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Research Article

Psychometric Properties of Korean Version of Self-Efficacy of Evidence-Based Practice Scale

Eui Geum Oh, RN, PhD,^{1,5,*} You Lee Yang, RN, MSN,² Ji Hyun Sung, RN, PhD,¹
Chang Gi Park, PhD,³ Anne M. Chang, RN, PhD⁴¹ College of Nursing, Mo-Im Kim Nursing Research Institute, Yonsei University, Seoul, South Korea² Graduate School, College of Nursing, Yonsei University, Seoul, South Korea³ College of Nursing, University of Illinois at Chicago, USA⁴ Institute of Health & Biomedical Innovation, Queensland University of Technology, Brisbane, Australia⁵ Yonsei Evidence Based Nursing Center of Korea: A Joanna Briggs Institute Center of Excellence, Seoul, South Korea

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SUMMARY

Purpose: This study is to evaluate the psychometric properties of the Korean version of the Self-Efficacy of Evidence-Based Practice (SE-EBP) scale, which was originally developed by Chang and Crowe. The beta-version of the SE-EBP is a modified version of the original SE-EBP, which measures the clinical nurses' confidence in finding, appraising, and implementing evidence into practice. Although the original SE-EBP has been validated, no study has been conducted to validate the Korean version of SE-EBP.

Methods: The original scale was translated into Korean through a process of forward and back translation of the original scale. After getting confirmation of the equivalence of the Korean forward translation by the original author, exploratory factor analysis and confirmatory factor analysis of data from 212 clinical nurses were used to test construct validity. Internal consistency was examined using Cronbach α coefficients. For the statistical analysis, STATA version 13.0 software program was used.

Results: Exploratory factor analysis of the 28 items revealed three factors with eigenvalues above 1, accounting for 60.2% of the total variance. Confirmatory factor analysis showed good fit of the three-factor structure which was statistically significant ($\chi^2 = 718.61$, $df = 330$, $p < .01$). For internal consistency, Cronbach α coefficient for the total scale was .95, and it was greater than .80 for each of the three subscales. **Conclusions:** The Korean version of SE-EBP scale showed evidence of adequate construct validity and reliability. This study might have contributed to a wider application of the SE-EBP scale, but further studies are needed to provide more evidence on the structure of the scale.

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Introduction

Evidence-based practice (EBP) is an essential capability and a valuable skill for clinical nurses in the delivery of quality healthcare all over the world [1]. Achieving better patient outcomes, requires that new knowledge must be transformed into clinically useful forms, in order to be effectively implemented across the entire care team [2]. By adopting EBP in clinical settings, nurses are enabled to communicate effectively with their patients and the healthcare team about the rationale for decision making and care plans.

Furthermore, adopting EBP empowers nurses to become confident professionals, feel assured that they are providing care supported by facts rather than habits, thereby enabling nurses to take legal accountability for their practice [3].

Effective EBP implementation in clinical practice requires accessible and available evidence for clinical nurses, and nurses must cultivate the ability to assess or criticize the evidence they are using in order to invigorate the acceptance of EBP. In clinical for practice, however, there is insufficient use of EBP in caring for patients or in management of patient care due to the lack of relevant research, time, and the ability to translate the research into practice [4]. In addition, some studies indicate that nurses rated their level of knowledge and skill related to EBP as low [5]. Reports by many clinicians that they are not equipped to implement EBP in the clinical setting suggested that they do not feel competent in using

* Correspondence to: Eui Geum Oh, RN, PhD, College of Nursing, Mo-Im Kim Nursing Research Institute, 50 Yonsei-ro, Seodaemun-gu, Seoul, 03722, South Korea.

E-mail address: euigeum@yuhs.ac

EBP skills needed in their decision-making process as a professional [6]. And nurses also have to value EBP as positive and must feel confident in using it [7–9]. Nevertheless, a number of studies investigating nurses' perceptions of EBP have shown that nurses generally take a positive view of EBP and consider it important for quality in patient care [10].

The effective adoption of EBP requires basic skills in the EBP process as well as feeling confident in (a) identifying knowledge gaps, (b) formulating relevant questions, (c) conducting an efficient literature search, (d) applying rules of evidence to determine the validity of studies, (e) applying the literature findings appropriately to the patient's problem, and (f) involving the patient appropriately in clinical decision making [11]. Self-efficacy in implementing EBP as well as the belief that practicing in an evidence-based way will improve outcomes has been highlighted in the literature as important attitude or beliefs to ensure success [12]. Therefore, in order to promote adoption of EBP in clinical practice it is necessary to identify the level of EBP confidence among clinical nurses, and when necessary formulate strategies to enhance self-efficacy.

The Self-Efficacy of EBP (SE-EBP) Scale was originally developed and evaluated by Chang and Crowe [13] in Australia for measuring the nurses' confidence in each step in the EBP process based on the concept of self-efficacy in Bandura's social cognitive theory [7,13]. The development of the instrument was motivated by the recognition that education programs needed to address more than knowledge of the EBP process, because confidence in basing practice on evidence is also essential [9]. The beta version of the Self-Efficacy of EBP (SE-EBP- β , 28 items) is a revision of the original 26-item scale to ensure the recommended minimum number of items per subscale is met, as specified by Chang and Crowe. The evaluation of the instrument indicated high internal consistency and resulted in a version with 28 items and a three-factor model: (a) identifying the clinical problem, (b) searching for evidence, and (c) implementing evidence into practice [9]. However, most studies on EBP tools have been carried out in English-speaking countries. When a tool is translated into another language, it is important to determine the validity of the translated version in the other cultural situation. Therefore, the purpose of this study was to evaluate psychometric properties of the Korean version of the SE-EBP scale and to determine the level of EBP competence in Korean nursing professionals.

Methods

Study design

This is a methodological study to test validity and reliability of the translated Korean version of the SE-EBP using the self-questionnaire survey.

Instruments

The beta version of the Self-Efficacy of EBP (SE-EBP- β)

The instrument SE-EBP- β [13] was used to measure the level of confidence held by nurses about EBP. The SE-EBP- β was found to have three factors from an exploratory factor analysis in 2011: identifying the clinical problem (5 items; e.g., "Identify a clinical problem needing evidence to guide nursing care"), searching for evidence (9 items; e.g., "Use computers to search for evidence-based information"), and implementing evidence into practice (14 items; e.g., "Determine the levels of evidence"). The SE-EBP- β contains a total of 28 Likert-type items rated with a score of 0–10, where 0 indicates *no confidence at all* and 10 indicates *extremely confident*. Possible SE-EBP- β scores range from 0 to 280 with higher scores indicating stronger confidence (self-efficacy) on EBP.

There were no redundant item categories in all 28 items. The original SE-EBP scale showed an adequate internal consistency with a Cronbach α of .97.

Translation procedures

A forward translation and back translation process was used [14]. The first translation was performed independently from English to Korean by the three bilingual translators who majored in nursing, lived in an English speaking country for more than 10 years, graduated from a nursing university program in the United States and had more than 3 years of clinical experience. Next, one of bilingual nursing professor reviewed the first version of the Korean translation and determined if it was relevant to Korean situations, both semantically and culturally. Minor revisions, such as changes in verbs, adjectives, or adverbs, were performed in this step. Then, the Korean translation was translated back to English independently by two other bilingual translators who have lived in the US for over 10 years and majored in nursing. The back-translated version was then reviewed directly by the original authors and most of the questions were assessed as similar to the original, with a few minor changes in wording recommended by the original author were made to the questionnaire. Lastly, two doctoral students and a nursing professor with experience of instrument translation and implementation projects, examined the Korean version as part of the expert validation, to identify whether the meaning of the items could be clearly understood.

Evaluation of psychometric properties of the Korean version of the instrument

Samples and data collection

Total of 214 newly registered nurses from three hospitals, located in Seoul and Gyeonggi-do in Korea, were recruited to participate in this study by convenience sampling approach. Excluding questionnaires with missing data, a total of 212 (99.0%) questionnaires were completed. The Korean version of the SE-EBP (K-SE-EBP) questionnaire was distributed at the education program for newly graduate nurses in 2014. Before the survey, researchers explained the purpose of the study, that there was no requirement to participate, and that their decision to participate or not would have no influence on their career or unit assignment. Also, we explained nurses who agreed to participate in the study should read and sign the informed consent form located at the cover of the questionnaire. Furthermore nurses were assured that their responses were anonymous. The questionnaire return box was placed at the back of the lecture room, and completed questionnaires were retrieved the following day.

Demographic data

The study participants' demographic data included sex, age, nursing educational background and previous education experience of EBP were collected.

Data analysis

Descriptive statistics were used to summarize sample characteristics. In addition, independent *t* test was used to identify significant differences of the mean score of self-efficacy among subgroups. Exploratory factor analysis (EFA) was conducted using varimax rotation to estimate the total variance explained by the specific items. Confirmatory Factor Analysis (CFA) was conducted in order to examine whether the K-SE-EBP factor structure was similar to the original SE-EBP. We tested two models: model 1 assessed the presence of three latent variables according to the

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