

Reviewing the Literature: Essential First Step in Research, Quality Improvement, and Implementation of Evidence-Based Practice



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This article provides nursing professional development specialists with a concise resource on conducting literature reviews: the essential first step of a research project, quality improvement initiative, or the implementation of evidence-based practice. The literature review cannot be overlooked because it sets the foundation for an investigative project's ethical implementation and subsequent success. Conducting a literature review may seem overwhelming for the novice, but these fears can be overcome with knowledge and practical assistance.

Professional clinical nurses are challenged to continually expand their knowledge and devise creative approaches to solving problems that result in better care for their patients (LoBiondo-Wood & Haber, 2013). Frequently, this challenge requires that nurses not only keep current with important clinical skills and practice information, but also take part in investigative projects that contribute to the science of nursing and state-of-the-art clinical practice. In many organizations, it is the responsibility of the nursing professional development (NPD) specialist to encourage and educate the clinical nurse in investigative pursuits. Moreover, because investigative work always begins by looking at past scientific contributions, successes, and challenges to the clinical subject at hand, the NPD specialist must know how to help nurses begin their investigative projects with a thorough review of the literature. The literature review is defined as "...reading, analyzing, and writing a synthesis of scholarly materials about a specific topic" (Garrard, 2013, p. 4). For many nurses, this

process may sound daunting, a relic of academia important to scholars but not part of the everyday patient-care work world. However, the scope and practice of nursing relies on continually evolving scientific knowledge reported in the literature that informs the critical-thinking, decision-making processes that the clinical nurse takes part in every day (American Nurses Association, 2010). Therefore, it is essential for NPD specialists to have a working knowledge of the importance of literature reviews, and how to conduct them so that they can properly educate and guide nurses through the required steps.

INVESTIGATIVE PROJECTS

Often, nurses who are extremely proficient clinically become interested in taking on an investigative project, but may shy away from a knowledge-advancing venture because of uncertainty about how to conduct a literature review. Some nurses, being aware that the literature review is essential to a research project, choose to do a quality improvement project or implement an evidence-based initiative, falsely believing that an extensive review of the literature is not necessary for these. However, all three types of investigations, research, quality improvement, and evidence-based practice implementation, require a comprehensive review of the scientific literature to determine the state of the science around the topic at hand, and to ethically implement the initiatives (Busher & James, 2012). Understanding the differences between the three types of investigative projects will inform and guide the nurse investigator in conducting the literature review.

Research

Research uses the steps of the scientific method to conduct a systematic, rigorous, investigation to answer questions and contribute to the knowledge of the science that will be useful for practice (LoBiondo-Wood & Haber, 2013). Embarking on a research project is the most commonly understood reason for conducting a literature review. The bedside clinical nurse is at the heart of understanding the

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need for discovering answers to important patient-care questions and should be encouraged by the professional development team to pursue research projects of interest. A synthesis of current, relevant published literature provides the most current published information necessary so that the investigators' time, money, and often, enthusiasm are not wasted on answers to questions that have already been recently discovered.

For example, a nurse at a large academic medical center was interested in investigating a new intervention on her unit to prevent falls, and discovered through the literature review that a similar intervention had already been tried but not in her population of interest. Therefore, there was a gap in the scientific knowledge base regarding a specific population, and the literature review made it clear to stakeholders that her research project needed to go forward.

Quality Improvement

Quality improvement is defined as data-guided activities intended to bring about quick improvement to a clinical problem in a particular setting (Lynn et al., 2007). A nurse may propose that a better practice idea based on expertise and insight found in other settings should be implemented with outcomes being measured for effectiveness in a certain patient population, thus creating a quality improvement project (Lynn et al., 2007). Unlike a research project, a review of current literature on the proposed new practice may not always be considered necessary by the nurse investigator, because it may be assumed that, if a practice is being done elsewhere, then it must be scientifically sound; however, this is not always the case. In fact, it may be a breach of ethics to embark on a quality improvement project without a thorough review of the literature. Danger exists that a practice, although in vogue elsewhere, may or may not have any evidential base and may cause harm. Even if a similar project at another institution or in another practice setting is known to be deemed successful but was not yet published, which is often the case with quality improvement initiatives, caution should be taken if current, good quality, peer-reviewed literature could not be found to support the practice. For example, a nurse may seek to begin a quality improvement project regarding a new practice to decrease medication errors by providing undisturbed time for nurses when retrieving medications; however, it may be that medication errors in past studies increased for other reasons and the nurse did not know this potential hazard because no thorough investigation of the current literature was done. A review of the literature would show if a quality improvement project idea is potentially better than current practice or if any risks to the practice have recently been identified (Lynn et al., 2007). Once the review is completed, the quality improvement initiative can begin using a structured approach with the assurance that current evidence for the new practice has been reviewed, and risks have been

determined to be no greater than usual care for patients at the institution. If greater than usual risks were identified, the project should be proposed as a research study.

Evidence-Based Practice

Evidence-based practice is the integration of the results of collecting and evaluating research evidence, and combining it with clinical expertise and patient and family preferences to make practice decisions and recommendations for future research (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). In recent years, the call to practice according to the best scientific evidence is gaining momentum (Melnyk & Fineout-Overholt, 2014; Sackett et al., 2000). It is critically important for the nurse to understand the evidence in evidence-based practice. There should be a pause before implementation of what appears to be evidence-based practice until a thorough review and critique of the literature can be done (LoBiondo-Wood & Haber, 2013). The NPD specialist can assist the nurse in looking at the literature for current evidence for practice. If the evidence cited for change is not of high quality or has not been conducted at a sufficient level, implementing new practice and protocols may be ineffective, costly, or even dangerous. Sometimes, a thorough review of the literature will indicate that there is simply no high-level, quality research sufficient enough to justify a change in practice. Sometimes, the opposite will be found because of a comprehensive, critical review of the literature, and better practice protocols will ensue. Other times, the literature review will reveal that high-quality evidence for practice change exists, but in a population or setting different from the one in which the nurse is seeking to implement the new protocol. In this case, a translation may or may not be easily made, depending on how much the population and setting differs, and instead of implementing new practice, a new research study may be in order.

WORKING THROUGH A REVIEW OF THE LITERATURE

All literature reviews consist of a collection and synthesis of what has been published on the key concepts of interest in a specific population (Garrard, 2013). This article is intended to provide an overview and a quick, concise resource regarding the basic components of literature reviews. Many books have been written as a more complete reference for the NPD specialist to use in making the detailed process of the literature review easier to understand; a partial list of them can be found in Table 1.

Organize Key Ideas

The first step in a literature review is to clearly define the research questions, hypotheses, quality improvement procedures, or a description of the proposed evidence-based practice along with the specific population of interest for

TABLE 1 Partial List of Recently Published Books Helpful for Conducting Literature Reviews

Author(s), Year	Book Title	Publisher
Aveyard, 2010	<i>Doing a literature review in health and social care: A practical guide</i>	McGraw-Hill International
Fink, 2014	<i>Conducting research literature reviews: From the Internet to paper</i>	Sage Publications
Garrard, 2013	<i>Health sciences literature review made easy</i>	Jones & Bartlett Publishers
LoBiondo-Wood & Haber, 2013	<i>Nursing research: Methods and critical appraisal for evidence-based practice</i>	Elsevier Health Sciences
Machi & McEvoy, 2012	<i>The literature review: Six steps to success</i>	Sage Publications
Polit & Beck, 2013	<i>Essentials of nursing research</i>	Lippincott Williams & Wilkins

the project. PICOT, a commonly used acronym for writing research questions, is useful for organizing all types of projects when putting together a plan to search the literature. PICOT stands for Population, Intervention (Or Issue), Correlation (or Comparison), Outcome, and Time it takes to achieve outcomes (Fineout-Overholt & Stillwell, 2014). For any project, “P” must be identified as the specific population of concern. “I” stands for the intervention or issue being investigated. If no intervention is proposed and the study seeks to determine a relationship between existing phenomena, the “I” refers to the issues at hand. The correlation (or comparison) being made is the “C” and represents what the investigator is looking for such as the difference between those receiving the intervention and the control group or a correlation (relationship) between phenomena. Measuring the outcomes is the “O” and represents the methods used to measure the outcomes of interest. The time frame involved in the investigative project is represented by the “T.” Not every investigative question has a comparison or time frame component (such as with descriptive studies), but all scientific inquiries have a population (P), issues that are inquired about (I), and outcomes (O; Fineout-Overholt & Stillwell, 2014). Table 2 gives an example of how a list of key words may be organized for a proposed project looking

at the relationships among music, pain, and anxiety. Each block in the table must not be filled in; the number of words in each category will depend on the project. This list of words is helpful in beginning the search of literature.

Begin the Search

The literature search begins by putting the key words from the PICOT list together in different combinations (not all words go into a search at the same time) and then using them to explore several commonly used online search engines such as www.pubmed.gov, www.scholar.google.com, www.google.com, www.search.proquest.com/index, and Cumulative Index to Nursing and Allied Health Literature through EBSCO publishing at www.ebscohost.com/academic/cinahl-plus-with-full-text. There are different techniques for using key words for online literature searches. One technique is called Boolean and is the method of using “and,” “or,” and “not” between key words to make a search more narrow or broad (Jaffe & Cowell, 2014). Another technique is known as Medical Subject Headings, which is used when searching professional databases (such as www.pubmed.gov). Because Medical Subject Headings has categorized every standardized heading within its database, it may result in more articles that match the topic (Jaffe & Cowell, 2014).

TABLE 2 PICOT Framework for Key Words and Search Terms for Literature Review: Example of a Proposed Project Investigating the Relationships Among Music, Pain, and Anxiety

P = Population	I = Intervention or Issue	C = Comparison	O = Outcome	T = Time
Adult	Instrumental music	Difference in music choice	Pain score	Postoperative
Hospitalized	Pain	Relationship between length of time music is played and outcomes	Anxiety level	Immediate effect
Abdominal surgery	Anxiety	Relationships among music style, anxiety, and pain	Hospital length of stay	Cumulative effect

For the most current findings, the search should be limited to the most recent articles, generally those published in the past 5 years (Garrard, 2013). Occasionally, the topic requires looking at older, classic literature, and that is acceptable if nothing more recent can be found. However, the most recently published work will inform the project of the state of the current science.

An important requirement for an article that will be part of the scientific literature review, is that the article must be published in a peer-reviewed scientific journal, meaning that the publication accepts manuscripts for print based on a review of experts in their field of research (Fink, 2014). Reports of reports, such as in news articles, are not acceptable; neither are reports found on online encyclopedia-style references or any similar Web site because the sources for the information are secondhand and may or may not be reliable. Journals of all pertinent scientific disciplines and specialties should be perused, and searches should not be limited to nursing journals because research published on important issues are reported in many different scholarly publications.

Literature review work that has already been done by authors of manuscripts and reviews found in journals and books may also provide pertinent articles. What is known as an ancestry search can be done where the citations and reference sections of useful journal articles (especially review articles, systematic reviews, and meta-analyses) can be found (Conn et al., 2003). Furthermore, although news reports or online encyclopedia-style references cannot be used as primary sources, articles therein may provide references that could fit the literature review topic at hand: Writers who report on current topics of interest usually use current references, and these can often be found within or at the end of the article.

If Little Is Found

If there seems to be a scarcity on the subject matter, it may indicate that either the search criteria are too narrow and need to be broader, or that little has been studied on the topic of interest. Consulting with colleagues who understand the topic and population of interest to get new search words and ideas may be helpful. Changing word tenses, consulting a thesaurus, and trying words in the search engines with similar meanings may also be useful tactics. It may help to broaden the population of interest or the outcome measures to see if similar works are found slightly outside the specific domain of interest. An institutional librarian, if available, is often an invaluable resource for finding hidden yet important articles. In the same manner, librarians at local public libraries are often able to provide assistance.

If it is discovered that there truly is a paucity of published work on the topic and the investigation under consideration is a research project, it may indicate that there is a large gap in the reported science and a great opportunity

exists to pursue the research, contributing to scientific knowledge and potentially making practice changes for patients' benefit. If the project involves a quality improvement course and little can be found to support the quality improvement practice under consideration, it may indicate that the new improvement project may have little substantiation for implementation and perhaps a research project would be better suited to investigate the phenomenon. Moreover, if the project idea was to implement evidence-based practice and little evidence was found in the literature, then that must be noted, and decisions must be made to continue with current practice until adequate high-quality published evidence is found.

If Too Much Is Found

If a great deal of literature is discovered on a certain topic, the articles will have to be sorted and judged according to their relevance to the project. Articles obtained through the literature search should be saved in electronic files and sorted by key words, population, published year, or other important factors. Many investigators choose to print out every article, highlight important information using colored pens, sort articles according to similar characteristics, and create piles of articles according to topic. Whichever method is chosen, it is important to read through each article, beginning with the abstract, to search for its applicability to the project and discard (whether physically or electronically) those that are not pertinent to the project. Without removing those articles that are not useful, confusion can easily set in when attempting to reread, cite, or reference the appropriate work.

Organizing the Literature on a Table

Once all useful articles are collected, it is helpful to organize them on a table similar to the one in Table 3. Individual investigators may prefer different table styles and headings for different projects, but all of them should include columns listing the attributes of the articles necessary to judge them for content and applicability to the project: author/year, focus, method/design and analysis, setting, sample, outcome measures, and findings. Noting gaps in the research that were identified by the author of the article can be very helpful in furthering the scope of the investigation. Generally between 3 and 10 recently published articles will be sufficient, but that is only a guideline. It is prudent to keep searching until no new information is found.

Quality of the Articles

Once all articles are organized, they must be judged for their usefulness to the project based not only on topic, content, and population, but also on criterion based on levels of strength and quality of evidence (Melnik & Fineout-Overholt, 2014). Skillfully critiquing published research may be the most intimidating part of preparing

TABLE 3 Example of a Table that Organizes Different Types of Articles							
Author/Year	Focus	Methods/Design/Analysis	Setting/Location	Sample	Outcome Measures	Findings	Gaps
Backhaus, Jungmanns, & Hohagen, 2004	Sleep and cortisol	Prospective study/ Pearson correlation	Outpatients of sleep disorder clinic	N = 29; 14 with insomnia, 15 healthy controls	Cortisol levels; sleep logs; questionnaires; electroencephalogram recordings	Low cortisol significantly related to higher frequency of night waking in those with insomnia	Can frequent night waking predict somatic disorders?
Benedetti, Colombo, Barbini, Campori, & Smeraldi, 2001	Sunlight, depression, and length of stay (LOS)	Retrospective review/Pearson correlation	Inpatients with unipolar and bipolar disorders	N = 602; 415 unipolar, 187 bipolar	Light levels in east and west facing rooms; LOS	Bipolar patients in east rooms had mean of 3.67 days shorter LOS than in west rooms	Prospective studies need to be done to determine if morning light can make difference in LOS
Dixon et al., 2012	Obstructive sleep apnea and weight loss	Randomized controlled trial/ chi-square, Pearson correlation, <i>t</i> test	Outpatients in Melbourne, Australia	N = 60 obese patients with obstructive sleep apnea; 30 low-calorie diet, 30 bariatric surgery	Change in apnea-hypopnea index (AHI), weight, functional status	Bariatric surgery group lost significantly more weight; better functional status than low-calorie-diet group; no significant difference in AHI	Greater weight loss does not always lead to better AHI; too small sample size; should be replicated

the literature review and does indeed take time to learn. A summary of key elements of a comprehensive quality review is provided next to initiate a familiarity with looking at the level of strength and level of quality of published research.

Level of strength

Rating scales have been published that describe the levels of strength and quality of evidence (Melnyk & Fineout-Overholt, 2014; Newhouse, Dearholt, Poe, Pugh, & White, 2005). Levels of strength ratings are typically based on the research methodology and range from a Level 4 or 5 (the lowest) to a Level 1 (the strongest). An example of Level 4–5 strength is nonresearch case-studies, quality reports, or opinion-based articles; Level 3 is usually a report of nonexperimental or qualitative research; Level 2 encompasses quasiexperimental research; and Level 1 are reports of experimental randomized controlled trials or meta-analysis of randomized controlled trials (Newhouse et al., 2005). It is important to note that these levels do not indicate that a research study conducted at higher than a Level 1 (i.e., a lower level of strength) does not make a significant contribution to the science. Indeed, there are places for all kinds of research that significantly inform science and practice. However, it does help to understand the differences in the rigor of the studies according to level.

Level of quality

The quality of the evidence of published research is usually categorized as high, good, or low, and determining quality of evidence usually takes more time than determining the level of strength (Newhouse et al., 2005). High-quality research includes well-defined research methods, optimal sample size, appropriate data collection methods, and an author with understandable expertise in the field of research being conducted. Good quality research includes a general description of research methods, adequate sample size, and primarily consistent results even if there may be a questionable fit between research design, data collection, and conclusions. Research would be determined to be low quality if it had an insufficient description of the research design and methods, inadequate sample size, and inconsistent and nonappropriate implications and conclusions (Newhouse et al., 2005).

Writing the Review

The literature review will need to be clearly written using the articles that were compiled and judged for their usefulness. At this point, it should be easy to see which articles are helpful and which are not, and which are of sufficient level and quality to meet the needs of the project and which are not. The literature review is not written up in a book report style where each individual work is expounded on, but rather, it is written as a synthesis of what is currently

published on the topic and population of interest. Conclusions are drawn by the investigator, and implications are suggested based on the review. Limitations to the current research are also noted. Assistance with writing the literature review can be found in many books, such as those listed in Table 1. It is also helpful to read published reviews of literature to see how the information that is found by other authors is synthesized and how conclusions are drawn. The clearly written literature review will then serve as a basis for the background section of the research proposal, the argument for the need to conduct a quality improvement project, or the rationale for implementing new evidence-based practice. A well-done literature review arms the nurse with the justification for a project and the confidence for approaching the stakeholders who must approve and fund work in the institution.

Conclusion

Important contributions to the science of nursing and health care are often conceived in the mind and heart of the bedside professional clinical nurse, who is at the forefront of providing patient care. The professional practice of nursing is enhanced by the discoveries of research and clinical investigations led by nurses. Without a full understanding, however, of what others have contributed to the scientific literature, the correct and most useful research question cannot be asked, the most effective quality improvement project cannot be done, and there can be no true evidence-based practice. If a thorough review and critique of the literature is lacking, investigative projects may suffer in scope and rigor, resulting in wasted time, duplication of efforts, or risky and unethical practice (Busher & James, 2012). With the proper knowledge and resources, including the guidance and support of the NPD specialist team, clinical nurses can conduct scientific literature reviews that will support and inform their investigative projects, contributing to their success.

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