated literature review articles is presented. Third, the findings from the review are presented. Finally, the directions for future systematic integrated literature reviews are proposed, based on the findings.

**WHAT IS A SYSTEMATIC INTEGRATED LITERATURE REVIEW?**

Systematic integrated literature reviews have been considered invaluable scientific activities (Mulrow, 1994). Researchers have conducted systematic integrated literature reviews to effectively retrieve and integrate existing information and provide directions for their research. Systematic integrated literature reviews have been used by researchers to (a) set, rationalize, and revise hypotheses, (b) understand and minimize pitfalls of previous work, (c) obtain an estimated sample size, and (d) identify important confounding effects and covariates that need to be considered in future studies (Mulrow, 1994). Health care providers also conduct systematic integrated literature reviews to keep informed with the primary literature in a specific health care field (Mulrow, 1994).

Despite the importance of systematic integrated literature reviews, few explicit definitions exist on systematic integrated literature reviews in the literature. Fink (2010) defined a research literature review as “a systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners” (p. 3). White and Schmidt (2005) characterized a systematic review as a review that “retrieves, appraises, and summarizes all the available evidence on a specific (health) question and then attempts to reconcile and interpret it” (p. 54). Rousseau, Manning, and Denyer (2008) claimed that literature reviews should be “comprehensive accumulation,” “transparent analysis,” and “reflective interpretation” of all empirical studies pertinent to a specific question (pp. 3, 7, 9, respectively). In this article, we define systematic integrated literature review based on the above definitions by multiple authors that reflect the major characteristics of a systematic integrated literature review (Fink, 2010; Mulrow, 1994; Rousseau et al., 2008; White & Schmidt, 2005). Thus, we define systematic integrated literature review as literature reviews that are (a) systematic in the methods used to retrieve, sort, and analyze the literature (Fink, 2010), (b) explicit in the step-by-step descriptions of the procedures (Fink, 2010; Rousseau et al., 2008), (c) comprehensive in covering all available sources of the literature (Fink, 2010; White & Schmidt, 2005), and (d) reproducible by peers to duplicate the procedures and methods in the review (Fink, 2010; Rousseau et al., 2008).

**METHOD**

For a systematic search of the articles that were published during 2000 to 2011, multiple electronic databases, including PubMed®, CINAHL®, and PsycINFO®, were used. The search was conducted using three keywords—nursing, systematic, and review. These keywords were chosen because we aimed to identify essential components of currently existing systematic integrated literature reviews in nursing. When integrated or integration was added to the keywords, the retrieval of the articles was limited, and all of the retrieved articles from this search were overlapped with those retrieved using the three keywords above. A total of 1,474 articles that were written in English and contained the keywords in the text or abstracts were retrieved through the database searches. Then, abstracts of the retrieved articles were reviewed to determine whether they met the inclusion criteria of this review. The inclusion criteria were the systematic integrated literature reviews that (a) used and described systematic search methods, (b) were relevant to nursing practice or discipline, and (c) were written by a person who was affiliated with a nursing school or organization. Through this process, 349 articles were selected based on the abstracts. Then, the full text of all 349 articles was reviewed to determine whether the articles met the inclusion criteria. Finally, a total of 267 articles were selected and included in this systematic integrated literature review. The retrieval and screening process is summarized in Figure 1.

The retrieved articles were first sorted by the study design (e.g., intervention study, descriptive study, qualitative study, instrumentation study, and mixed-method study) because the criteria to evaluate research studies mainly depend on study designs (Polit & Beck, 2008). For instance, we cannot evaluate qualitative studies using the evaluation criteria for quantitative studies. Then, to provide a guideline for a systematic integrated literature review, the articles were analyzed in six components of interests: (a) databases used to retrieve the articles, (b) theoretical perspectives or frameworks used to conduct the systematic integrated literature reviews, (c) quality appraisal or assessment tools, (d) integrative tables and their contents, (e) methods used to sort or categorize the articles, and (f) methods used to synthesize the findings. During the analysis process, we extracted six themes: (a) multiple sources for article retrieval, (b) specific theoretical perspectives or frameworks to review the articles, (c) quality appraisal or assessment tools depending on study designs, (d) various integrative tables to summarize the articles reviewed, (e) different categories of criteria to review individual articles, and (f) various methods of synthesizing the findings. Table A (Available as supplemental material in the online version of this article) includes a sample of 10 articles that we reviewed.

**FINDINGS**

**Multiple Sources for Article Retrieval**

Multiple databases were used in all of the systematic integrated literature review articles to retrieve a wide range
of articles and studies on a specific topic. Those authors used CINAHL in 96% of the reviewed articles; PubMed (MEDLINE®) in 86%; the Cochrane Library (the Database of Abstracts of Reviews of Effects [DARE]), the Cochrane Central Register of Controlled Trials (CENTRAL), the Cochrane Methodology Register (CMR), and the Health Technology Assessment (HTA) Database in 52%; PsycINFO in 44%; and the EMBASE® in 33%. Other databases used in the articles reviewed included the British Nursing Index, the Education Resources Information Center (ERIC™), ISI Web of Science®, Google™, ProQuest®, and Scopus®. Also, in 7% of the articles, the author(s) used the ProQuest Dissertation and Theses Database and Dissertation Abstract International. The reference lists were searched in 117 (44%) of the retrieved articles. Some authors indicated that their reviews included relevant journals (16%), relevant organization Web sites (11%), and conference proceedings (3%), in addition to the articles retrieved through multiple databases.

The article retrieval process used in the articles reviewed could be categorized into three steps, as demonstrated in several other published literature reviews (Chan, Lui, & So, 2010; Koh et al., 2011; Papastavrou, Efstathiou, & Charalambous, 2011): (a) limited searches, (b) extensive searches, and (c) searches through informal resources (gray literature). Limited searches were conducted by using only one or two databases (mainly MEDLINE and CINAHL) and analyzing the text words contained in the titles and abstracts of the articles and the index terms used to describe the article. Then, extensive searches were conducted using identified keywords in multiple databases. Finally, informal searches of the gray literature were conducted by reviewing the reference lists of other relevant articles and bibliographies of the papers identified through the databases.

Specific Theoretical Perspectives and Frameworks

The use of a theoretical perspective and framework was not typical in the articles reviewed; however, a specific theoretical perspective or framework was used in 9% of the articles reviewed. For example, the symptom management model was used in one systematic integrated literature review on symptom experience of family caregivers of patients with cancer (Swore Fletcher, Dodd, Schumacher, & Miaskowski, 2008). Endacott, Eliott, and Chaboyer (2009) conducted their systematic integrated literature review on intensive care liaison and outreach services using the nursing role effectiveness model. Through their literature review, Im and Chee (2008) used a feminist perspective to identify the reasons for the rare use of Internet cancer support groups by ethnic minority cancer patients. Other theoretical perspectives and frameworks used in the systematic integrated literature reviews included Roy’s adaptation theory (Simms & Ennen, 2011) and Piper’s conceptual model (Oh & Seo, 2011). Also, these theoretical perspectives and frameworks were sometimes part of the purpose of the reviews (e.g., to analyze the literature from a specific theoretical perspective; Im & Chee, 2008; Swore Fletcher et al., 2008).

The focus of the reviews could be different depending on the theoretical perspective or framework used. For example, a reviewer using a feminist perspective may want to determine how researchers established trust with research participants and how they shortened the distance between the researchers and research participants. On the other hand, a post-empiricism reviewer may want to determine how the objective stance of researchers was observed in the studies reviewed. Furthermore, the use of a theoretical perspective or framework in guiding the literature reviews could be beneficial for the reviewers to achieve their purpose more effectively and systematically, compared with not using a theoretical perspective or framework. Because the directions for the review (e.g., what must be considered in the reviews of research questions, methods, and findings) could be specifically provided by a theoretical perspective or framework, the review could approach the literature more efficiently and systematically.

Quality Appraisal or Assessment Tools

A quality appraisal or assessment tool was used to verify the quality of each retrieved article in approximately 67% of the articles reviewed. The quality appraisal or assessment tools used were dependent on study design.

In the systematic integrated literature reviews on intervention studies, the Jadad scoring system (Allen & Dennison,
Determine the Review Purpose and Questions

Before starting a systematic integrated literature review, a reviewer must be clear on the review purpose(s) that he or she wants to investigate and the questions that he or she wants to answer. Depending on the review purpose(s) and the associated review questions, the focus of the systematic integrated literature review could be determined. For example, Choi and Hec-
Select Sources for Literature Retrieval

After determining the review purpose(s) and the question(s) to be answered through a systematic integrated literature review, a reviewer needs to select specific databases to retrieve the current literature related to the specific purpose(s) and question(s). The databases used in the systematic integrated literature review may differ, depending on the reviewer’s purpose(s) and question(s). For example, reviewers interested in the psychological aspects of a specific research phenomenon may want to include the PsycINFO database in addition to the PubMed database, as shown by Koh et al. (2011) and Ling et al. (2011). If reviewers are interested in existing evidence for a specific research phenomenon, they may want to include the Cochrane Library database (Phillips & Nay, 2008). Finally, reviewers must determine the correct time period of the review for their purpose(s) or question(s).

Choose a Theoretical Perspective and Framework

Although not a typical practice, reviewers may want to adopt a specific theoretical perspective and framework for their systematic integrated literature reviews before beginning to review articles. The specific theoretical perspective or framework that reviewers choose depends on the purpose of their systematic integrated literature review and will guide the analysis of individual articles.

Choose a Quality Appraisal or Assessment Tool

To ensure high quality of the reviewed articles, reviewers may choose a quality appraisal or assessment tool. However, the quality appraisal or assessment tool(s) chosen would differ depending on the study design. For example, for intervention studies, reviewers could use the Jadad scoring system, the Joanna Briggs Institute appraisal tool, and the Cochrane handbook, as reported by Allen and Dennison (2010), Jefferies et al. (2011), and Durbin et al. (2010). For descriptive studies, reviewers may use the Quality Assessment and Validity tool for correlations studies and the Newcastle-Ottawa Scale cohort study form, as discussed in the reviews by Bae (2011) and Liao et al. (2011).

Determine Evaluation Criteria to Analyze Individual Studies

Reviewers must be careful when choosing a specific set of criteria to be used in the analysis of individual studies. As the findings of this systematic integrated literature review indicate, the criteria used in analyzing individual studies must be consistent with the purpose and questions the reviewer wants answered and the theoretical perspective and framework the reviewer is planning to use.

Format Integrative Tables

The selected evaluation criteria needs to be incorporated into the integrative table(s) that will be used to analyze and summarize the articles to be reviewed. Thus, at the beginning stage of the systematic integrated literature review, reviewers must decide on the format, content, and categories of the tables that will be used to analyze the individual studies and integrate the findings of the analysis. For example, if reviewers are interested in reviewing theoretical works that use a specific theory, they would use a different set of contents in the integrative table that focuses on the sources of theorizing, the theory development method, and the major concepts (Im & Chang, 2012). Also, if reviewers are interested in reviewing intervention studies, they would use a set of contents in the integrative table that considers specific aspects of the interventions tested and the fidelity and adherence issues in each intervention study (Yuan et al., 2012). In addition, if reviewers choose to use a feminist perspective to analyze individual studies, they may adopt a specific point of analysis in each step of the research process, as demonstrated by Im and Chee (2008).
Figure 2. Guideline for conducting systematic integrated literature reviews, which was developed during the current systematic integrated literature review. Note. JBI = Joanna Briggs Institute.
In the analysis of authors of the articles, a feminist reviewer may want to determine the gender of the researchers and the nature of the research teams (e.g., nursing team or interdisciplinary team). Also, in the analysis of research questions, a feminist reviewer may want to ascertain whether the research questions are based on the participants’ own problems, issues, and questions or whether the research questions are those in which the researchers themselves are interested. In addition, a feminist reviewer may want to determine whether the research questions are related to disclosing oppressive experience of a specific group.

Integrate and Synthesize the Findings of the Review

In the synthesis of the findings of a systematic integrated literature review, reviewers must be cautious in incorporating the findings from different studies and extracting the themes from the systematic integrated literature review. In empirical studies, reviewers may want to use a specific quantitative method or a specific qualitative method. For example, as in the review by Soh, Davidson, Leslie, and Bin Abdul Rahman (2011), descriptive statistics, such as frequencies and percentages of specific study locations, specific types of action research, and specific research methods could be used to integrate the findings of the analysis. Also, as in the reviews by Lupari et al. (2011) and Jokelaïnen et al. (2011), qualitative methods, such as narrative analysis and content analysis, could be used to integrate the findings of the analysis.

CONCLUSIONS

In this article, we have identified essential components of systematic integrated literature reviews published in nursing and have provided directions for performing future systematic integrated literature reviews. Six themes representing the essential components were identified, and a practical guideline for systematic integrated literature reviews was proposed. This guideline will help novice researchers understand the basic steps of conducting systematic integrated literature reviews and guide these reviews. However, the articles that we reviewed were limited to those that were retrieved using specific keywords and to those in English that were published during the past 10 years. Furthermore, as mentioned previously, our review was based on the assumption that the reviews published in referred journals are of high quality.

REFERENCES


Bae, S.H. (2011). Assessing the relationships between nurse work-


<table>
<thead>
<tr>
<th>Author(s) and Study Designs of the Articles Reviewed</th>
<th>Purpose</th>
<th>Databases Used to Retrieve the Articles (alphabetical order)</th>
<th>Theoretical Perspective(s) or Framework(s)</th>
<th>Quality Appraisal or Assessment Tool(s)</th>
<th>Categories in Integrative tables</th>
<th>Methods Used to Sort or Categorize the Articles</th>
<th>Methods Used to Synthesize the Findings</th>
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<tbody>
<tr>
<td>Ling, Lui, &amp; So (2011) Intervention study</td>
<td>To identify the effect of patient education on pain characteristics</td>
<td>• CINAHL® • DARE • EMBASE™ • MEDLINE® • PsycINFO® • PubMed®</td>
<td>Not stated</td>
<td>Jadad scoring system</td>
<td>• Reference • Methods • Samples • Setting • Design • Intervention • Outcome • Results</td>
<td>• Methodological quality • Types of intervention • Outcome measures • Effectiveness</td>
<td>Not stated</td>
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<td>Bae (2011) Descriptive study</td>
<td>To identify the association between nurses’ working conditions and patient outcomes</td>
<td>• CINAHL • ISI Web of Science® • JSTOR® • OVID® • PubMed • PsycINFO</td>
<td>Not stated</td>
<td>The Quality Assessment and Validity Tool for Correlation Studies</td>
<td>• Reference • Sample–setting • Framework • Design • Instrument • Measures • Analysis • Significant associations</td>
<td>• Working conditions • Types of working conditions related to patient outcomes</td>
<td>Not stated</td>
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</tbody>
</table>
| Bonneterre, Liaudy, Chatellier, Lang, & de Gaudemaris (2008) Instrumentation study | To review the psychometric properties of instruments that measure psychosocial and organizational work factors | • CISDOC/ CISILO  
• Cochrane Library  
• MEDLINE  
• NIOSHTIC-2 | Not stated | Validity assessment  
• Instrument  
• Reference  
• Number of items  
• Samples  
• Construct validity  
• Internal consistency  
• Reproducibility | Not stated | • Reliability and validity  
• Each instrument | Not stated |
| Candy, Holman, Leurent, Davis, & Jones (2011) Mixed-method study | To evaluate the effectiveness of hospice care in different settings and to explore users’ and providers’ experiences | • CINAHL  
• Cochrane Library  
• EMBASE  
• MEDLINE | Not stated | Quantitative  
The Cochrane Collaboration Effective Practice and Organisation of Care Group criteria  
Qualitative  
The Critical Appraisal Skills Programme tool | Quantitative  
• Reference–design  
• Topic–samples  
• Intervention  
• Main findings  
Qualitative  
• Reference  
• Topic–samples  
• Type: hospice care  
• Results | • Type of studies and services  
• Methodological quality  
• Synthesized key findings | Not stated |
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<th>Categories in Integrative tables</th>
<th>Methods Used to Sort or Categorize the Articles</th>
<th>Methods Used to Synthesize the Findings</th>
</tr>
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</table>
| Crowe et al. (2008) Intervention study            | To identify the effectiveness of postoperative pain relief and reduction nursing intervention | • AMED  
• CINAHL  
• Cochrane Library  
• EMBASE  
• Ingenta™  
• MEDLINE  
• PsycINFO  
• PubMed  
• ISI Web of Science® | Not stated | Using the Joanna Briggs Institute (JBI) appraisal tool | • Reference  
• Methods  
• Samples  
• Interventions  
• Outcomes  
• Notes  
• Allocation concealment | • Methodological quality  
• Types of interventions and their outcomes | Homogeneous randomized clinical trials: Meta-analysis  
Quasi-randomized controlled study or quasi-experimental designs: Narrative form |
| Dwyer (2011) Qualitative study                    | To explore the experiences of registered nurses as managers and leaders in residential care facilities | • DAI/ADT  
• CINAHL  
• Google™ Scholar  
• JBI Library  
• Mednar  
• MEDLINE  
• ScienceDirect®  
• Scopus®  
• PsycINFO | Not stated | The Joanna Briggs Institute Qualitative Assessment and Review Instrument (JBI-QARI) | • Reference  
• Design  
• Findings | • Qualitative evidence  
• Key findings | Meta-synthesis or narrative form |
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<th>Categories in Integrative tables</th>
<th>Methods Used to Sort or Categorize the Articles</th>
<th>Methods Used to Synthesize the Findings</th>
</tr>
</thead>
</table>
| Liao, Huang, Huang, & Hwang (2011) Descriptive study | To explore sleep patterns after heart surgery and other influencing factors | • Chinese Electronic Periodical Services  
• CINAHL  
• Current Contents Connect®  
• MEDLINE  
• PubMed | Not stated | The Newcastle-Ottawa Scale (NOS) cohort study form | Table 1  
• Reference  
• Samples  
• Study period  
• Setting–design  
• Quality score  
• Measures  
Table 2  
• Results | • Sleep patterns  
• Other factors influencing sleep disturbance | Homogeneity studies: Calculating average |
| Palacios-Cena et al. (2011) Qualitative study | To explore the experiences of patients with the implantable cardioverter defibrillator and their significant others | • CINAHL  
• ISI Web of Knowledge  
• MEDLINE  
• PubMed | Not stated | Using the Critical Appraisal Skills Programme tool and Dixon-Woods et al. (2004) criteria | • Reference  
• Design  
• Samples  
• Data collection  
• Analysis  
• Key findings | • Synthesized themes | Thematic analysis |
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<th>Categories in Integrative tables</th>
<th>Methods Used to Sort or Categorize the Articles</th>
<th>Methods Used to Synthesize the Findings</th>
</tr>
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</table>
| Roe, et al. (2011)  
Mixed-method study | To explore factors associated with managing urinary incontinence of older adults in care homes | CINAHL  
Cochrane Library  
MEDLINE | Not stated | Quantitative  
18-item checklist  
Qualitative  
15-item checklist | Reference  
Setting  
Purpose  
Sample  
Methods  
Main findings  
Conclusion  
Quality rating | Focus of studies (focus on management approaches, patient experiences, management preferences and policies) | Narrative synthesis |
| Yu & Kirk (2009)  
Instrumentation study | To evaluate empathy measurement tools | CINAHL  
MEDLINE  
PsycINFO | Not stated | An appraisal tool developed for this review | Table 1  
Table 2 | Each instrument  
Quality assessment | Not stated |
Note. DARE = the Cochrane Library Database of Abstracts of Reviews of Effects; CISDOC/CISILO = databases of the International Occupational Safety and Health Information Centre; NIOSHTIC-2 = databases of the National Institute for Occupational Safety and Health Publication; AMED = Allied and Complementary Medicine Database; DAI = Dissertation Abstracts International; ADT = Australasian Digital Theses Program.