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Current state of evidence-based practice education for undergraduate nursing students in Taiwan: A questionnaire study

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SUMMARY

Background: Evidence-based practice (EBP) has been emphasized as the core competency of undergraduate nursing students and must be cultivated before graduation. However, there is limited information of EBP education for undergraduate nursing students in Taiwan.
Objectives: The purpose of this study was to investigate the current state of EBP education for undergraduate nursing students in Taiwan.
Design: A self-developed questionnaire, validated by experienced educators, was designed to explore curriculum design, teaching resources, qualification of teachers, and barriers regarding EBP education.
Participants: A total of 21 nursing schools and colleges participated. The chair of each recommended a faculty member involved in teaching EBP as the school's representative to fill out the questionnaire.
Results: Among the 21 nursing schools and colleges, 18 (85.7%) had implemented EBP education in the curriculum. Among these schools, 22.2% conducted an independent EBP course, 50% incorporated EBP concepts into other courses, and the remainder offered both kinds of EBP courses. Multiple strategies were incorporated to teach the EBP. Less than 35% of the schools had designed or adopted standardized teaching materials and evaluated students' learning outcomes. Although 55.6% of the schools reimbursed faculty for participation in EBP training, 39% of their faculty members who taught EBP did not receive any EBP training. Shortage of qualified faculty and limited opportunity to involve students in evidence-based applications were reported as major obstacles to teaching EBP.
Conclusions: EBP education has already gained the attention of nursing schools in Taiwan. However, lack of comprehensive EBP training among teachers and the difficulty of teaching clinical application of EBP require special consideration. In order to promote EBP education in undergraduate nursing curriculums, we suggest that nursing schools reinforce and support faculty to participate in formal EBP training. Also needed is a systematic curriculum design with multiple teaching strategies and links with clinical practicum.

Introduction

Evidence-based practice (EBP), which integrates the best research evidence with expert opinion as well as patient values to solve clinical problems (Sigma Theta Tau International, 2004), has been considered as an effective strategy for improving the quality of care (Stichler et al., 2011). Necessary EBP knowledge and skills include formulating answerable clinical questions, searching for the best evidence, and appraising and integrating evidence for clinical practices (Quality and Safety Education for Nursing [QSEN], 2007). Lacking the knowledge and skills of EBP would limit nurses' capability to utilize research evidence appropriately (Brown et al., 2009; Chang et al., 2013).

In 2011, both the *American Association of Colleges of Nursing* (AACN) and the Institute of Medicine (IOM) emphasized that EBP is not only an important competency of baccalaureate nursing students but also should be cultivated before graduation. Nursing schools in Europe (Finotto et al., 2013; Johnson et al., 2010), in the United States (Moch et al., 2010), and in Asia (Oh et al., 2010; Zhang et al., 2012) have valued the EBP competency of undergraduate students and developed EBP

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curriculums or courses for their students. However, reports from these studies differ; e.g., in Europe, Finotto et al. (2013) developed a 3-year program where classroom lessons and clinical practicums were involved in teaching EBP; in Korea, Oh et al. (2010) integrated EBP into a 6-day clinical practicum in a RN-to-BSN program, where lectures on the concepts and processes of EBP were provided prior to the practicum, and group conferences were provided afterwards to enhance students' EBP skills; and in China, one school incorporated EBP into the clinical practicum, and the strategies of self-directed learning and workshops were adapted to teach EBP (Zhang et al., 2012). In Taiwan, EBP education has been strongly emphasized and implemented in clinical practice (Li et al., 2011; Mu et al., 2013; Yeh et al., 2010). However, there is little information regarding the curriculum design of EBP for undergraduate nursing students. In order to develop an EBP curriculum for nursing students, it is first necessary to understand the current implementation of EBP education in Taiwan. Therefore, the purpose of this study was to investigate curriculum design, teaching resources, qualification of teachers, and barriers to EBP education in Taiwan.

Background

An effective EBP education should involve the teaching goals and objectives, teaching content, the preparation of faculty members, and facilitator and barriers to teaching EBP.

EBP involves knowledge generation and research utilization (Titler et al., 2001). Nevertheless, traditional nursing education focuses on conducting research rather than applying evidence. The content of traditional nursing education focuses on research hypothesis, methodology, and proposal writing, yet little emphasis is given to the diversity and applications of evidence (Fineout-Overholt et al., 2005; Klassen et al., 2002). Nursing graduates are nonetheless expected to translate existing evidence into clinical practice. The capability of understanding the interplay of theories, practice, and research as well as making changes to practice based on evaluating the credibility of evidence are demanded (AACN, 2011). Therefore, EBP education for undergraduate nursing students should focus on cultivating both these abilities. In addition, cultivating students' spirit of inquiry and critical thinking should be a foundation of EBP education. These abilities not only enable students to think beyond routines but also inspirit them to search for the best care to meet patients' needs (Ferguson and Day, 2005; Profetto-McGrath, 2005).

Nursing students should be enlightened on the steps of EBP. These steps include formulating a clinical question, searching and appraising evidence, integrating research evidence with expert opinions and patients' preferences into practice, assessing outcomes and disseminating of EBP results (Jenicek and Hitchcock, 2004; Melnyk et al., 2010). In order for students to effectively acquire EBP knowledge and skill, the concepts of EBP should be systemically integrated into professional nursing courses (Burns and Foley, 2005; Rolloff, 2010). In addition, multiple strategies, well-developed teaching materials, and abundant resources are all important facilitators of EBP education (Killeen and Barnfather, 2005; Melnyk et al., 2008). Evaluating EBP learning outcomes is also important in EBP education, because it is conducive to understanding whether the EBP teaching objectives have been achieved and how to improve the teaching quality (Levin and Feldman, 2006).

Nursing teachers play an important role in promoting EBP education. They cultivate EBP champions, achieve desired education outcomes, and even shape the future nursing profession through education and role modeling (Levin and Feldman, 2006). Therefore, teachers' preparation prior to EBP teaching is of vital importance. Rather than focusing on developing knowledge, the teachers should familiarize themselves with the core value of EBP and the process of research utilization (Stichler et al., 2011). In addition, only when teachers are conversant with the concepts and steps of EBP can they incorporate EBP into teaching and support students' EBP learning (Ciliska, 2005; Ferguson and Day, 2005).

Common barriers to EBP education have been revealed as insufficient resources (such as time and money), inadequate library resources, and a shortage of EBP teachers (Hussein and Hussein, 2013; Melnyk et al., 2008; Stichler et al., 2011). Other identified barriers include teachers with lower motivation to develop their EBP knowledge and skills (Burns and Foley, 2005), incomprehensible relevant statistical analyses, confusion over the objectives and approaches of EBP education, as well as a traditional teaching philosophy that focuses on evidence development instead of evidence application (Melnyk et al., 2008; Stichler et al., 2011).

In Taiwan, there are two systems of educational nursing programs. After completing 9 years of compulsory education and 3 years senior high school, students can enter a 4-year university or polytechnic college for nursing education (minimum 128 graduate credits required to get a bachelor's degree). The second program is a 5-year junior college of nursing (minimum 220 graduate credits required to get an associate's degree). If students want to get higher nursing education, they can enter a 2-year post-junior college program in a university or polytechnic college (minimum 72 graduate credits required to get a bachelor's degree) after finishing the junior college of nursing (Chang and Yu, 2010; Ministry of Education, 2015). Because of the different nursing education systems, curriculum design and course structures in universities and polytechnic colleges also differ. In general, in order to prepare students for the Taiwanese registered professional nurse examination, the nursing schools usually arrange their mandatory courses into two categories, including fundamental medical sciences (Anatomy, Physiology, Microbiology and Immunology, Pharmacology and Pathology) and professional nursing sciences and practicum (Human Development, Physical Examination and Health Assessment, Introduction to Nursing, Fundamentals of Nursing, Adult Health Nursing, Maternity Nursing, Pediatric Nursing, Mental Health Nursing, Community Nursing, Nursing Administration, and Nursing Research). However, EBP courses are not mandatory in either of the nursing programs.

Method

A self-developed questionnaire was used to investigate the current state of EBP education in undergraduate nursing students of Taiwan. The study was approved by the Institutional Review Board and was conducted from August 2012 to July 2013.

Participants

All of the 26 nursing colleges and schools in Taiwan (13 general universities and 13 polytechnic colleges), were invited to participate. Finally, 21 of them consented to participate. The questionnaire was filled out by a faculty member involved in teaching EBP who had been recommended by the chair as representative.

Instrument

The questionnaire was developed by the researchers based on literature that dealt with the effective elements of EBP education (Burns and Foley, 2005; Fineout-Overholt and Johnston, 2007; Melnyk et al., 2010; Rolloff, 2010; Smith et al., 2007; Stichler et al., 2011) and the phenomena of EBP continuing education in Taiwan (Li et al., 2011; Mu et al., 2013). The questionnaire comprised 26 items that were intended to explore EBP curriculum design (8 items), teaching resources (5 items), course evaluation (5 items), qualification of teachers (4 items), and obstacles to EBP education (4 items).

The content validity of the questionnaire was evaluated by three experienced EBP education experts. Correctness, relevancy, and clearness of the questionnaire were appraised. The correctness referred to the degree to which the items were able to guide the participants to give genuine answers. The relevancy index referred to the degree to which the items were relevant to the research purposes. The clearness