DOI: https://doi.org/10.54393/pbmj.v7i12.1162

PAKISTAN BIOMEDICAL JOURNAL

https://www.pakistanbmj.com/journal/index.php/pbmj/index

ISSN (P): 2709-2798, (E): 2709-278X

Volume 7, Issue 12 December 2024)

Original Article

OPEN ACCESS

Knowledge, Attitudes, and Practices of Undergraduate Nursing Students Toward Evidence-Based Practice: A Cross-Sectional Study in Khyber Pakhtunkhwa, Pakistan

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ARTICLE INFO

Keywords:

Evidence-Based Practice, Nursing Students, Knowledge, Attitude, Practice

How to Cite:

Rahman, S. U., Ali, B., Khan, S., Abdullah, ., Imtiaz, L., Naz, I., Ubaid, H., Ismail, M., & Ullah, H. (2024). Knowledge, Attitudes, and Practices of Undergraduate Nursing Students Toward Evidence-Based Practice: A Cross-Sectional Study in Khyber Pakhtunkhwa, Pakistan: Knowledge, Attitudes, and Practices Toward Evidence-Based Practice. Pakistan BioMedical Journal, 7(12), 02-06. https://doi.org/10.54393/pbmj.v7i12.1162

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Received Date: 12th November, 2024

Acceptance Date: 24th December, 2024

Published Date: 31st December, 2024

ABSTRACT

Evidence-based practice (EBP) in nursing is the collective utilization of best evidence, clinical expertise, and patient preference. Limited studies were found regarding the EBP of nursing students. **Objectives:** To assess the knowledge, attitude, and practice (KAP) regarding EBP among undergraduate nursing students in District Mardan and to explore the relationship between demographic variables and students' attitudes and practices toward EBP. **Methods:** A descriptive cross-sectional design was employed, involving 111 4th-year undergraduate nursing students selected through a one-stage cluster sampling technique. Data were collected using a structured questionnaire comprising demographic details and the Students' Evidence-Based Practice Questionnaire (S-EBPQ), which was scored on a seven-point Likert scale. The internal consistency of the S-EBPQ was validated using Cronbach's Alpha ($\alpha = 0.82$). Data were analyzed using SPSS version 26.0, with independent t-tests and one-way ANOVA applied to examine the relationship between demographic variables and EBP attitudes and practices. **Results:** The analysis revealed that 70.2% of students exhibited a moderate level of EBP, with 48.4% demonstrating a highly positive attitude towards EBP. While no significant association was found between demographic variables and practice scores, the religious group variable was significantly associated with attitude scores ($p = 0.006$). Gender, though not significant, approached the significance threshold ($p = 0.078$). **Conclusions:** This study contributes to the limited body of research on EBP among nursing students in Pakistan, particularly in Khyber Pakhtunkhwa. It highlights the importance of demographic factors, especially religious background, in shaping students' attitudes toward EBP, suggesting the need for tailored educational interventions.

INTRODUCTION

Evidence-based practice (EBP) involves delivering comprehensive, high-quality care founded on the most current research and knowledge, rather than relying on traditional methods, advice from colleagues, or personal beliefs [1]. One of the recently published books elaborates on the term EBP as it is the use of the best evidence available to make decisions and to provide quality care [2]. With this, the clinical expertise and patient preferences differentiated EBP from research utilization [3]. The way to adopt evidence-based nursing is through five steps: asking a clear question, acquiring evidence by looking into the literature, comparing it for valid and reliable rationale, making decisions based on the most reliable and recent information, and evaluating the outcome of the implementation [4]. The attitude of upcoming graduates toward EBP, the knowledge they keep about it, and its utilization in practice are explored by nursing researchers worldwide. EBP has become essential for nursing professionals to support their practice [5,6]. The attitude of senior nursing students who are actively involved with the Registered Nurses in preparing the care plan and its implementation under supervision are evaluated in different studies [7,8]. The nursing administration would support and facilitate the application of knowledge to prepare nursing students for its implementation in clinical rotations [9,10]. The delivery of knowledge through

DOI: https://doi.org/10.54393/pbmj.v7i12.1162

workshops and regular training courses are effective interventional strategies for improving EBP in critical care settings [11]. The education and training not only deliver the knowledge but also enhance the attachment of the nurses and nursing students' attitude to EBP [12]. A study conducted in Qatar found that half of the nurses were unfamiliar with the term "EBP." [13]. The knowledge of EBP when delivered at the undergraduate level leads to minimizing the barriers and increases the use of EBP [12]. Numerous studies highlight the involvement of nurses and nursing students in evidence-based practice (EBP) within Pakistan. The bachelor's degree nurses are more determined and aware of EBP and its implementation than diploma nurses in Lahore [14]. The study conducted in Multan reported the higher attitudes and beliefs of nurses toward EBP with the indication that most nurses are interested in improving their skills to carry out EBP [15]. A study found that poor research knowledge, lack of time, unsupportive administration, and limited resources hinder evidence-based practice (EBP). Furthermore, registered nurses reported low engagement in EBP. [16]. On the contrary, the study in the Government Hospital Lahore indicated a satisfactory level of awareness about EBP with poor implementation at the bedside [17]. EBP has become a priority topic for researchers in these decades such as empirical studies in Asia and Africa [12]. Studies must offer solid literature to develop nursing curricula on evidence-based practice during appropriate transitions. [18]. Furthermore, a few studies related to this context in Pakistan especially in Khyber Pakhtunkhwa make this study more significant.

This study aimed to fill the gap in the literature by assessing the knowledge, attitude, and practice of nursing students in the region of Khyber Pakhtunkhwa, Pakistan.

METHODS

The study targeted undergraduate nursing students who had completed their clinical rotations at a tertiary care hospital in District Mardan. A descriptive cross-sectional study was conducted across nursing colleges in District Mardan, Khyber Pakhtunkhwa, Pakistan, during 3 months from May to July 2024. The sample size was determined using the RaoSoft sample size calculator, assuming a 7% margin of error, a 95% confidence level, a population size of 250, and a response distribution of 50%, resulting in a calculated sample size of 111. To enhance the generalizability of the findings and for feasibility, a one-stage cluster sampling technique was employed. Nursing colleges within District Mardan were selected through simple random sampling, and then all 4th-year students from the selected colleges were included in the study. The research instrument was structured into two primary sections: (1) demographic data, which included variables such as age, gender, semester, latest semester GPA, college name and status, and academic status; and (2) the Student Evidence-Based Practice Questionnaire (S-EBPQ), which comprised 21 items rated on a seven-point Likert scale. The questionnaire was divided into four subscales: practice of EBP (6 items), attitude toward EBP (3 items), retrieving and reviewing evidence (7 items), and sharing and applying EBP (5 items). The S-EBPQ, originally developed by Upton & Upton in 2006, was utilized in this study with formal permission from the original authors. It was already used for the same study domain globally. The tool was employed as it was with the addition of the first section that contains participant demographics as mentioned above and uses simple synonyms that are locally utilized in Pakistan. Each subscale was categorized into three equal intervals based on the equal interval classification method by U.S Census Bureau, 1997. The internal consistency of the S-EBPQ was evaluated using Cronbach's Alpha, which yielded a value of 0.82, indicating a high level of reliability and internal consistency across the items. Ethical approval for the study was secured from the Institutional Review Board (IRB) of MTI Mardan (No.494/BKMC). Following this, permission was obtained from the relevant authorities at the selected nursing colleges, and the questionnaires were manually distributed to students during their class sessions. Prior to data collection, students were provided with detailed information regarding the study, and consent was obtained from those who agreed to participate voluntarily. The collected data were analyzed using SPSS software, version 26.0. Demographic variables and data from the research instruments were input into the software, and the information was converted into numerical and categorical formats to ensure confidentiality. Total scores and equal intervals were calculated using Microsoft Excel, 2020. The overall results were presented descriptively, with demographic variables summarized in tabular form. The results derived from the research instruments were also presented in tables. A significance level of $p \leq 0.05$ was adopted for all statistical tests. To explore the relationships between demographic variables and students' attitudes and practices toward EBP, two tests were conducted. The one-way ANOVA was applied to compare the CGPA variable with the practices and attitude scores while the independent t-tests were applied to compare the practices and attitude scores with the gender, religious group, and student affiliation variables of the participants.

RESULTS

The questionnaires were distributed among the students, resulting in a total of 124 responses. Table 1 provides a demographic profile of the participants, detailing variables such as gender, age, religious group, student affiliation, and CGPA. Among the 124 respondents, 79 were male, and 45 were female. The majority of the participants identified as Muslim. Statistical analysis revealed that over half of the students were enrolled in private institutions, while 40.3%

DOI: https://doi.org/10.54393/pbmj.v7i12.1162

were attending government colleges. Additionally, the mean and standard deviation for both age and CGPA were calculated and are presented in Table 1.

Table 1: Demographic Profile of study participants

Variables		Frequency (%age)
Gender	Male	79 (63.7%)
	Female	45 (36.3%)
Religious group	Muslim	122 (98.4%)
	Christian	2 (1.6%)
Student Affiliation	Govt institutes	50 (40.3%)
	Private institutes	74 (59.7%)
		Mean ± SD
Age (yrs.)		22.46 ± 0.966

The analysis of the S-EBPQ revealed that the majority of students (70.2%) demonstrated a moderate level of EBP with 19.4% of high-level and 10.5% of low-level EBP. A significant portion of the students (48.4%) displayed a highly positive attitude toward EBP while 37.1% moderate positive and 14.5% marked a negative attitude toward EBP. Most students (68.5%) rated their ability to retrieve and review evidence at a moderate level as well as 18.5% high level and 12.9% low-level retrieve and review the EBP. Additionally, 54.0% of the participants scored highly in the sharing and application of EBP with 38.7% moderate level and 7.3% low level of sharing and applying the EBP (Table 2).

Table 2: Knowledge, Attitude, and Practice of Nursing Students Regarding EBP*

Subscale Practice	Frequency (%)
Practice	
Low level	13 (10.5%)
Moderate level	87 (70.2%)
High level	24 (19.4%)
Total	124 (100.0%)
Attitude	
Negative Attitude	18 (14.5%)
Moderative Positive Attitude	46 (37.1%)
High Positive Attitude	60 (48.4%)
Total	124 (100.0%)
Retrieving and Reviewing	
Low level	16 (12.9%)
Moderate level	85 (68.5%)
High level	23 (18.5%)
Total	124 (100.0%)
Sharing and Applying	
Low level	9 (7.3%)
Moderate level	48 (38.7%)
High level	67 (54.0%)
Total	124 (100.0%)

To explore the relationship between demographic characteristics and students' practices regarding EBP, a mean comparison analysis was conducted. The independent t-test was applied to assess the differences in practice scores across gender, religious group, and student affiliation, while one-way ANOVA was used to compare these scores with CGPA. The practice scores were compared across gender, religious group, student affiliation, and CGPA, with no significant values found. Notably, the calculated p-value for gender was 0.078, which is close to the significance threshold of ≤ 0.05 (Table 3).

Table 3: Mean Comparison of Practice Score with Participant's Demographics

Variables	Total	Practice Score (Means ± SD)	p-value
Gender			0.078
Male	79	2.06 ± 0.606	
Female	45	2.13 ± 0.405	
Religious Group			0.611
Muslim	122	2.10 ± 0.536	
Christian	2	1.50 ± 0.707	
Student Affiliation			0.853
Govt Institutes	50	2.14 ± 0.495	
Private Institutes	74	2.05±0.571	
CGPA			0.119
Below 3	43	1.95±0.575	
3.0 to 3.5	71	2.17±0.534	
Above 3.5	10	2.10±0.316	

Independent t-test and one-way ANOVA test applied,p-value ≤ 0.05

Similarly, a mean comparison analysis was implemented with an independent t-test and one-way ANOVA test with the same criteria to show the relationship between demographics and student's attitudes toward EBP. The analysis revealed that the religious group was a significant factor, with a p-value of 0.006. However, no other demographic variables, including gender, showed significant associations with students' attitudes toward EBP. Similar to the practice scores, gender was also found to be statistically insignificant but was close to the threshold p-value (Table 4).

Table 4: Mean Comparison of Attitude Score with Demographics

Variables	Total	Attitude Score (Means ± SD)	p-value
Gender			0.917
Male	79	2.24 ± 0.720	
Female	45	2.51 ± 0.695	
Religious Group			0.006
Muslim	122	2.36 ± 0.705	
Christian	2	1.00 ± 0.000	
Student Affiliation			0.427
Govt Institutes	50	2.48 ± 0.735	
Private Institutes	74	2.24 ± 0.699	
CGPA			0.080
Below 3	43	2.23 ± 0.718	
3.0 to 3.5	71	2.34 ± 0.736	
Above 3.5	10	2.80 ± 0.422	

Independent t-test and one-way ANOVA test applied, p-value ≤ 0.05

DOI: https://doi.org/10.54393/pbmj.v7i12.1162

DISCUSSION

On analysis, the data revealed that nursing students have a moderate level of EBP while in them, highly positive attitudes toward EBP and a high level of sharing and applying the knowledge of EBP were found. Although the association of gender with the practice scores is not significant, the data analysis revealed that male students are reported to do EBP more than female students. In the previous literature, the author points out the positive attitude of nursing students toward EBP at Columbia [19]. The same was reported in Australia which has a positive attitude among students toward EBP [20]. Moreover, a survey shows a positive relationship between attitude with nursing student competence [8]. The current study's finding of highly positive attitudes is on the other side opposed to the studies in Kosovo that reported lower attitudes [12]. According to the study findings of the moderate level practice of students, no such study rules out a high level of practice of undergraduate students as they have moderate and low evidence-based nursing practice [10,15]. While the previous literature suggests that EBP is necessary for undergraduate students [21]. In this study, the knowledge of the participants is categorized by retrieving and applying it in practice. The previous researchers have different findings of knowledge regarding EBP. The study in Lahore and Jordian nurses shows less awareness related to EBP [17,18]. A study conducted on graduated nurses describes that more than half of them did not know the term EBP [13]. Yet, young nurses are reported to have more Knowledge of evidence-based nursing which is the same as the current study finding where participants scored moderate to high to share, retrieve, and apply the Knowledge of EBP [6]. The association of religious groups with attitude was found in the current study while most of the previous studies show insignificance with many demographics except a few of them. A study conducted on graduated nurses in Bahrain reported a significant association of knowledge regarding EBP with a working setting [22]. At the undergraduate level, studies are more focused on assessing and analyzing knowledge, practice, and attitude levels. Furthermore, the study participants all belong to the institutes in one district. Also, the participant's religious groups are not enough to generalize these findings to them. This study is limited to the assessment of student's knowledge attitude and practice level. Other study designs needed to be applied in this domain and take a large enough sample size that contains participants from different regions and different religious groups. Moreover, the role of the institute, hospital policy, and administration also provides a gap for further study concerning EBP among undergraduate nursing students.

CONCLUSIONS

In conclusion, the study reports moderate to high levels of knowledge, highly positive attitudes, and a moderate level of practice among nursing students regarding EBP. The religious group was found significant in the study. Furthermore, the nursing literature is developed in this context in the Khyber Pakhtunkhwa. The findings can be used in policy-making for educational and administration purposes that certainly improve the nursing practice.

Authors Contribution

Conceptualization: SBA, SK
Methodology: SUR, LI, IN
Formal analysis: A, LI, HU, MI, SBA, SK
Writing, review and editing: SK, SUR, HU

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

Source of Funding

The author received no financial support for the research, authorship and/or publication of this article.

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