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# Abilities and barriers to practicing evidence-based nursing for burn specialist nurses

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## A R T I C L E   I N F O

## A B S T R A C T

*Objective:* To explore the abilities and barriers of practicing evidence-based nursing (EBN) for burn specialist nurses so as to provide rationales for its clinical training and practice.

*Methods:* From January 2016 to March 2016, a cross-sectional survey was conducted with a self-designed questionnaire among burn specialist nurses in Hunan Province. Data analysis was performed with SPSS software (version 20).

*Results:* Burn specialist nurses in Hunan Province had diminished EBN abilities. The three procedures of EBN with the lowest score were "summarizing evidence through systematic reviews", "rigorous evaluations of evidence" and "systematic literature searches". And the three procedures of "clarifying problems", "disseminating evidence" and "introducing evidence" scored the highest. The systematic literature retrieval ability of nurses at class III general hospitals was higher than that of class II counterparts (P=0.001). Thus EBN ability was positively correlated with barriers to practicing EBN, English proficiency, research experiences and educator status.

*Conclusion:* Burn specialist nurses at classes III & II general hospitals in Hunan Province had diminished EBN abilities. Influencing factors of EBN ability included barriers to practicing EBN, English proficiency, research experiences and educator status. Therefore it is imperative to implement targeted trainings and integrated managements for improved ability of practicing EBN.

## 1. Introduction

As a holistic process of planning nursing care in which nurses carefully, explicitly and judiciously combining scientific findings with clinical experiences and patient needs [1], evidence-based nursing (EBN) may cultivate clinical reasoning, guide clinical decision-making [2,3] and offer practical solutions to clinical problems [4]. Capable of integrating best research evidence, clinical practicing know-how and patient considerations, practicing EBN has become a gold standard of high-quality health services [5]. And the ultimate goal of practicing EBN is to deliver high-quality and optimal patient outcomes.

Integrating evidence into daily clinical practice for improved patient outcomes has been a constant struggle for burn specialist nurses. Previously evidence based practice was successfully utilized for preventing pressure sore of burn patients [6] and alcohol withdrawal syndrome. Despite conflicting results, the researchers have successfully managed

alcohol withdrawal with advanced nursing [7]. A significant clinical gap existed between scientific insights and actual practices of experienced burn specialist nurses [8]. Although burn-related EBN has made some encouraging progress, it is a daunting challenge to optimize the nursing care of complicated burn patients.

As the sole evidence-based medicine center in Asia, Cochrane Sub-center was first established at West China Hospital, Sichuan University in China in 1997. And EBN Center (Joanna Brigges Institute Sub-center) was dedicated at Fudan University in 2004. Both institutions have greatly popularized the evidence-based medicine and EBN in mainland China. However, the implementation of EBN practice has remained rudimentary. Some studies have shown that the prevalent deficient EBN knowledge of nurses leads to a low EBN ability [4,9]. EBN has not been widely implemented at burn departments of mainland China [10]. Particularity for burn patients, despite the continuous innovation in care technology and research results, the scientific nature of some ongoing practice in burn care is uncertain. Literature reports and research projects on EBN for burn care have been scarce [11]. Nurses must address related issues through EBN practices. It is thus necessary to grasp profound knowledge and technical skills related to EBN to popularize its wider clinical applications. This survey was intended to understand the ability and its related factors of practicing EBN at burn department and promote its wider applications. The major results were summarized below.

## 2. Methods

### 2.1. Design and setup

From January to March 2016, a cross-sectional survey was conducted with a self-designed questionnaire among practicing nurses at 19 burn centers of 6 class III and 13 class II general hospitals in Hunan Province. Due to sophisticated specialty for managing burn patients, only classes II & III general hospitals have burn department in China. Class II hospital provides health services across several communities of a certain regions. It is a regional technical and medical center. Besides medical services, it also conducts teaching and researches. Integrating medical services, teaching and scientific researches, class III hospitals focus upon handling critically ill patients. Surveying was implemented by Burn & Plastic Branch of Hunan Nursing Association.

### 2.2. Sampling

A total of 400 registered nurses were recruited for convenience sampling. They possessed one-year-plus burn-related working experiences, practiced actively in clinical nursing at burn department and participated voluntarily. Exclusion criteria included non-licensing nurses and having working experiences less than 1 year at burn department.

### 2.3. Instruments and measurements

Based upon the JBI evidence-based healthcare model and literature resources, a two-part questionnaire was formulated after thorough discussions [12,13]. Part I is a table for general profiles, including gender, age, education level, professional title, hospital class, English language proficiency, computer application familiarity, work experiences, research credentials and educator status. Obtaining an English proficiency certificate has been one of the teaching objectives as stipulated by the Chinese Ministry of Education (MOE). Receiving a certificate of College English Test (CET) band four or above is deemed as proficient in English. A certificate of National Computer Rank Examination (NCRE), as administered by MOE, attests a holder's computer application familiarity. And collaborating in one or more research programs is deemed as possessing research experiences, including qualitative (e.g., phenomenological) and quantitative (e.g. experimental & cross-sectional) aspects. Part II was designed for EBN practice: (a) EBN comprehension & training (6 items); (b) ability of EBN practice (24 items); (c) barriers to EBN practice (8 items); (d) willingness of solving problems through evidence-based practice (11 items). The ability and barriers to EBN practice were evaluated by the Likert 5-point scoring scheme, i.e. totally agree-5, basically agree-4, uncertain-3, totally disagree-2 and unclear-1. The higher scores, the stronger EBN abilities. The Cronbach's alpha coefficients of items, ability of EBN practice and barriers to EBN practice, two dimensions were 0.975 and 0.937; split-half reliabilities 0.899 and 0.885; test-retest reliabilities 0.985 and 0.975 respectively. Thus the above questionnaire had good reliability. Eleven problems to be solved through evidence-based practice were designated as the subordinate items of the questionnaire.

### 2.4. Data collection

The present study was conducted anonymously using the above-mentioned questionnaire. For each participating hospital, a principal investigator was selected and trained for the tasks of questionnaire distributing, form-filling tutoring and questionnaire collecting. A total of 318 (79.5%) registered nurses responded. All forms were checked thoroughly for completeness and timeliness.

### 2.5. Data analysis

All raw data were recorded into a database of Microsoft Excel spreadsheet and imported into SPSS software (Version 20). The measurements were expressed as mean±standard deviation (x±s) while the numeric data as frequency and percentage. EBN ability scores under different conditions were compared by variance with $P < 0.05$ as having statistical significance. The influencing factors of EBN ability were analyzed by multiple linear regression and Pearson's or Spearman's correlation.

### 2.6. Ethical considerations

Prior to completing a questionnaire, a principal investigator at each participating hospital obtained informed consents from all respondents.