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# Translation, Cultural Adaptation, and Validation of the Arabic Version of the Student Evidence-Based Practice Questionnaire (S-EBPQ)<sup>1</sup>

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## Abstract

**Background** Evidence-based practice (EBP) lowers costs, guarantees staying current with new technology and abilities, and enables the provision of high-quality care. Evidence-based practice (EBP) considered the foundation for safe patient care.

**Aim** is to validate and carry out the linguistic-cultural adaptation of the S-EBPQ for the Arabic language.

**Design** A methodological study design was used.

**Method** There were two primary stages: translation and validation. Three experts reviewed the contents during the translation and validation in order to ensure their relevancy. 15 nursing students conducted face validation to confirm the produced items' clarity and understandability. Reliability assessment was achieved by conducting a pilot study on 72 nursing students. Ethical approval was taken. For statistical analysis, SPSS software was used. The internal reliability of the questionnaire was evaluated using Cronbach's Alpha. The Pearson Correlation was used to test the relationship between the student's score on the questionnaire and their age and gender.

**Results** The Scale-Content Validity Index was 0.90; Cronbach's Alpha value was 0.963. Students in face validation phase confirmed that wording, clarity, and understandable language of the items were achieved. The *Mean* of students total score was 80.2 (*SD* = 21.5). Pearson test revealed that there was a weak positive correlation between students' scores and age  $R = 0.320$  ( $p = 0.001$ ). Also, it demonstrated that there was no correlation between the students' scores and the gender  $R = -0.028$  ( $p = 0.817$ ).

**Conclusion** The Arabic version of the S-EBPQ generally had a solid structure and it demonstrated high validity and reliability. The questionnaire could be used in future studies.

**Keywords** Evidence-based practice, Nursing students, Translation, Validation, Questionnaire, Arabic

## Introduction

The code of ethics for nurses likewise explicitly emphasizes how well-established scientific research and the application of its findings are in nursing practice. The challenge for nurses in the modern day is to provide efficient, secure, and individualized care. Evidence-based practice (EBP) lowers costs, guarantees staying current with new technology and abilities, and

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enables the provision of high-quality care. Evidence-based practice (EBP) considered the foundation for safe patient care. Furthermore, it provides patient with complex condition with the best available practice. Translating tools makes evidence-based guidelines and interventions available to a larger audience, including non-English speaking healthcare providers and patients. This inclusivity contributes to providing consistent and high-quality care across different locations and populations.

In 2012 Melnyk et al. defined (EBP) as approach to clinical decision-making that combines the most important data from thorough investigations with the knowledge of clinicians and internal evidence of each particular patient's values, preferences, and evaluation [14]. The application of EBP have global importance because it concerns the improvement of quality and good patient outcome. Also, its positive effects continue to include; staff empowerment, teamwork and work engagement [9]. Nevertheless, there are multiple barrier that limit application of EBP in practice such as: lack of knowledge and skills, misconception that application of EBP will consume time, lack of leader and organization support, and unavailable mentor during EBP application [8].

Improving their belief about EBP is the key toward proper application of evidence, it reflects on the individual perception on the value toward EBP and the perceived self confidence in own knowledge [15]. And improving the education process is mandatory to ensure that student embrace the right attitude. This point is crucial because undergraduate may possess the skill for search but they lack the ability to conduct research or the proper appraisal of articles [1]. On a related note, a study done among 118 American students found that it was difficult for them to distinguish between EBP and research [10]. While [5] carried out a study among 188 nursing bridge program and found that implementation of evidence is very poor and identified training and seminars as influential factors of EBP implementation.

Another study done among mental health nurses in Saudi Arabia found that nurses relied on their experience and social interaction as the most frequent sources of knowledge. While external sources of knowledge and research evidences were rarely utilized. Alqahtani et al. [2] reported that nurses in Saudi Arabia are willing to be involved in EBP but they need to improve their knowledge and skills to become active participants. Thus, it can be inferred that assessment of students' beliefs toward EBP is importance to ensure holding of the basic aspects of it in the early start of their professional life. Local finding can aid in establishing new direction in nursing education. Therefore, translating the EBP questionnaire to Arabic will aid in including large number of students who

will describe the problem in their native language. Which result in high quality data and improved intervention.

## Methods

### Aim

The purpose of the current study was to validate and carry out the linguistic-cultural adaptation of the S-EBPQ for the Arabic language.

### Study Design

A methodological study design was used to translate the Student Evidence Based Practice Questionnaire (S-EBPQ) into the Arabic language and evaluate its validity and reliability.

### Participants

Participants in this study were three experts from Ministry of Health and Nursing Education for the content validation of the Arabic version of the S-EBPQ, 15 nursing students at \*\*\*\*\* University for face validation, and 72 nursing students for the reliability assessment.

### Instruments

Student Evidence Based Practice Questionnaire (S-EBPQ) is a modified version of the Evidence-Based Practice Questionnaire (EBPQ). The EBPQ was originally created in 2006 by Dominique & Penney Upton to assess the nurses' knowledge, skills, and attitude regarding Evidence-Based Nursing Practice [22]. The S-EBPQ consists of 21 items and divided into four subscales: Frequency of Practice (6 items), Attitude (3 items), Retrieving and Reviewing Evidence (7 items), and Sharing and Applying EBP (5 items). In addition, the Principal Component Analysis (PCA) supported the construct validity of the S-EBPQ. Internal reliability was measured by Cronbach's alpha, which exceeded 0.7 across all scales [22].

### Procedure

There were two primary stages: which were translation and validation. Expert reviews of the contents were conducted during the translation and validation stages in order to ensure their relevancy, representativeness, and omission of vagueness. The finalized version was then face-validated among the intended population (15 nursing students) to confirm the produced items' clarity and understandability. Reliability assessment was achieved by conducting a pilot study on (72 nursing students). Approval was taken from the Human Ethics Committee from King Saud University.

### Translation Process

In this study, the scale was translated to Arabic language according to World Health Organization's (WHO's)

process of translation and adaptation of instruments [23]. The process included forward translation, content validity, backward translations, and face validation.

**Step 1: Forward Translation.** The S-EBPQ questionnaire was forward translated into Arabic language by an English linguistics researcher and independent bilingual translator. The English linguistics researcher was familiar with English phrases, and expression terms used in Arabic, while the independent bilingual translator had advanced knowledge about medical terminologies and questionnaire content in both languages [20]. The researchers with the translators had meetings to identify and agree on the first version of the translated version of the S-EBPQ questionnaire.

**Step 2: Content validity.** The content validation was conducted on the Arabic version of the S-EBPQ to ensure that the questions accurately reflected the definition that was meant to be conveyed [18]. The minimum number of experts for content validation is three. "Content validation should be done with at least three experts, but a larger group is preferable" [19], p. 311. The translated questionnaire was thereafter pretested by three experts who were familiar with Arabic and the content of the questionnaire. The goal of content validity was to evaluate how acceptable the questionnaire's material was. The questions and items were assessed for clarity and relevance by each expert by providing a score ranging from 1 to 4 (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant). Based on the opinions and suggestions of the experts, the content validity index (CVI) was determined [19]. The Scale-Content Validity Index was calculated by dividing the total of the I-CVI values by the number of items in the questionnaire. The content has been deemed to be valid and relevant, with an acceptable index score of 0.80 [17]. In gaining the responses from the experts, experts' agreements were quantified as shown in Table 1. In all, the 3 experts were selected and forms were distributed to them. All 3 forms were received back. All of them found carefully filled in.

**Step 3: Backward Translation.** The Arabic version of the S-EBPQ was then translated backward into English (source language) by two independent persons with similar criteria listed in Section Forward Translation. They were unaware of the questionnaire beforehand [21]. The authors got together to discuss and revise the unclear texts. Along with the initial Arabic translation, they also contrasted the original text with the two reverse translations. During the reconciliation stage, the disparities are investigated

**Table 1** Quantification of Expert's Agreement

Responses	Not relevant	Somewhat relevant	Quite relevant	Highly relevant
Quantifications	1	2	3	4

to establish their reason. The forward translation is edited to ensure that the final version is conceptually and linguistically identical to the original text. Subsequently, during the consultation, translators discussed the detected difficulties to make any required changes, ensuring that the translation accurately delivers the intended meaning. The final version of the questionnaire in Arabic was finalized to be tested for face validity.

**Step 4: Face validity.** Face validity of the measuring tool or domains was assessed by the target group for appearance validity. 15 participants who will be answering this instrument's questions were chosen from the target population to participate in the face validation assessment. Participants assessed the intelligibility of the questionnaire response format, clarity, wording, language, and time required. Each question was independently answered by all 15 volunteers. Feedback was documented in the reconciliation table, and was cross-referenced and revised as needed, based on consensus among translators/investigators/research team members.

#### Reliability Assessment: Pilot Study

After the experts' agreement on the items and face validation, a pilot study was prepared to measure concepts of scale. According to Polit and Beck [19], recommendation range is from 3 to 4 participants for each item. The tool is consisting of 21 items and 3 participants were assigned for each item. The minimum required sample is 63 participants. Therefore, 72 nursing students from King Saud University were selected for reliability assessment. The desirable value of Cronbach's alpha is 0.80 [19]. Convenience sampling was used to recruit the participants.

#### Statistical methods

Data was analyzed by using SPSS software (Version 27). The internal reliability of the questionnaire was evaluated using Cronbach's Alpha, the most commonly used tool to measure instrument reliability. The Pearson Correlation Index (PCI) was used to determine if there was a relationship between the student's score on the questionnaire and their age and gender.

### Ethical considerations

The study was carried out with the approval from the King Saud University, Nursing College. IRB approval number was KSU-HE-23-615. Permission from authors to translate and use the tool was gained. Participation in the study was voluntary and participants can withdraw from the study at any time. The participants' anonymity and confidentiality were ensured during the data collection. Informed consent was obtained from all students who participated in this study.

### Result

Table 2 shows the results of the questionnaire assessments completed by experts. All questions in the tool obtained a score of 3 or 4 from the expert panel, with the exception of item 1 (Formulated a clearly answerable question as the beginning of the process towards filling this gap) and item 2 (Tracked down the relevant evidence once you have formulated the question). The first item received a score of 1 from one expert and score of 2 from another expert. In addition, the second item received a score of 2 from one expert. To compute the Item-Content Validity Index (I-CVI), it was

assigned a value of 1 to (3–4) that was given by expert panel and a value of 0 to (1–2) that was given by expert panel. These numbers were eventually added together and divided by the number of experts. The Scale-Content Validity Index/Universal Agreement (S-CVI/UA) was computed by assigning a value of 1 to items rated by all experts with a score of 3 or 4, and a value of 0 to items judged by at least one expert with a score of 1 or 2. The obtained values were totaled and divided by the number of items. Finally, the Scale-Content Validity Index/Average (S-CVI / Ave) was computed by dividing the total of the I-CVI values by the number of questionnaire items. The S-CVI of Student Evidence Based Practice Questionnaire was calculated and the value was 0.90.

All the 15 participants agreed that the wording, clarity, and understandable language of the items were achieved. In addition, participants revealed that the tool has good and easy response format. However, eleven of participants agreed that the required time to fill the scale is from 15 to 20 min while the other four participants agreed that the required time to fill the scale is from 25 to 30 min. Table 3 illustrates the answers of the 15 participants.

**Table 2** Content Validity Index scores

	<b>CVI</b>
Frequency of Practice	
1. Formulated a clearly answerable question as the beginning of the process towards filling this gap	0
2. Tracked down the relevant evidence once you have formulated the question	0
3. Critically appraised, against set criteria, any literature you have discovered	1
4. Integrated the evidence you have found with your expertise	1
5. Evaluated the outcomes of your practice	1
6. Shared this information with colleagues	1
Attitude	<b>CVI</b>
7. I resent having my clinical practice questioned	1
8. Evidence based practice is a waste of time	1
9. I stick to tried and trusted methods rather than changing to anything new	1
Retrieving and Reviewing Evidence	<b>CVI</b>
10. Research skills	1
11. Converting your information needs into a research question	1
12. Awareness of major information types and sources	1
13. Knowledge of how to retrieve evidence	1
14. Ability to analyze critically evidence against set standards	1
15. Ability to determine how valid (close to the truth) the material is	1
16. Ability to determine how useful (clinically applicable) the material is	1
Sharing and Applying EBP	<b>CVI</b>
17. Ability to identify gaps in your professional practice	1
18. Ability to apply information to individual cases	1
19. Sharing of ideas and information with colleagues	1
20. Dissemination of new ideas about care to colleagues	1
21. Ability to review your own practice	1
<b>S-CVI</b>	<b>0.90</b>

**Table 3** Answers of Nursing Students in the Pretest (Face Validation)

Questions on Scale	Participant (n= 15)
Response Format	Easy / good
Clarity	Clear/ Very Clear
Language	Appropriate/ Understandable
Wording	Understandable
Time	11 Participants took 15 to 20 minutes to fill questionnaire 4 participantstook 25 to 30 minutes to fill questionnaire

**Table 4** Reliability of Questionnaire

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.963	.965	21

**Table 5** Mean and Standard Deviation of Students' Total Scores

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Total score	72	27.00	112.00	80.2639	21.57398
Valid N (listwise)	72				

Cronbach's Alpha was calculated to verify questionnaire reliability, yielding an overall value of 0.963 (see Table 4). 45.8% of participants were male students and 54.2% of participants were female nursing students. Regarding the age, 13.9% of participants were at age 19; 31.9% were at age 20; 27.8% of participants were at age 21; while 16.7% at age 22; and 9.7% of participants were at age 23.

Table 5 shows the mean and standard deviation of students' total scores of evidence based practice. The first subscale "frequency of practice" demonstrated a mean = 3.5 (SD = 1.23); while mean = 3.2 (SD = 1.16) in the "Attitude" subscale; mean = 3.9 (SD = 1.52) in the "Retrieving and Reviewing Evidence" subscale; and mean = 4.3 (SD = 1.59) in the "Sharing and Applying EBP" subscale.

Table 6 shows a correlation coefficient of 0.320 ( $p=0.001$ ) which indicates a weak positive correlation between the total scores of nursing students and age. That means an increase in age lead to an increase in total scores of evidence based practice. However, Table 7 shows that there was no statistically significant correlation was found between the questionnaire results and the gender of the nursing students ( $R=-0,028$ ;  $p=0.817$ ).

**Table 6** Pearson's Correlation Coefficient for Age

Correlations			
		Age	Total score
Age	Pearson Correlation	1	.320
	Sig. (2-tailed)		.001
	N	72	72

Correlation is significant at the 0.05 level (2-tailed)

**Table 7** Pearson's Correlation Coefficient for Gender

Correlations			
		Gender	Total score
Gender	Pearson Correlation	1	-.028
	Sig. (2-tailed)		.817
	N	72	72

Correlation is significant at the 0.05 level (2-tailed)

## Discussion

Evidence based practice is a method for reviewing, analyzing, and translating the most recent scientific evidence. The goal is to immediately integrate the best available research, clinical experience, and patient preference into clinical practice, so that nurses can make out informed decisions related to patient care. EBP is the foundation of clinical practice. Incorporating EBP into nursing practice improves the quality of care and patient outcomes [6]. Therefore, the aim of this paper was to validate and conduct the linguistic-cultural adaptation of the S-EBPQ for the Arabic language.

The translation and validation of the tool entails more than a literal translation, which is critical in order to develop a valid and appropriate questionnaire or tool, appropriate for different population with different cultures or languages [3, 12]. In the current paper, existed questionnaire in English language was to translated forward (Arabic language). The translation process was done by English linguistics researcher and independent bilingual translator to ensure that the Arabic translations



preserved the original meaning of the English version questionnaires. Among the three experts, content validations of the Arabic-language questionnaires revealed good and precise comprehension of the contents and languages utilized. This demonstrated that the translation process was culturally appropriate for usage in the intended population.

It is crucial that the translation is understandable, clear, accurate, and follows the grammatical rules in the translated language. Additionally, the translated tool must have the same communicative impact as the original tool. Also, it should be culturally appropriate to the target population [11]. For a new tool, a content validity index of at least 0.8 is considered as appropriate and relevant [17, 7]. In the current study, S-EBPQ demonstrated content validity index = 0.90, indicating that the contents were very relevant to the outcome being examined and the Arabic population.

The back translated version (from Arabic back-translated to English language) was afterward compared with the original tool (English version) by two translators. Only minor changes were required after discussion and reconciliation, demonstrating clarity and the absence ambiguities. Face validity is frequently used as an evaluation criterion to show robustness under inspection and to show the degree of understanding by the target population toward questionnaire items [19]. In the current study, face validity testing involving 15 participants were asked about questionnaire response format, clarity, wording, language, and time required. Their responses indicated the appropriateness for use among the Arabic-speaking population. In addition, 72 participants involved in pilot testing for reliability assessment. The Cronbach's Alpha was 0.963, indicating that the tool is reliable.

The current study demonstrated a weak positive correlation between the total scores of nursing students and age. This proved that older students are often better familiar with the content and procedures, which can contribute to higher scores. Also, the current study demonstrated that there was no statistically significant correlation was found between the questionnaire results and the gender of participants. These results were different from a study that was conducted by Longo et al. [13] which revealed not statistically significant correlation was found between the questionnaire results and the age of nursing students (Pearson index  $R = -0.02$ ). However, the results of current study and Longo et al. [13] study was similar in aspect of gender which revealed no statistically significance correlation was found between the questionnaire results and the gender of the students.

Overall, Arabic version questionnaire demonstrated high validity and reliability. Among the several tools available, the S-EBPQ was selected since it is one of the

most often utilized by academics and researchers [4], as shown by its cultural adaption and translation into different languages [16]. Translation make evidence-based guidelines and interventions more accessible to a wider range of people, including non-English-speaking health-care providers and patients. This inclusion helps to provide consistent and high-quality care across multiple places and populations. One limitation in this study is the self-report feature of the questionnaire. Another limitation is the use of convenience sampling in recruiting the sample. Further research studies should be conducted using Arabic version of S-EBPQ with larger sample in different settings.

## Conclusion

The results of the study emphasize the importance of utilizing evidence-based practice in clinical settings. Providing quality care is essential, and it cannot be completed without applying evidence. The translation of the scale might help discover new themes and facilitate the proper application of evidence in clinical settings. Through translation, science immigrates from one place to another, which will help overcome communication barriers and enhance regional growth. Evidence-based practice (EBP) reduces costs, ensures remaining up to date with new skills and technology, and makes it possible to deliver high-quality care. The Arabic version questionnaire generally had a solid structure; all analyses performed to determine the face validity, content validity, and internal consistency gave extremely high values, demonstrating data are similar or better than those of other tools currently available. Arabic version of Student-Evidence-Based Practice Questionnaire (S-EBPQ) should be used in future studies to assess its practical applications in nursing education and practice.

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12909-024-06259-4>.

Supplementary Material 1.

Supplementary Material 2.

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## Questionnaire

The questionnaire used in this study (Arabic Version) was developed for this study.

## Conflict of interest

All authors have no conflict of interest to declare.

### Authors' contributions

K. A. contributed to IRB approval, proposal development, data collection, translation process, results including figures and graphs, discussion, manuscript preparation, and publication process. A. A. contributed to methodology. R. G. contributed to the introduction and conclusion. All authors reviewed and confirmed the manuscript.

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### Data availability

The author confirms that the data supporting the findings of this study are available within the article.

### Declarations

#### Ethics approval and consent to participate

The research was conducted in accordance with declaration of Helsinki.

#### Consent to publication

Informed consent was obtained from all students who participated in this study. The study was carried out with the approval from the King Saud University, Nursing College.

#### Competing interests

The authors declare no competing interests.

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