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Development and Validation of Evidence Based Nursing Knowledge and Attitude Questionnaire (EBN-KA-Q)

Mohd Suhail Jogi[1]; Perkash Kour[2]; Wakeel Wasil[1]; Shazia Gurgani[3]*

[1]Department, Nursing Administration, Sher-I-Kashmir Institute of medical Sciences Soura, Srinagar, JK, India.

[2]Assistant Professor, MMINSR, Soura, Srinagar, JK, India.

[3]Department of Nursing Educations, Bibi Halima College of Nursing and Medical Technology, Kathi Darwaza, Rainawari, Srinagar, JK, India.

***Corresponding Author(s): Shazia Gurgani**

Department of Nursing Educations, Bibi Halima College of Nursing and Medical Technology, Kathi Darwaza, Rainawari, Srinagar, JK, India.

Tel: 9541655404; Email: gurganishazia@gmail.com

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Abstract

This study aimed to develop and validate the Evidence-Based Nursing Knowledge and Attitude Questionnaire (EBN-KA-Q) to assess the knowledge and attitudes of nursing professionals towards Evidence-Based Practice (EBP). The sample included 65 nurses, predominantly female (60%), aged between 20-30 years (53.8%), and primarily from rural areas (70.8%), holding B.Sc. Nursing/Post B.Sc. Nursing qualifications (72.3%) with 1-5 years of experience (64.7%). Significant associations were found between knowledge scores and demographic factors such as professional qualifications (p=0.007) and years of experience (p=0.025). The tool demonstrated high content validity with a Content Validity Index (CVI) of 0.88 and 0.97. Reliability was confirmed with a Cronbach's Alpha of 0.854 for the knowledge section, and Guttman Split-Half and Spearman-Brown Coefficients of 0.810 and 0.811 for the attitude section, respectively. Despite limitations such as the cross-sectional design and reliance on self-reported data, the EBN-KA-Q proved to be a robust instrument for measuring EBP knowledge and attitudes. The EBN-KA-Q can guide educational interventions and policy developments, ultimately improving EBP integration in nursing practice and enhancing patient care quality.

Introduction

The integration of Evidence-Based Practice (EBP) into nursing is a pivotal element in advancing healthcare quality and patient outcomes. EBP merges clinical expertise, patient values, and the most reliable research evidence into the decision-making process for patient care. This approach ensures that nursing interventions are grounded in the best available evidence, enhancing the efficacy and safety of patient care [1]. The importance of equipping nurses with strong evidence-based knowledge and fostering positive attitudes toward EBP is well-recognized, yet challenges persist in its widespread adoption [2]. Nurses' knowledge and attitudes toward EBP significantly influence their ability to implement evidence-based interventions effectively. Knowledge pertains to understanding EBP principles, research methodologies, and the ability to critically appraise scientific evidence [3]. A positive attitude toward EBP, on the other hand, involves recognizing its value, being open to new evidence, and having confidence in one's ability to apply research findings in clinical practice [4]. However, barriers such as insufficient training, limited access to resources, and resistance to change often hinder the integration of EBP into nursing practice [5].

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To address these challenges, it is essential to assess and enhance the evidence-based knowledge and attitudes of nursing professionals. The development of reliable and valid tools to measure these attributes is crucial for identifying educational needs and evaluating the effectiveness of interventions aimed at promoting EBP [6]. The Evidence-Based Nursing Knowledge and Attitude Questionnaire is designed to fulfill this need by providing a comprehensive assessment of nurses' understanding and perceptions of EBP. The questionnaire comprises several key components, including knowledge of EBP concepts, familiarity with research processes, perceived importance of EBP, and potential barriers to its implementation. By evaluating these aspects, the questionnaire can identify gaps in knowledge and areas for improvement, guiding the development of targeted educational programs [7]. Previous studies have demonstrated that structured educational interventions significantly improve nurses' EBP competencies and attitudes, leading to better patient care outcomes [8]. Furthermore, understanding the cultural and organizational context in which nurses operate is essential for tailoring EBP initiatives effectively. Cultural differences and organizational support can influence nurses' attitudes toward EBP and their willingness to engage in research activities [9]. Therefore, the questionnaire is designed to be adaptable across different healthcare settings, ensuring its applicability in diverse cultural and organizational environments.

In conclusion, the assessment and enhancement of evidence-based nursing knowledge and attitudes are vital for advancing nursing practice and improving patient care quality. The Evidence-Based Nursing Knowledge and Attitude Questionnaire serves as a valuable tool in this endeavor, providing insights that can inform educational and policy initiatives aimed at fostering a more evidence-based nursing culture. By leveraging this instrument, healthcare systems can better equip nurses with the skills and mindset necessary for the effective integration of EBP into clinical practice.

Materials and Methods

Study design, setting, and participants

This research study employed a cross-sectional study design to assess the knowledge and attitudes of staff nurses at SKIMS Soura regarding evidence-based practice. The setting for this study was the Sher-i-Kashmir Institute of Medical Sciences (SKIMS) Soura, a premier tertiary care medical facility in Srinagar, Jammu & Kashmir, India.

Sample size and sampling technique

The sample consisted of 65 staff nurses selected using purposive sampling technique. The selection was based on Cochran's formula for finite populations, applied to a total population of 185 staff nurses at SKIMS Soura. This formula allowed for a precise calculation of the sample size required to achieve statistically significant results, ensuring that the findings would be representative of the entire nursing staff.

Inclusion and Exclusion Criteria

Inclusion criteria comprised staff nurses holding qualifications, B.Sc., Post Basic, M.Sc., and post PG. Nurses with General Nursing and Midwifery (GNM) qualifications and those on night duties were excluded from the study.

Data Collection Instrument

Data was gathered using a structured questionnaire divided into three sections:

Section I; Demographic Profile: This section captured the basic demographic details of the participants, including age, gender, educational qualifications, marital status, place of posting years of experience, and area of residence (ANNEXURE I).

Section-II; Knowledge of Staff Nurses regarding Evidence-based practice: This part consists of total 25 multiple choice items with predetermined correct responses and suitable distracters /negative answers. (ANNEXURE I)

It is further subdivided into 3 parts;

Part-I: Concepts and Steps of Evidence-based Practice. It consists of 13 items.

Part-II: Purposes and Barriers of Evidence-based Practice. It consists of 4 items.

Part-III: Evidence-based Practice in Nursing Research. It consists of 8 items.

Section-III: Attitude of Staff Nurses towards Evidence- based Practice. 5 point likert scale Strongly Agree [5], Agree [4], Uncertain [3], Disagree [2] & Strongly Disagree [1] with total of 20 items. (ANNEXURE I).

Scoring of Knowledge:

Level of knowledge:

- Highest score= 25
- Lowest score= 0

1. Inadequate level of knowledge = <9
2. Moderate level of knowledge = 10-16
3. Adequate level of knowledge = >16

Scoring of Attitude:

- Highest score = 100
- Positive attitude = >50
- Negative attitude = <50

Data collection procedure

The study commenced following the approval from the Institutional Ethics Committee under protocol number IEC/SPHG/N/2024/63. Written informed consent was obtained from all participants, ensuring confidentiality and voluntary participation. The structured questionnaire was then administered to the selected staff nurses.

Results and discussion

The collected data was analyzed using both descriptive and inferential statistics. Descriptive statistics were employed to summarize the demographic variables and baseline knowledge and attitudes of the participants. Inferential statistics was used to determine the significance of differences and associations between variables.

Demographic Distribution of Study Participants

Table 1: Shows the majority of the sample population is aged between 20-30 years (53.8%), predominantly female (60%), and largely resides in rural areas (70.8%). Most participants are unmarried (52.3%) and possess a B.Sc. Nursing/Post B.Sc. Nursing qualification (72.3%). The majority have 1-5 years of experience (64.7%).

n=65		
Variables	**Frequency**	**Percentage**
1.Age in years		
20-30 years	35	53.8
31-40 years	25	38.5
41-50 years	2	3.1
>50 years	3	4.6
2. Gender		
Male	26	40
Female	39	60
3. Marital status		
Married	31	47.7
Unmarried	34	52.3
4. Residential area		
Urban	19	29.2
Rural	46	70.8
5. Professional qualification		
B.Sc. Nursing/ Post B.Sc. Nursing	47	72.3
P.G in Nursing	15	23.1
Post P.G Qualification	3	4.6
6. Experience in years		
1-5 years	42	64.7
6-10 years	12	18.4
11-15 years	6	9.2
>15 years	5	7.7

Our research findings also suggest that there's a noteworthy association between knowledge scores and certain demographic factors: specifically, professional qualifications (p=0.007) and years of experience (p=0.025). This suggests that both qualifications and experience are influential in determining knowledge levels of Evidence Based Nursing.

These findings are consistent with previous studies, highlighting that higher educational levels and more experience correlate with greater knowledge and more positive attitudes towards Evidence-Based Practice (EBP) [1,10]. This underlines the importance of targeted education and training programs that consider these demographic factors to enhance EBP competencies among nursing staff.

Tool Validity

The tool was submitted to a panel of experts for establishing the content validity. These include 7 nursing experts and one statistician (E1-E8). These experts were requested to give their opinions and suggestions regarding the relevancy, adequacy and appropriateness of statements to achieve the purpose of study. Based on their suggestions and recommendation questionnaire was modified. In Knowledge questionnaire 2 questions were removed with CVR (Content Validity Ratio) less than .3 and 6 questions were added, where as in Attitude questionnaire 2 questions with CVR less than .3 were removed and 2 questions were added. In final questionnaire CVI (Content Validity Index) was calculated and the tool was found valid with CVI 0.88 and 0.97 as showed in Table No. 2 and Table No. 3 respectively.

Table 2: Shows Content Validity Index of Knowledge of Staff Nurses Regarding Evidence- based Practice.

QUESTIONS	E1	E2	E3	E4	E5	E6	E7	E8	CVR
1. What is Evidence-Based Practice (EBP)	✓		✓	✓	✓	✓	✓	✓	1
2. Which of the following includes EBP?	✓	✓	✓	x	✓	✓	✓	✓	.75
3. Which of the following is a key component of EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
4. Why research is vital in EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
5. What is the role of clinical expertise in EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
6. Which is Not a limitation to EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
7. Which one is Not the major component of EBP in Nursing?	x	✓	✓	✓	✓	✓	✓	✓	.75
8. Which is the first step in EBP process?	✓	✓	✓	✓	✓	✓	✓	✓	1
9. Which of the following is an essential component of a well- structured clinical question?	✓	✓	x	✓	x	✓	x	✓	.5
10. Which is the next step in the EBP process after formulating a clinical question?	✓	✓	✓	x	✓	✓	✓	✓	.75
11. Which is the next step in the EBP process after reviewing literature?	✓	✓	✓	✓	✓	✓	✓	✓	1
12. Which of the following is Not a step in the EBP process?	✓	✓	✓	✓	✓	✓	✓	✓	1
13. Which among the following is Not one of the steps of EBP?	✓	x	x	✓	✓	✓	✓	x	.5
14. What is the significance of critically appraising research articles during the EBP process?	✓	✓	x	x	✓	✓	x	✓	.5
15. What is the purpose of conducting literature review for EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
16. Which of the following is Not a barrier in EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
17. Which of the following is a barrier in implementing EBP in nursing practice?	✓	✓	✓	✓	✓	x	✓	✓	.75
18. How can nurses contribute to the development of EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
19. Which of the following is a way to promote EBP among nursing staff?	✓	✓	✓	✓	✓	✓	✓	✓	1
20. How can nurses keep up with the most recent Evidence-based techniques in their area of expertise?	✓	✓	✓	✓	✓	✓	✓	✓	1
21. How can nurses help to build the body of evidence?	x	✓	✓	✓	✓	✓	✓	✓	.75
22. Why is it essential for nurses to integrate EBP into their practice?	✓	✓	✓	✓	✓	✓	✓	✓	1
23. When searching for evidence, which source is considered as the highest level of evidence?	✓	✓	✓	✓	✓	✓	✓	✓	1
24. Which of the following is the main goal of Evidence based Nursing?	✓	x	✓	✓	✓	✓	✓	✓	.75
25. How can nurses access evidence for EBP?	✓	✓	✓	✓	✓	✓	✓	✓	1
CVI									.88

Table 3: Content Validity Index (Attitude).

Table 3: Shows Content Validity Index of Attitude of Staff Nurses towards Evidence- based Practice.

QUESTIONS	E1	E2	E3	E4	E5	E6	E7	E8	CVR
EBP is essential for high quality patient care.	✓	✓	✓	✓	✓	✓	✓	✓	1
Integrating research findings into clinical practice improves patient outcomes.	✓	✓	✓	✓	✓	✓	✓	✓	1
EBP enhances the credibility and professionalism of Nursing as a discipline.	✓	✓	✓	✓	✓	✓	✓	✓	1
Practice should be flexible to change as per evidence.	✓	✓	✓	✓	✓	✓	✓	✓	1
One must Feel confident in implementing EBP in Nursing practice.	✓	✓	✓	✓	✓	X	✓	✓	.75
Actively seeking research literature help individuals to update their knowledge.	✓	✓	✓	✓	✓	✓	✓	✓	1
Employing EBP streamlines procedures.	✓	✓	✓	✓	✓	✓	✓	✓	1
EBP should be compatible with clinical practice.	✓	✓	✓	✓	✓	✓	✓	✓	1
EBP can benefit health care system as whole.	✓		✓	✓	✓	✓	✓	✓	1
Staying up to date with all new evidences is a priority despite of workload.	✓	✓	✓	✓	x	✓	✓	✓	.75
Continuous integration of EBP into Nursing practice is achievable.	✓	✓	✓	✓	✓	✓	✓	✓	1
EBP should be a crucial component of programs for Nursing education and training.	✓	✓	✓	✓	✓	✓	✓	✓	1
Health care agencies must support and encourage to implement EBP.	✓	✓	✓	✓	✓	✓	✓	✓	1
Patient preferences and values are important for applying EBP.	✓	✓	✓	✓	✓	✓	✓	✓	1
EBP is valuable use of time.	✓	✓	✓	✓	✓	✓	✓	✓	1
EBP is preferred over personal experience.	✓	✓	✓	✓	✓	✓	✓	✓	1
EBP has vast and diverse utilization.	✓	✓	✓	✓	✓	✓	✓	✓	1
Approaching patient with evidence-based interventions should be priority.	✓	✓	✓	✓	✓	✓	✓	✓	1
Every nurse must know the search engines and data-bases for evidences.	✓	✓	✓	✓	✓	✓	✓	✓	1
Implementing evidence-based practice enhances patient safety and occupational safety.	✓	✓	✓	✓	✓	✓	✓	✓	1
CVI									.97

Tool Reliability

The reliability of the "Knowledge of Staff Nurses Regarding Evidence-Based Practice" tool was confirmed with a Cronbach's Alpha of 0.854. This high level of internal consistency indicates that the tool is dependable and accurately measures the intended attributes, ensuring robust and credible research findings.

The final validation of the EBN-KA-Q yielded robust results. The Content Validity Index (CVI) was calculated, resulting in a CVI of 0.88 and 0.97, indicating high content validity. The reliability of the "Knowledge of Staff Nurses Regarding Evidence-Based Practice" tool was confirmed with a Cronbach's Alpha of 0.854, demonstrating high internal consistency. Similarly, the "Attitude of Staff Nurses towards Evidence-Based Practice" tool showed reliability, with a Guttman Split-Half Coefficient of 0.810 and a Spearman-Brown Coefficient of 0.811. These high reliability indices suggest that the EBN-KA-Q is a dependable instrument for measuring knowledge and attitudes towards EBP, ensuring credible and valuable research findings.

The validation process aligns with methodologies from previous research aimed at developing reliable and valid assessment tools for EBP [11,4]. The high reliability and validity of the EBN-KA-Q ensure that it can effectively identify educational needs, evaluate the impact of interventions, and ultimately improve the integration of EBP in nursing practice.

Future research should consider longitudinal studies to track changes over time and assess the long-term impact of educational interventions on EBP knowledge and attitudes. Additionally, exploring the cultural and organizational contexts within which nurses work can provide deeper insights to adapt EBP initiatives effectively [3].

Conclusion

The development and validation of the Evidence-Based Nursing Knowledge and Attitude Questionnaire (EBN-KA-Q) offer a valuable tool for assessing the knowledge and attitudes of nursing professionals towards Evidence-Based Practice (EBP). The study's findings highlight significant associations between knowledge scores and demographic variables such as professional qualifications and years of experience, underscoring the importance of tailored educational interventions. The high reliability and validity indices achieved, including a Cronbach's Alpha of 0.854 for the knowledge component and strong Guttman Split-Half and Spearman-Brown Coefficients for the attitude component, indicate the tool's robustness in measuring the intended attributes.

While the study was limited by its cross-sectional design and potential self-reporting biases, the EBN-KA-Q's rigorous validation process provides confidence in its application for both educational and clinical purposes. Future research should focus on longitudinal studies, expanding sample diversity, and integrating objective measures to further strengthen the tool's utility and generalizability. By leveraging the EBN-KA-Q, healthcare systems can better identify educational needs, evaluate training program effectiveness, and ultimately enhance the implementation of EBP in nursing, thereby improving patient care quality.

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