Chapter 1

Introduction
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Historically, the nursing profession has been influenced by the development in the field of medicine. One such development impacting the nursing profession globally over the past and present decade is Evidence-Based Practice (EBP). It is a paradigm shift from traditional intuition based practice, to practice based on evidence. EBP as a concept has been increasingly embraced by nurses to enhance quality health care. However, the evidence – practice gap exists in reality and it is a great challenge to each and every professional nurse. The imperative is to reduce the gap between the available evidences and the actual nursing practice to improve the health of the people. “Evidence – Based Practice (EBP) is a problem solving approach to clinical care that incorporates the conscientious use of current best evidence from well-designed studies, clinician’s expertise, and patient’s values and preferences” (Melnyk & Fineout-Overholt, 2005; Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). The Evidence-Based Medicine model from the Cochrane Collaboration is depicted in figure 1.

Figure 1. Evidence based medicine model from the Cochrane Collaboration
(www.cochrane.org)
Evidence-Based Practice, an interdisciplinary approach to clinical practice emerged four decades ago. It had its origin in medicine and spread to other health related fields such as dentistry and nursing. Dr. Archie Cochrane’s landmark publication ‘Effectiveness and Efficiency – Random Reflections on Health Services’ published in 1972 criticized the medical profession for its inability to evaluate research findings to guide health care decision making (Fineout-Overholt, Melnyk, & Schultz, 2005). The subsequent revolutionary developments led to the establishment of the Cochrane Collaboration in 1993, which stands as a tribute to Archie Cochrane’s outstanding effort to promote clinical research through randomized controlled trials and to develop systematic reviews (Sur & Dahm, 2011). However, parallel to the evolution of EBP in the United Kingdom, developments also took place at McMaster University, Canada. The term Evidence-Based Medicine (EBM) was coined in 1990 and first appeared in the Internal Medicine Residency Program brochure of McMaster University. The efforts of Prof. David Sackett in developing critical appraisal of research studies contributed to a great extent to the development of EBM. Moreover, Prof. Gordon Guyatt played an important role by suggesting the term EBM followed by the publication of the EBM series (Prasad, 2007). Alvan Feinstein’s ‘principles of quantitative clinical reasoning’ and David Sackett's ‘innovation in teaching critical appraisal’ (Guyatt, Cook, & Haynes, 2004) had significant contribution to the development of EBM. These series of contributions from renowned persons led to the advancement of EBP which is having a great impact in today’s health care system.

In order to help patients in health care decisions, integrating research evidence and patients’ circumstances and preferences in the background of clinical expertise is essential (Guyatt, Cook, & Haynes, 2004). Health care providers in the 21st century should have evidence-based practice as an essential competency as recognized by the Institute of Medicine, USA (Greiner & Knebel, 2003). Health care community and regulatory agencies considered evidence-based practice as a gold standard to provide safe and compassionate health care. To improve health care quality, evidence-based practice is recognized as a critical step by the Joint Commission on Accreditation of Healthcare Organizations, American Nurses Credentialing Center (ANCC) and the Institute of Medicine (Brown, 2009). Clinical decisions and patient care based on evidence is considered as a paradigm shift which maximizes health care benefit to the patients (Prasad, 2013).
Evidence-based practice (EBP) has become imperative for clinical decision making and a necessary aspiration for clinical practice (Mantzoukas, 2008). “Systematic reviews and meta-analysis provide evidence synthesis that helps in policy formulation, development of clinical practice guideline as well as informing routine decision-making in clinical practice” (Wallace, Nwosu & Clarke, 2012). EBP is gaining popularity as the best practice technique and is adopted by health care practitioners to provide better patient care (Majid, 2011). Nurses need to stimulate questions about evidence supporting effectiveness as they perform interventions such as suctioning, positioning, administering medications and several other procedures (Melnyk, 2009). Globally much of the development in EBP in nursing took place since 2000. The year 2012 was marked with an uprising of EBP in nursing as it was declared as the international Nurses Day theme “Closing the Gap: From Evidence to Action” by the International Council of Nurses.

Need for study

EBP is essentially relevant for a country like India which is the second most populous country in the world. India is unique in its diversity, socio-political, demographic and morbidity patterns (Ashok, Somasundaram, & Goyal, 2002). The health care system in India which has a massive influx of patients and high prevalence of poverty and illiteracy warrants a cost-effective health care. In this context, training of today’s and future health care professionals in EBP would help them to remain up-to-date in their professional practice to make practice safer and patient centered. Identifying effective health care practices provides immunity to health professionals against misleading medical literature and misconceived marketing pressures (Prasad, 2012). Even at a policy making level, EBP could regulate healthcare decisions. Research has shown that patient outcomes are 28% better when clinical care is based upon evidence, versus clinical practice steeped in tradition (Heater, Becker, & Olson, 1988).

The goal of nursing has been to provide best care to patients, empower them to utilize their potential and minimize pain and discomfort. Various ways of providing best patient care has been identified; evidence-based practice is one among them. Moreover, information explosion is invading health care at an accelerated pace. This explosion enables health care consumers to be better informed about their health status. In addition, development in science
and technology has led to new treatment modalities replacing the older approaches. In this context, EBP keeps nursing professionals updated and helps adopt best practices based on scientifically proven evidence. Hence, nurses need to be equipped with necessary knowledge and skills continually learning and updating their approach to patient care as medical knowledge continues to evolve. Thus EBP satisfies the life-long passion for learning among nurses and other health professionals.

EBP encompasses not only research utilization, but also the expertise of clinicians and nurses as well as patient preferences and values (Rutledge, 2000). The promising fact is that the Institute of Medicine envisions that by 2020, 90% of all health care decisions in the United States will be evidence based (Olsen, Aisner & McGinnis, 2007). However, Pravikoff, Pierce, and Tanner (2005) have found that majority of nurses’ implementation of EBP in their clinical areas are not consistent. Job satisfaction and autonomy are high in professionals practicing EBP (Maljanian, Caramanica, Taylor, Mac Rae, & Beland, 2002) and ensure cost-effective health care (Jennings, 2000). To promote excellence in health care, emphasis has been placed on EBP as it is identified as a crucial component (Coopey & Nix, 2006). The time needed to translate implementation of research findings into practice is minimized by the process of EBP (Alspach, 2006).

Evidence-based practice is an expectation from all health care practitioners (Lotz, 2010). Facilitating factors reported were learning opportunities, culture building, availability and simplicity of resources (Brown, Wickline, Ecoff, & Glaser, 2009); EBP knowledge and skills, belief in value of EBP, culture that supports EBP and EBP mentors (Melnyk, Fineout-Overholt, & Mays, 2008; French 2005; Melnyk, 2007). However, implementing EBP in resource-limited countries like India poses major challenges. These include lack of educational resource, language barriers, unreliable internet connections, inequity in accessing evidence, lack of supportive environment and inadequately trained faculty (Prasad, 2012).

It is important to teach current students how to utilize research in practice; in contrary (Melnyk, 2012) educators spend more time teaching students how to do rigorous research. Although EBP has become popular as an innovative strategy and a tool to improve quality of care; it lacks in its implementation in clinical practice (Maaskant, Knops, Ubbink, &
Vermeulen, 2013). Pravikoff et al. (2005) suggested the need for educational programs to increase nurse's knowledge and application of EBP. To implement an institutional culture of evidence based practice, Koehn & Lehman (2008) suggested a methodical assessment and systematic plan.

To become competent in EBP, the health care practitioners need training in EBP through various methods. It is also necessary to design innovative evidence-based models to introduce EBP in the undergraduate and postgraduate curriculum in medicine, nursing and all health related professions. If we could incorporate EBP in the current undergraduate nursing curriculum, in the next few years nursing service will reap the benefits. To meet the current needs of health care, point of care evidence-based resources are essential and health professionals should be trained to utilize those resources. There are different ways EBP could be integrated in the curriculum: A foundational course in graduate programs and integrating EBP clinical specialty courses for advanced practice nurses (Melnyk et al, 2004). Further, Kim (2013) suggested multifaceted interactive educational strategies rather than stand-alone educational sessions to improve knowledge and practice associated with EBP.

The field of Evidence-Based Practice, which is still in a developing stage in India requires a lot of research inputs to understand how EBP works in the Indian context. A systematic review on “Effective Interventions to promote Evidence-Based Practice among nurses” conducted by the investigator found no published research articles from India. Although there were few studies reported from Asian countries, studies from South Asian region could not be retrieved. Subsequently, another systematic review done by the researcher on “Barriers to Nurses’ use of Evidence-Based Practice” also revealed lack of studies from India. The dearth of published work on effectiveness of EBP training strategies for nurses in India and South Asia led to conceptualising the intervention for training nurses in EBP and to determine the effectiveness on outcomes related to nursing education and practice.

The Manipal University, where the research was conducted makes an optimal setting for EBP implementation as the university’s vision is to be a global leader in human development and excellence in education and health care. The university and its constituent health care institutions and hospitals promote EBP and the core values of the university are
quality in education and services. The facilities onsite included good library resources, internet facilities, rich educational environment and regular quality management activities. In addition, the launch of Public Health Evidence South Asia (PHESA) in January 2013 at the Manipal University which includes Cochrane Public Health satellite center augmented university wide implementation of EBP. Hence, EBP was in congruence with the university’s vision, objectives and values. Some of the primary resources needed to practice EBP were available through the database of the university library. Moreover, most of the secondary EBP resources were accessible through the internet without any subscription fee by the users. EBP could be effectively implemented across institutions of the university without much financial investments.

Manipal College of Nursing (MCON), Manipal, a constituent institution of Manipal University, the academic setting of the current study, is one of the leading nursing education institutions of the country. The institution offers undergraduate, postgraduate, Master of Philosophy and Doctoral programs in Nursing. Moreover, Manipal College of Nursing strives to be in par with international standards and maintains quality in teaching and training nurses. In addition implementing EBP is one of the aspirations of MCON. Hence training of academic staff in EBP is essential in implementing EBP.

Traditionally, nurse educators focus on training the students’ in basic content of various courses and the nursing skills necessary for caring patients. But this pattern of training is no longer sufficient for the current day practice as nurses should have a spirit of enquiry, critical thinking and the knowledge to practice EBP. Therefore, it is important that nurse educators utilize an evidence-based approach by mentoring and role modeling in training future nursing professionals. To the researcher’s knowledge there is no such training currently existing in India designed for nurse educators and clinical nurses in EBP. This instilled the interest in the researcher to take up a research project on EBP. The results of the study will be beneficial for nurse educators and clinical nurses to integrate EBP in teaching and patient care respectively.
Problem Statement

“Development and determination of the effectiveness of a Multilevel Integrated Training Program in Evidence-Based Practice on teaching and patient care among nurses”

Purpose of the study

The purpose of the study is to develop and validate Multilevel Integrated Training Program in Evidence-Based Practice (MITP-EBP) for academic and clinical nurses. Moreover, the effectiveness of the MITP-EBP will be assessed in terms of integration in teaching and in patient care. The intervention (MITP-EBP) and data collection tools will serve as a foundation to train nurses and to conduct research in EBP. In addition, the study will lay the foundation for developing Evidence-Based Practice training program for nurses in India at Manipal University.

Objectives

1. To conceptualize and develop the Multilevel Integrated Training Program in Evidence-Based Practice (MITP-EBP) on teaching and patient care.
2. To examine the effect of Multilevel Integrated Training Program on Evidence-Based Practice (MITP-EBP) in terms of increase in integration of EBP in
   a) teaching among nurse educators
   b) patient care among clinical nurses
3. To assess the barriers to practice MITP-EBP in academic and clinical setting.

Definition of Terms

Effectiveness

Refers to the extent to which the MITP-EBP has achieved the desired outcome as measured by increase in integration of EBP in teaching and increase in integration of EBP in patient care.

Multilevel Integrated Training program in Evidence-Based Practice (MITP-EBP)

In the present study, the intervention is referred to as MITP-EBP. Multilevel implies to the two levels of intervention; one level for academic nurses and the other level for clinical nurses. In the intervention program for academic nurses, EBP is integrated to teaching and
training nursing students. Similarly, in the intervention program for clinical nurses, EBP is integrated to provide patient care. The intervention program covers basic concepts of EBP and steps in EBP such as formulating focused questions, retrieval of evidence, critical appraisal of evidence, integration of evidence and evaluation. The teaching methodology includes lecture, small group discussions, skill building workshops, small group exercises, self-learning and follow up activities. The MITP-EBP clinical is a simplified version of the academic program.

**Evidence - Based Practice (EBP)**

“Evidence - Based practice (EBP) is a problem solving approach to clinical care that incorporates the conscientious use of current best evidence from well-designed studies, a clinician’s expertise, and patient values and preferences” ((Melnyk & Fineout-Overholt, 2005; Sackett et al;2000). In the present research, EBP refers to the integration of basic concepts of EBP in teaching students by nurse educators and integration of EBP in patient care by clinical nurses.

**Nurses**

In this study, ‘nurses’ refers to graduate, postgraduate or higher qualified nurse educators and postgraduate students in the academic setting of Manipal College of Nursing, Manipal (MCON), and clinical nurses who are graduate or diploma qualified and licensed to practice as registered nurses in the Neonatal Intensive Care Unit (NICU) of Kasturba Hospital (KH), Manipal.

**Academic setting**

It ascribes to the Manipal College of Nursing, Manipal which is a constituent institution of Manipal University.

**Clinical setting**

It implies to the Neonatal Intensive Care Unit of Kasturba Hospital of Manipal University.

**Teaching outcomes**

This refers to the incorporation of EBP in the classroom and clinical teaching and is measured by knowledge, attitude, practice and competency of nurse educators with regard to EBP and students’ knowledge, attitude, practice and competency about EBP.
a) Knowledge (Nurse Educators)

It relates to the information regarding EBP measured using the self-reported subscale of Evidence-Based Practice Questionnaire (EBPQ), a standardized tool developed by Upton and Upton, 2006. It also includes knowledge of sources for practice and is elicited by the items in the self-report subscale of Developing Evidence – Based Practice questionnaire (DEBP) by Gerrish and his colleagues (2008).

b) Attitude (Nurse Educators)

Refers to how the nurse educators feel about EBP in general and teaching EBP to nursing students as measured by an attitude scale developed by the researcher.

c) Practice (Nurse Educators)

In the current study, it refers to the skills of nurse educators in implementing EBP and integrating EBP in teaching students. It is measured by a self-reported subscale of EBPQ (a standardized tool developed by Upton and Upton, 2006), record of EBP activities (EBP log) and assessment of teaching for EBP related aspects.

d) Competency (Nurse Educators)

It is regarded as the performance of nurse educators regarding specific aspects of EBP which is measured by standardized modified version of Fresno tool (Tilson, 2010) focused around clinical scenarios and scored with a grading rubric.

e) Students’ knowledge, attitude and practice

It refers to the information and opinion on the use of EBP and it is measured using a 24 item standardized EBPQ tool, developed by Upton and Upton (2006) a self-reported measure of knowledge, practice and attitudes toward EBP.

f) Students’ competency about EBP

It relates to the beginning level of EBP performance of students’ assessed using the 'Knowledge of Research Evidence Competencies' instrument (K-REC) (Lewis, 2011), based on nine items related to a clinical scenario and graded using a marking guide.
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Patient care outcomes

This refers to the incorporation of EBP in the patient care by the clinical nurses of neonatal intensive care unit and is measured by their knowledge, attitude, practice and compliance with EBP guidelines.

a) Knowledge (Clinical Nurses)

It implies the knowledge regarding EBP measured using the self-reported subscale of Evidence-Based Practice Questionnaire (EBPQ), a standardized tool developed by Upton and Upton, 2006. It also includes knowledge of sources for practice and is elicited by the items in the self-report subscale of Developing Evidence - Based Practice questionnaire (DEBP) by Gerrish and his colleagues (2008).

b) Attitude (Clinical Nurses)

Refers to how the clinical nurses feel about EBP in general and applying EBP in patient care as measured by an attitude scale developed by the researcher.

c) Practice (Clinical Nurses)

In the current study, it refers to the skills of clinical nurses in implementing EBP in patient care. It is measured by a self-reported subscale of EBPQ (a standardized tool developed by Upton and Upton,2006).

d) Compliance with EBP guidelines

It is measured through a tool developed by the researcher to assess compliance to selected areas of neonatal care practices such as skin care, pain management and feeding.

Barriers

It ascribes to the factors that impede the implementation of EBP in academic and clinical setting and is assessed using a modified questionnaire from a standardized questionnaire known as Developing Evidence - Based Practice questionnaire (DEBP) by Gerrish and his colleagues (2008).
Figure 2. Conceptual framework on Multilevel Integrated Training Program in Evidence-Based Practice (MITP-EBP)
The model developed for the present study is based on several models on Evidence-based practice. The overarching structure of the frame work was built on the five basic steps of EBP (Centre for Evidence - Based Medicine (n. d.)). In addition, the relevant concepts of Iowa Model of evidence-based practice to Promote Quality Care (Titler, et al., 2001), the Stetler (2001) model of evidence-based practice and Rosswurm and Larrabee’s (1999) change to evidence-based practice (Appendix 4) were contextualized to the present research.

The MITP-EBP was the intervention used for the research study. The core content of the MITP-EBP revolved around five basic steps: Asking focused questions, finding the evidence, critical appraisal, making a decision and evaluating performance (Centre for Evidence – Based Medicine. Five steps of EBP (n. d.)). These steps were elaborated and two levels of training program were developed: one for nurse educators in the academic setting and the other for clinical nurses in the hospital setting. Both levels of training program were integrated according to the respective field of practice of nurses. MITP-EBP (A) (Multilevel Integrated Training Program- Evidence- Based Practice (Academic)) was to train nurse educators to integrate EBP in their classroom and clinical teaching. MITP-EBP (C) (Multilevel Integrated Training Program- Evidence- Based Practice (Clinical)) was to train clinical nurses to integrate EBP in their patient care.

The conceptual frame work was two pronged and described the two dimensions of the EBP training for nurses. One dimension was the MITP-EBP(A) which is the EBP training program for nurse educators in the academic setting. In MITP-EBP(A), the first step was “Ask” which was asking focused questions thereby translating the uncertainty to an answerable question. In the present study, nurse educators were given the background of EBP to develop a spirit of enquiry that laid the foundation for formulating PICO (Problem, Intervention, Comparison, Outcomes) questions. Nurse educators after acquiring the skill of developing focused questions, utilized this skill in teaching students. They in turn generated focus questions based on the content to be taught or from an idea or trigger based on a clinical issue. It could also be triggered by their own clinical experience or from the experience of supervising students in clinical practice.
The second step described in the conceptual framework was “Acquire” which was the systematic retrieval of the best evidence available. The nurse educators in the current study developed skills in retrieving resources for EBP such as systematic reviews, clinical practice guidelines and point of care tools. They were also trained in effective basic and advanced searching skills for primary sources by providing hands on experience. The skills acquired in this step were utilized in identifying evidence for teaching students in the classroom and in the clinical area. The next step was “Appraise” which was the critical appraisal of evidence. The participants were reinstated with some of the statistical concepts used in summarising evidence as a foundation for this step. An introduction to general principles for appraising evidence sources followed by specific appraisal tools such as rapid critical appraisal of RCT, Prisma guidelines for systematic reviews, Agree 2 appraisal tool for clinical practice guidelines and other appraisal tools were discussed. The trained nurse educators were expected to utilize the appraisal skills as well as guide the students in appraisal of various evidence sources.

The fourth step outlined in the conceptual framework was “Apply” which was integrating the best available evidence in patient care. This step was adapted to the area of practice of nurse educators, which was to integrate EBP in the curriculum through class room and clinical teaching. Different approaches of how to integrate EBP in the classroom and clinical teaching were discussed during the training session. A detailed account of various types of EBP activities such as journal club, EBP projects, EBP assignments etc. which could be used in the curriculum was outlined. The last step in MITP-EBP(A) was “Assess” which was evaluating performance on EBP. The nurse educators were trained in evaluating their own performance in EBP and to evaluate EBP assignments and projects of students and conducting clinical audit. Students’ performance on EBP was an indicator of nurse educators’ competency in EBP. The conceptual frame work extended to incorporate the teaching outcomes of nurse educators which was the measure of the effectiveness of the training program. These were EBP related knowledge, attitude, practice and competency. In addition, a record of EBP log, teaching assessment tools and students’ knowledge, attitude and competency were used as outcome measures of nurse educators and barriers were also assessed before and after EBP training.
The other dimension of the conceptual framework was the MITP-EBP(C) which was the EBP training program for clinical nurses in a hospital setting. In the current study clinical nurses were the nurses working in the Neonatal Intensive Care Unit. In MITP-EBP(C), the first step was to “Ask” which was asking focused questions thereby translating uncertainty to an answerable question. In the present study, clinical nurses were given the background of EBP and exercises to develop a spirit of enquiry based on clinical issues in the neonatal area. This laid the foundation for formulating PICO (Problem, Intervention, Comparison, Outcomes) questions related to neonatal clinical scenarios. Clinical nurses could utilize these skills to develop focused questions as and when they encounter clinical issues.

The second step of MITP-EBP (C) described in the conceptual framework was “Acquire” which was the systematic retrieval of best evidence available. The clinical nurses in the current study developed skills by hands on experience in retrieving resources for EBP such as systematic reviews, clinical practice guidelines and point of care tools with emphasis on neonatal care. An introduction to searching skills to primary sources was provided during the training. The skills acquired in searching were utilized to find evidence for neonatal nursing care issues.

The next step in MITP-EBP (C) was “Appraise” which was the critical appraisal of evidence. The participants were taken through general principles for appraising evidence sources followed by specific appraisal tools such as Agree 2 for clinical practice guidelines and other appraisal tools. The fourth step in MITP-EBP (C) outlined in the conceptual frame work was “Apply” which was to integrate the best available evidence in patient care. This step was adapted to the area of practice of clinical nurses wherein they were involved in developing EBP guidelines for the neonatal unit. These guidelines were developed considering the evidences from primary research, systematic reviews and clinical practice guidelines combined with clinical experience. Moreover, the guidelines were contextualized based on patient’s perspectives and availability of resources. The participants were actively involved in the developing and integrating the evidence in the care of neonates.

The last step in MITP-EBP(C) was “Assess” which was to evaluate performance on EBP. The clinical nurses were trained in evaluating EBP through the clinical audit. The
performance of clinical nurses in EBP guidelines was assessed through the actual conduct of clinical audit. The MITP-EBP(C) was extended to incorporate the patient care outcomes of clinical nurses, which was the measure of the effectiveness of the training program. These were EBP related knowledge, attitude, practice and compliance with EBP guidelines. In addition, barriers were also assessed before and after EBP training.

**Summary**

The chapter included the background established to conceptualize the current study, objectives, operational definitions and conceptual framework designed for the study.

Subsequent chapters are organized as follows:

- Chapter II: Review of Literature
- Chapter III: Methodology
- Chapter IV: Analysis and Interpretation of data
- Chapter V: Major findings, discussions, implications, limitations and recommendations

This also includes references and appendices.