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RESEARCH ARTICLE

Evidence-Based Practice Models to Maximize Nursing's Contributions to Global Health

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ABSTRACT:

Despite the growing recognition of the importance of evidence-based practice (EBP) and Evidence Based Nursing (EBN), there remain barriers to the implementation of EBP and EBN in many countries including lack of knowledge as well as time and resources for full EBP implementation. The International Council of Nursing, recognizing the need to prepare nurses and midwives in EBP, has published a toolkit to help nurses better understand EBP so that they can make optimal contributions to global health care. This paper is based on a presentation made at the first International Nursing Conference on "Enhancing Evidence Based Nursing Practice, held at Dhulikhel Hospital, Kathmandu University in Nepal in November 2014. The purpose of this paper is to review the history of the EBP movement in nursing and health care, compare concepts of EBP with the concepts of translational science, implementation science, and improvement science, and describe the process of Evidence Based Nursing (EBN) practice. The paper concludes with a discussion of barriers to EBP, recommendations for strategies to address these barriers, and implications for improving EBN in Nepal and other Asian countries.

KEYWORDS: Evidence-Based Practice, Nursing Research, Evidence-Based Nursing.

INTRODUCTION:

Despite the enormous global investments in research over the past decades, there remain serious challenges in translating the research evidence to actions that can address challenges with inequities in global health and development. One reason for the failure to translate evidence to practice relates to the difficulty in accessing and critically appraising the enormous amount of information that is available to health care workers. In 2006, the Health Information for All by 2015 network was formed to address the problem with inadequate essential healthcare information in the developing world. The HIFA 2015 Foundation Document noted that "Tens of thousands of people die every day from common illnesses that can be easily treated.

A major factor in these deaths is that the parent, carer, or health worker very often does not know what to do, and when and where to seek help. In other words, people are dying for lack of basic healthcare knowledge" ^[1].

Nurses constitute the largest group of health care professionals in the world. In 2012 the International Council of Nurses (ICN) published a toolkit to help nurses to understand and implement evidence-based practice (EBP), recognizing the challenges that result from poorly-informed decision making, and inequities in the availability of quality health services^[2]. In the introduction to this toolkit, the authors noted that it is important for nurses to "feel informed enough to ask good questions, develop our skills and ensure that we work closely with colleagues to ensure the research investment is used to best effect. Nurses are often well placed to supply important information about context, about different systems, population groups, and the role of local politics and social factors" (p. 3).

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The purpose of this paper is to review the history of the EBP movement in nursing and health care, compare concepts of EBP with the concepts of translational science, implementation science, and improvement science, and describe the process of Evidence Based Nursing (EBN) practice. The paper is based on a keynote presentation made at the first International Nursing Conference on “Enhancing Evidence Based Nursing Practice, held at Dhulikhel Hospital, Kathmandu University in Nepal in November 2014. The paper concludes with a discussion of barriers to EBP and recommendations for strategies to address these barriers, and implications for advancing the use of EBN in Nepal and other Asian countries.

History and Definitions of EBP and EBN

The beginning of the EBP movement is generally credited to Dr. Archie Cochrane, a British epidemiologist who published a landmark report that criticized contemporary medical practice for the failure to incorporate current research evidence in making decisions about health care interventions and treatments^[3, 4]. Cochrane reviewed current practices within the National Health Service in England, and noted many examples of policies and practices that were based on tradition or personal preference, rather than on objective data or research evidence. For example, Cochrane questioned recommendations by numerous committees related to midwifery care, noting that “it is surprising how successive committees have been content to accept trends as something God-given which must be followed, instead of demanding a more rigorous analysis looking into causality”^[4]. Cochrane advocated for a “marked increase in knowledge through applied medical research”^[4]. Nearly 20 years later, in February 1992, the British National Health Service approved funding for the Cochrane Centre “to facilitate the preparation of systematic reviews of randomised controlled trials of health care”^[5]. In June of that same year, a meeting was held at Macmaster University in Canada to plan for a global organization to support the Cochrane Center and in November the Evidence Based Medicine Working Group published a landmark paper in the *Journal of the American Medical Association* proposing EBP as “a new paradigm for medical practice (that)...”de-emphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision making and stresses the examination of evidence from clinical research. Evidence-based medicine (EBM) requires new skills of the physician, including efficient literature searching and the application of formal rules of evidence evaluating the clinical literature”^[6]. The Cochrane Center opened officially in October 1992 in Oxford, England^[5].

Melnyk and Fineout-Overholt^[7] expanded on the original definition of EBP proposed by Sackett et al.^[8], and proposed a definition of EBP as a “lifelong problem-solving approach to clinical practice that integrates: a systematic search for as well as critical appraisal and synthesis of the most relevant and best research (i.e. external evidence) to answer a burning clinical question; one’s own clinical expertise, which includes internal evidence generated from outcomes management or quality improvement projects, a thorough patient assessment, and evaluation and use of available resources necessary to achieve desired patient outcomes; and patient preferences and values”^[7]. They differentiated the concept of EBP from the more specific concept of research utilization which refers to the use of research findings in clinical practice, often based on a single study. Research utilization is seen as only one component of the broader concept of EBP^[7].

Scott and McSherry [3] traced the expansion of the EBP movement to encompass the a diverse group of health professionals and healthcare practices such as evidence-based midwifery, health visiting, health promotion, and nursing. These authors analyzed 13 definitions of EBN and EBP and identified 11 key elements in the various definitions (identify research, evaluate research, apply research to practice, best evidence, evaluate care, problem solving, decision making, use of clinical/professional expertise, theory driven, patient involvement, and process). Scott and McSherry proposed a definition of EBN based on a synthesis of this review as “an ongoing process by which evidence, nursing theory, and the practitioners’ clinical experience are critically evaluated and considered, in conjunction with patient involvement, to provide delivery of optimum nursing care to the individual”^[3].

The EBP movement has expanded across the globe, and led to demands for evidence-based policy making and evidence-based public health^[9, 10]. In the United States, the Institute of Medicine devoted the 2007 annual meeting to EBM and set a goal that by 2020, “90 percent of clinical decisions will be supported by accurate, timely, and up-to-date clinical information, and will reflect the best available evidence”^[11].

Relationships of Translational Research, Implementation Science, and Improvement Science to the EBP Movement

Concurrent with the growing institutionalization of the EBP and EBN movements, the new fields of translational research, implementation science, and improvement science have emerged to study factors that influence health care decision-making and methods for creating change in health care organizations to apply evidence and translate research to practice. Although

these approaches complement the EBP movement, they each have distinct areas of focus and emphasis.

Rubio et al.^[12] noted that the term “translational research” appeared in a Medline search as early as 1993, but most early references focused on work spanning several disciplines within a particular type of research. These authors proposed the following definition of translational research:

“Translational research fosters the multidirectional integration of basic research, patient-oriented research, and population-based research, with the long-term aim of improving the health of the public. T1 research expedites the movement between basic research and patient-oriented research that leads to new or improved scientific understanding or standards of care. T2 research facilitates the movement between patient-oriented research and population-based research that leads to better patient outcomes, the implementation of best practices, and improved health status in communities. T3 research promotes interaction between laboratory-based research and population-based research to stimulate a robust scientific understanding of human health and disease”^[12]. Titler proposed a definition of translational science as the “investigation of methods, interventions, and variables that influence adoption by individuals and organizations of EBPs to improve...decision-making in health care”^[13].

Implementation science is an emerging field that refers to the “study of methods to promote the integration of research findings and evidence into healthcare policy and practice”^[14]. Implementation science focuses on studies to address the social, behavioral, economic, and leadership barriers that may inhibit the transfer of best evidence into practice to improve health care. The Fogarty International Center identified a number of examples of implementation science research, including studies of strategies to promote integration of evidence into policy and program decisions, appropriate adaptation of interventions to different populations and settings, and strategies to scale-up effective interventions^[14].

Improvement Science is a related field that focuses on methods for quality improvement and aims to “determine which improvement strategies work as we strive to ensure effective and safe patient care”^[15]. Although there are similarities in the fields of translational science, implementation science, improvement science, and EBP, each is evolving as a separate discipline with unique areas of focus and emphasis.

The EBN Process

Schaffer, Sandau, and Diedrick^[16] reviewed and compared six EBP models for nursing that are frequently discussed in the literature. These authors suggested that nursing educators may prefer models that focus on finding and evaluating evidence. Such models include the Johns Hopkins Model^[17] and the ACE Star Model^[18]. Schaffer et al. (2013) suggested that health care organizations may prefer models that emphasize team decision-making. These models include the Promoting Action on Research Implementation in Health Services Framework^[19], the Advancing Research and Clinical Practice Through Close Collaboration framework^[20], and the Iowa model^[21]. Each of these models has unique features and areas of emphasis, but they all follow the basic steps of the EBP outlined by Melnyk and Fineout-Overholt^[7] (See Figure 1).

Figure 1. Basic Steps of the EBP Process^[7]

0. Cultivate a spirit of inquiry.
1. Ask the burning clinical question in PICOT format (Patient population, Intervention/Issue of interest, Comparison group, Outcome, and Time frame).
2. Search for and collect the most relevant best evidence.
3. Critically appraise the evidence (i.e. rapid critical appraisal, evaluation, and synthesis).
4. Integrate the best evidence with one’s clinical expertise and patient preferences and values in making a practice decision or change.
5. Evaluate outcomes of the practice decision or change based on evidence.
6. Disseminate the outcomes of the EBP decision on change.

The Johns Hopkins Model incorporates 18 steps in three phases: Formulating the practice question, reviewing and analyzing the evidence, and translating the evidence to practice^[17]. Figure 2 summarizes key elements of this model.

Figure 2. Key Steps in the Johns Hopkins EBP Model [17]

Question Phase:

Recruit an interprofessional team to examine a specific practice concern (include all relevant stakeholders, including patients and families); Develop the EBP question using the PICOT format; Identify key stakeholders to involve throughout the EBP process; Determine leadership; and Schedule regular team meetings.

Evidence Phase:

Search internal and External sources for evidence; Appraise, summarize, and synthesize the evidence; Develop recommendations for change based on evidence synthesis

Translation Phase: Determine the fit and feasibility of the recommended change or practice; Create and implement an action plan; and Evaluate and report outcomes.

Schaffer et al. suggest that future research should focus on the review, testing, and refinement of existing EBP models, and not on development of new models. Regardless of the model selected, it is critical that nurses develop skills in locating, evaluating, and applying best evidence to their practice, incorporating the unique characteristics and values of their patients and of the settings in which they practice.

Barriers to EBN

Despite the emphasis on EBP and the extensive research that documents its value, many nurses do not use evidence to guide their practice^[7, 22-24]. Barriers to EBP include those that are related to the research itself such as study weaknesses, problems with clarity of the research reports, problems integrating conflicting and complex findings from multiple studies on the same topic, or lack of research appropriate for the context in which practice occurs. For example, most research has been conducted in middle and high-income countries, and findings may not be relevant for low-resource settings. This challenge has been described as the “10/90” gap, since it is estimated that only 10% of all health research funding is targeted to projects that focus on 90% of diseases that cause the greatest global disease burden^[25]. To illustrate this gap, Simkhada, Baral, and van Teijlingen^[26] reviewed published research that had been conducted in Nepal from 1996-2007. They identified 631 articles, but only 11% had been published in Nepalese journals, and most of the research was conducted in urban areas. The studies focused primarily on maternal, child, and women’s health or on sexual/reproductive health. The authors advocated strategic planning to improve research capacity in Nepal to achieve public health improvements using locally produced evidence.

Other barriers to EBP include individual or personal characteristics of the user of the research such as inadequate training in EBP, negative attitudes or perceptions towards EBP, and preference for traditional ways of working. Traditionally, the focus of research courses in nursing education programs has been teaching students about basic research methods, rather than emphasizing critical appraisal and application of research to practice, although this focus is changing in some countries. In the United States, for example, the American Association of Colleges of Nursing has proposed essential standards to guide baccalaureate, masters and Doctor of Nursing Practice (DNP) nursing education that address preparation for EBP. One of the

nine essentials for Bachelor of Science nursing (BSN) education is that “ Professional nursing practice is grounded in the translation of current evidence into one’s practice”^[27]. One of the nine Masters of Science in Nursing (MSN) essentials is “that the master’s-prepared nurse applies research outcomes within the practice setting, resolves practice problems, works as a change agent, and disseminates results”^[28]. The Essentials for the Doctor of Nursing Practice (DNP) program document suggests that DNP graduates should “ engage in advanced nursing practice and provide leadership for evidence-based practice”^[29]. In contrast, the PhD nurse should be prepared to conduct original research and generate new knowledge and evidence.

As the EBP movement expands, there is a need for each country to examine the educational preparation of students in the health professions to ensure that they are adequately prepared to locate, evaluate, and apply evidence to guide their practice. As an example of this sort of assessment, Simkhada et al.^[26] conducted a content analysis of the research methods courses taught in 105 health science programs in Nepal (74 Masters and 37 Bachelors programs). Findings from this analysis indicated that in general the curricula adequately covered topics related to research methods, statistics, and data analysis, although there were gaps related to systematic review, referencing, and accessing research literature. These authors recommended that higher education institutions in Nepal review the research curricula and incorporate more information on how to appraise research. Such skills are critical in preparing students for EBP.

Barriers to EBP might also be related to professional and organizational characteristics. For example, nurses often are not provided with time to examine their practice or read new literature to identify new approaches to clinical problems. Nurses may also lack access to libraries or internet resources where they can find evidence to support their practice. Limited access to existing evidence and research is particularly problematic in low resource settings where limited internet connectivity creates a digital divide that seriously hinders the ability of nurses and other health care providers to access information.

Strategies to Promote EBN Practice

Strategies to promote EBP for nurses can be focused on the barriers identified related to the research, to the organization, to the individual nurse, and to the profession itself. To address barriers related to the research, it is important to ensure that rigorous and high quality research is conducted to address priority global health issues, and that the reports of this research are written in formats that are understandable and accessible

to nurses throughout the world. Systematic and integrative research reviews are excellent resources that can be used by busy clinicians to guide their practice, and there is a need for students in graduate programs to learn to conduct such reviews. Several journals have been established that focus on EBP and many of these journals publish evidence briefs or reports that are also excellent resources. Strategies to address the personal barriers to EBP include developing educational programs that integrate EBP throughout the curriculum (rather than as a stand-alone course), using active teaching and learning approaches to teach EBP, and creating “learning” cultures in the workplace that reward innovation and reduce resistance to change.

Strategies to address professional barriers to EBP include creation of collaborative practice models to reduce the divide between academia and practice settings, and promoting professional autonomy and time for reflection among nurses. An example of one such collaborative practice model is the Clinical Scholars Quality Improvement Program that has been developed at the Children’s Hospital of Alabama. Nurses apply and are selected to participate in a year-long program in which they attend scheduled sessions on EBP, review and appraise literature on a topic of interest to them, implement a project focused on improving outcomes of patients in the hospital, measure the outcomes, and disseminate their findings.

Strategies to address organizational barriers to EBP include providing nurses with time, mentoring, and other resources that facilitate integration of EBP in all work environments. One approach to providing mentoring is the use of a facilitation model to guide implementation of practice guidelines and EBP^[30]. Dougherty et al. suggested that facilitators can promote successful EBP implementation models that incorporate relevant evidence, focus on priority issues, develop strategic partnerships and use multiple strategies to effect changes^[30]. Melnyk and Fineout-Overholt^[7] emphasized the importance of creating a climate that encourages questioning clinical practices, changing practice with evidence, and evaluating the impact of those changes and identified additional facilitators of EBP including support and encouragement from leadership, providing nurses with tools to assist with EBP at the point of care (such as computers or evidence-based guidelines), journal clubs, EBP rounds, and ensuring that policies and procedures are evidence-based.

Implications for Nepal and Other Asian Countries

In 2004, Thompson published a review of the status of evidence-based nursing in Asia, and noted that the heterogeneity of nursing practice in Asia makes it difficult to generalize about EBN in the region^[31].

Thompson noted that a major barrier to EBP was the lack of available resources to support research, although he described three networks committed to the advancement of EBP (the Joanna Briggs Institute in Hong Kong and Thailand, the East Asia Forum of Nursing Scholars, and the Chinese Cochrane Center which was launched in 2002). Several previous studies have examined attitudes towards EBN among nurses in Asian countries. For example, Umarini surveyed 100 nurses working at a hospital in Mangalore, India and found that the greatest barriers to EBP included lack of time and resources to identify relevant evidence, and lack of authority to implement practice changes based on evidence^[32]. Majid and colleagues^[23] surveyed 1486 nurses in two hospitals in Singapore and found that although 64% had positive attitudes toward EBP and believed that they had moderate levels of EBP skills, they identified numerous barriers to using evidence to guide their practice. Such barriers included lack of time and problems understanding statistics and research jargon. Only two previous studies related to EBN in Nepal were identified^[33, 34]. Chemjong^[33] administered a 32-item survey to assess perceptions of motivators and barriers to EBP to a random sample of 100 nurses working at Dhulikhel Hospital. Nearly half of the sample (47%) indicated that they were not at all or only a little familiar with EBP. The greatest barriers to EBP identified were lack of adequate time and resources, limited confidence in ability to understand research articles and apply findings from research, and limited autonomy to change practice. The facilitators identified included hiring a nurse familiar with EBP to serve as a mentor to other nurses, providing education about EBP, and providing time. Karki et al.^[34] administered surveys about perceptions and attitudes towards EBP to participants at an EBP nursing conference held at Kathmandu University Medical University in November 2014. A total of 123/273 of the conference participants completed the survey. Most (93%) reported that they had no previous education about EBP, although they had positive attitudes about the importance of EBP. Similar to the findings reported by Chemjong, the respondents also identified lack of time, resources, and knowledge about EBP as major barriers.

Findings from existing research suggest that there is a need for developing educational programs about EBP for nurses in Asia. Faculty in schools of nursing could integrate EBP into the curriculum instead of focusing on teaching traditional research methods courses. EBP should be taught early in the curriculum so that students can learn to identify and apply evidence to practice as they prepare for their clinical experiences. Administrators in clinical settings can facilitate EBP by providing educational programs, mentoring by experienced nurses, and establishing mechanisms to

ensure that nurses have time and resources to identify evidence and apply evidence to their practice.

CONCLUSION:

In order to maximize nurses' contributions to achieving MDGs and the post-millennium development goals, and to the promotion of planetary health, it is critical that all nurses, everywhere, have the knowledge, skills, and will to identify, access, appraise, and use evidence from multiple sources as a guide to quality patient care. Nurses in education, administration, and practice settings each can play important roles in ensuring that patients receive the highest quality care possible, care that is based on best evidence and that is also guided by an understanding of cultural and contextual factors, and patient preferences and individual needs.

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