

Knowledge Attitudes and Behaviors of Postgraduate Nursing Students Regarding Evidence

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This analytical-cross-sectional study aims to determine the knowledge, attitudes, and behaviors of nursing students receiving postgraduate education regarding evidence-based nursing. The study was carried out between 1 March 2021 and 31 August 2021 with 115 students who received postgraduate education in different departments of nursing. The data of the study were collected using a questionnaire and the students' knowledge, attitudes, and behaviors regarding evidence-based nursing scale. Number, percentage, standard deviation, t-Test, and ANOVA test were used in the analysis of the data. It was determined that 87.8% of the students took scientific research courses, 94.8% knew to do a literature review, and 81.7% followed scientific journals related to their field. While 60% of the students took evidence-based practices course, 53% had difficulty in reaching evidence-based practices. The students' knowledge, attitudes, and behaviors regarding evidence-based nursing scale mean score was found to be 71.93±12.14. The study had found that the knowledge, attitudes, and behaviors regarding evidence-based practices of the students who received postgraduate education in the field of nursing were at a good level. It has been determined that the students are willing to do scientific research and follow the scientific literature.

Keywords: *evidence-based practice, nursing education, postgraduate education*

Introduction

Evidence-based practice (EBP) aims to meticulously use the current and best-published evidence on the subject for patient recovery and good service planning and execution in the decision-making process for patient medical care (Babaoğlu et al. 2009, Kocaman 2003, Stetler et al. 1998, Temel and Ardahan 2011). In nursing, studies using the scientific method will carry nurses from experience-based decisions to evidence-based decision-making awareness in the future, and nursing, which produces its own knowledge, will take more responsibility for the scientific value and use of knowledge (Çopur et al. 2015, Karagözoğlu 2006, Temel and Ardahan 2011).

Due to their clinical implications, evidence-based studies are also very important in postgraduate education, where scientific studies are carried out more intensively. In the master's degree program for nursing, students are taught to research by gaining the ability to access, evaluate and interpret information. In doctorate education, it is aimed to gain the ability to conduct independent research and interpret information by considering the scientific events from a wider perspective (Karaman and Bakırcı 2010, Ruzafa et al. 2015). In this regard, the inclusion of studies on evidence-based practices in postgraduate education contributes to the development of scientific practices and following up-to-date

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approaches. In many nursing master's and doctoral programs, courses for evidence-based practices are included in the curricula (Yılmaz et al. 2019).

Özdemir and Akdemir (2009) found that 68.9% of nurses sometimes, and 12.8% always do, use evidence-based practice in their studies. Arslan and Çelen (2018) on the other hand, stated that undergraduate students' status of reading journals and participating in scientific meetings about the nursing profession was not at a good level, but their attitudes towards evidence-based nursing were high. Kalkım and Midilli (2020) found that the mean scores on knowledge of evidence-based nursing of female students who had taken a course on evidence-based practices or nursing, who had seen the topic of evidence-based practices or evidence-based nursing as part of a course, and who wished to take part in a scientific study, were statistically significantly higher.

There is a need to make adjustments in undergraduate and graduate nursing education programs to provide an opportunity for the teaching of Evidence-Based Nursing practices and the development of projects. Groups that produce knowledge need to take more responsibility for the scientific value and use of knowledge (Kocaman 2003). Within the scope of postgraduate education, students are expected to have knowledge of evidence-based practices in their fields and reflect this knowledge into their field of study. Therefore, creating strategies that improve students' knowledge, skills, and behaviors on evidence-based practices is important. In order to develop these strategies, it is necessary to know the sources of evidence that students frequently use, the difficulties they experience in accessing evidence, and to determine the knowledge, attitudes, and behaviors of students about the use of the evidence-based practice. This situation highlights the need for inclusive and reliable research and evidence-based information (Köse and Özenç 2013). No study has been found that reflects the knowledge, attitudes, and behaviors of nursing graduate students in Turkey regarding evidence-based practices. Therefore, it is considered that the results obtained from this study will fill the gap in this field.

Research Questions

1. What are the knowledge, attitudes, and behaviors of postgraduate nursing students about evidence-based nursing?
2. Is there a relationship between the socio-demographic characteristics and scientific research knowledge of the students and their knowledge, attitudes, and behaviors about evidence-based nursing?

Methods

This analytical-cross-sectional study was conducted to determine the postgraduate nursing students' knowledge, attitudes, and behaviors on evidence-based nursing. The study was carried out between 1 March 2021 and 31 August 2021. The universe of the study consisted of students enrolled in any of the master's or doctoral programs in the Department of Nursing Fundamentals, Internal

Medicine Nursing, Surgical Diseases Nursing, Obstetrics-Gynecology Nursing, Pediatric Nursing, Public Health Nursing, and Department of Mental Health and Diseases Nursing at Aydın Adnan Menderes University Health Sciences Institute in the 2020-2021 academic year. The minimum sample size to be reached in the study was calculated using the known population (N=175) method (Z: 1.96, π : 0.50, $p-\pi$: 0.05, N: 175) and determined as 110. A total of 115 students, 104 female, and 14 male, were included in the research sample, which was determined by the convenience sampling method (Karasar 2008).

Data Collection Tools

The data of the study were collected using a questionnaire consisting of 24 items designed by the researchers in line with the literature (Arslan and Çelen 2018, Kalkım and Midilli 2020, Tumala and Alshehri 2019), and the Students' Knowledge, Attitudes, and Behaviors regarding Evidence-Based Nursing Scale. Data collection tools were prepared electronically and sent to the students via e-mail. It took approximately 15 minutes to fill out the questionnaire.

Questionnaire

The questionnaire consists of 24 items regarding students' socio-demographic characteristics, evidence-based practices knowledge, and scientific research knowledge.

Students' Knowledge, Attitudes, and Behaviors Regarding Evidence-Based Nursing Scale

The students' knowledge, attitudes, and behaviors regarding the evidence-based nursing scale was developed by Johnston et al. (2003) to determine the knowledge, attitudes, and behaviors of medical students about evidence-based practice. Brown et al. (2010) adapted the scale to be used for nursing students, and Muslu et al. (2015) carried out the Turkish validity and reliability study of the scale. The Cronbach's alpha-value for the "knowledge" sub-dimension of the scale was found to be 0.70; the Cronbach's alpha value for the "attitude" sub-dimension of the scale was found to be 0.60; the Cronbach's alpha value for the "future use" sub-dimension of the scale was found to be 0.80; and the Cronbach's alpha value for the "practice" sub-dimension of the scale was found to be 0.77. The Likert-type scale consists of 26 items and four sub-dimensions: "knowledge", "attitude", "future use" and "practice". A high score indicates that the student's level of knowledge is high. The *knowledge sub-dimension* of the scale (first 5 items) reflects the knowledge and understanding that they have acquired in theory and practice about evidence-based nursing. In the scoring of the sub-dimension, six options were given: Strongly Agree (6); Partially Agree (5); Agree (4); Disagree (3); Partially Disagree (2); and Strongly Disagree (1). Students were asked to choose the most suitable one among these options. The *attitude sub-dimension* of the scale (items 6-11) reflects the students' thoughts regarding the concept of

evidence-based nursing. The scoring of this sub-dimension is the same as that of the knowledge sub-dimension. The *future use sub-dimension* of the scale (items 12-20) determines the tendency of students to use this approach in their professional lives. Item 13 was scored as 6: very easy - 1: very difficult. Item 14 was scored as 6: totally - 1: not at all. Item 19 was scored as 6: very useful - 1: completely useless. Item 20 was scored as 6: I would like to - 1: I do not want very much. The *practice sub-dimension* of the scale (items 21-26) defines the clinical question/problem determination of evidence-based nursing, searching for the best evidence to solve the problem, criticizing the evidence, integrating the evidence, and using the steps to evaluate effectiveness. The sub-dimension is scored as a five-point Likert scale as never (1) and every day (5).

Inclusion Criteria

- To be registered in any of the master's or doctoral programs in Nursing at Aydın Adnan Menderes University Health Sciences Institute in the 2020-2021 academic year in which the study was conducted.
- Volunteer to participate in the study

Exclusion Criteria

- Students who left the postgraduate education program at the time of the study for any reason were not included in the study.

Data Analysis

The data of the study were analyzed using SPSS 21.0 (Statistical Package for Social Sciences for Windows). Distribution normality was examined using Shapiro-Wilk test. Number, percentage, mean, standard deviation, t-Test, and ANOVA test were used in the analysis of the data.

Ethical Approval

Approval from Aydın Adnan Menderes University Nursing Faculty Non-Interventional Research Ethics Committee (No: E-50107718-050.99-2100014214) and research permission from Aydın Adnan Menderes University Nursing Faculty was obtained to conduct the study. Also, the purpose of the study was explained to the participants, and their consent was obtained.

Results

It was determined that the mean age of the participants was 30.33 ± 6.78 , and 90.4% of them were female. It was determined that 73.9% of the participants were graduate students, and 26.1% were doctoral students. While 76.5% of the students were working as nurses in the hospital, 14.8% of them were academicians at the university. It was determined that 8.7% of the students had a different occupation. In terms of the department that students were continuing their postgraduate

education, it was determined that 16.2% of the students were enrolled in Nursing Fundamentals; 18.1% in internal medicine nursing; 18.2% in Surgical Nursing; 8.7% in Obstetrics and Gynecology Nursing; 7.8% in Child Health and Diseases Nursing; 15.7% in Public Health Nursing; and 15.3% in the Department of Mental Health and Diseases Nursing. Table 1 shows the behavior of the participants regarding scientific research.

Table 1. Students' Scientific Research Characteristics (N=115)

Characteristics	n	%
Status of taking a Scientific Research course		
Yes	101	87.8
No	14	12.2
Knowing to do a Scientific Literature review		
Yes	109	94.8
No	6	5.2
Taking part in a scientific research		
Yes	60	52.2
No	55	47.8
Following scientific journals related to the field		
Yes	94	81.7
No	21	18.3
Encouragement by the advisor to do scientific research		
Yes	109	94.8
No	6	5.2
Participating in scientific events (congress, symposium, panel, etc.)		
Yes	91	79.1
No	24	20.9
Willingness to do scientific research		
Yes	111	96.5
No	4	3.5
Feeling competent to do scientific research		
Yes	52	45.2
No	63	54.8
Have taken any course related to evidence-based practices		
Yes	69	60.0
No	46	40.0
Attending courses, seminars, symposiums on evidence-based practices		
Yes	26	22.6
No	89	77.4
Having Difficulties accessing evidence-based practices		
Yes	61	53.0
No	54	47.0

It was determined that students used more than one database for scientific literature review. It has been determined that the most used database is Dergi Park (86.1%); then PubMed (85.2%); Google Scholar (69.6%); Turkiye Klinikleri (68.7); Cochrane (51.3%); Science-direct (45.2%); EbscHo (29.6%); and ClinicalKey (28.7) databases are also actively used by the participants.

Among the participants, 82.9% of them stated that they had difficulties while reading a scientific article. It was determined that the parts that they had difficulty in understanding in a scientific article were statistics (33.9%), method (14.7%), findings and tables (13.9%), discussion (11.7%), and article writing language (8.7%).

The students' knowledge, attitudes, and behaviors regarding evidence-based nursing scale mean scores are given in Table 2. The scale total mean score was found to be 71.93 ± 12.14 . The scale sub-dimension mean scores were determined as 8.21 ± 3.58 for the knowledge sub-dimension, 25.83 ± 8.29 for the attitude sub-dimension, 17.70 ± 5.23 for the future use sub-dimension, and 20.41 ± 4.88 for the practice sub-dimension.

Table 2. Students' Knowledge, Attitudes, and Behaviors regarding Evidence-based Nursing Scale Mean Scores

Scale and scale sub-dimensions	X ± SS	Min-Maks
Scale total score	71.93±12.14	26-102
Sub-dimensions		
Knowledge	8.21±3.58	5-17
Attitude	25.83±8.29	6-39
Future use	17.70±5.23	9-33
Practice	20.41±4.88	6-30

A significant difference was found between the attitude sub-dimension mean scores and postgraduate course stage and scientific research course taking ($F=2.091$, $p<0.05$; $t=2.156$, $p<0.05$). While there was no difference found between taking an EBP course and the scale mean score, a significant difference was found between the use of EBP in course preparations and the total scale mean score and the practice sub-dimension mean score ($t=-2.079$, $p<0.05$; $t=-2.539$, $p<0.05$). However, a statistically significant difference was found between the students' purpose of using EBP and the practice sub-dimension mean scores ($F=6.717$, $p<0.05$) (Table 3).

Table 3. The Students' Knowledge, Attitudes, and Behaviors Regarding Evidence-based Nursing Scale Mean Scores, t-Test and ANOVA Results for the Postgraduate Education Stage, Taking a Scientific Research and EBP Courses, Using EBP in Lesson Preparation, and Purposes of Using EBP (N=115)

	Scale total score	Knowledge Sub-dimension	Attitude Sub-dimension	Future use Sub-dimension	Practice Sub-dimension
	X ± SS	X ± SS	X ± SS	X ± SS	X ± SS
Postgraduate education stage					
Master's course phase	69.89 ±13.34	8.93±3.91	23.45±8.55	17.70±5.79	20.31±5.15
Master's thesis phase	74.54±10.97	7.83±7.12	27.05±7.39	18.02±5.24	21.67±4.50
PhD course phase	72.12±11.08	7.12±3.44	27.25±7.88	18.00±4.78	19.75±4.23
PhD thesis phase	72.43±13.31	7.93±4.35	27.43±9.53	17.56±4.66	19.50±5.21
PhD qualification	70.66±5.16	7.00±2.44	31.16±3.92	15.66±2.80	16.83±3.18
Test	F= 0.781 p= 0.540	F= 0.968 p=0.428	F= 2.091 p=0.047*	F= 0.265 p=0.900	F= 1.643 p=0.169
Taking a scientific research course					
Yes	72.17±12.34	8.20±3.72	26.44±8.27	17.48±5.24	20.29±5.08
No	70.21±10.87	8.28±2.43	21.42±7.25	19.28±5.07	21.28±2.99
Test	t= 0.565 p=0.573	t= -0.076 p= 0.940	t= 2.156 p= 0.033*	t= -1.209 p= 0.229	t= -0.708 p= 0.480
Taking a EBP course					
Yes	71.71±12.32	8.02±3.54	25.66±8.63	17.73±5.12	20.65±4.98
No	72.28±12.00	8.50±3.67	26.08±7.83	17.65±5.44	20.06±4.75
Test	t= -0.247 p= 0.806	t= -0.688 p= 0.493	t= -0.265 p=0.791	t= 0.087 p=0.931	t= 0.630 p=0.530
Using EBP in lesson preparation					
Yes	77.04±12.03	8.24±3.58	27.63±8.17	19.46±5.24	23.98±4.76
No	71.93±11.59	8.06±3.71	25.20±9.23	17.33±5.03	19.33±4.82
Test	t= -2.079 p= 0.040*	t= 0.174 p= 0.862	t= -0.623 p= 0.541	t= -1.297 p= 0.197	t= -2.539 p= 0.012*
Purposes of using EBP					
Assignment	68.85±14.76	8.22±3.91	24.70±8.80	17.00±5.83	18.92±5.06
Scientific research	71.50±11.10	8.22±3.66	25.26±8.86	18.54±5.04	19.52±4.76
Patient care in the clinic	74.71±11.10	8.21±3.33	27.39±7.03	17.10±5.01	22.65±4.18
Test	F= 1.924 p=0.151	F=0.000 p= 1.000	F= 1.045 p=0.355	F= 1.134 p= 0.326	F= 6.717 p= 0.002*

*p<0.05, EBP: Evidence-based practice.

Discussion

This study was conducted in an analytical-cross-sectional design in order to determine the knowledge, attitudes, and behaviors of postgraduate nursing students regarding evidence-based nursing.

Our study concluded that the students had difficulties while reading a scientific article, they used more than one database for scientific literature review, and they mostly benefited from the Dergi Park database. The information obtained as a result of online scanning includes more research results than other websites. It is considered that these results are caused by the fact that the journals in which the

studies are published are more accessible online from the Dergi Park database. Kalkım and Midilli (2020) stated that undergraduate nursing students mostly use the Google Scholar database for scientific literature review and to access scientific evidence via the internet. The widespread use of scientific journals and databases has enabled students to access information more easily and quickly. The use of databases by students may differ according to the subjects and research areas they are studying. Our study and other studies show that students are familiar with and actively use literature review knowledge and databases, which are very essential in postgraduate education.

In our study, students stated that although they could access information easily and quickly, they had difficulty in understanding a scientific article while reading; in particular, they had difficulty in understanding the statistics section. Kalkım and Midilli (2020) stated that the majority of the students knew about the scientific literature review, but they had difficulty in reaching scientific evidence. While reading the studies they had found, postgraduate students should be able to understand, interpret and even reflect on their practices. It is considered that taking courses related to scientific research in which accessing the studies, understanding and interpreting them will be guiding in realizing this process.

It was determined that the majority of the participants took a scientific research course and half of them took part in a research study. Also, it was determined that the majority of the students were encouraged by their advisors to conduct research, and most of them were willing to do research. The postgraduate education process provides many opportunities for students to improve themselves in scientific research subjects. The postgraduate education process is a process that requires active participation in scientific activities as well as scientific research courses. Particularly during the thesis period, students are expected to improve themselves in research planning, execution, and reporting. In this process, participating in different scientific meetings improves the students' perspectives. The thesis advisors' guidance and opportunities for students on these issues also contribute to the improvement of students and increase their motivation.

It was determined that the knowledge, attitudes, and behaviors of the students on evidence-based nursing were at a good level, and there was no significant difference between the postgraduate education stages and the students' knowledge, attitudes, and behaviors regarding evidence-based nursing scale mean scores.

It was found that there was a difference between the mean scores of the attitude sub-dimension of the scale. Also, there was a difference between the use of EBP in course preparations and the total scale mean score and the practice sub-dimension mean score. It was determined that the knowledge, attitudes, and behaviors of the students on evidence-based nursing were at a good level on attitude and practice sub-dimension scores, while their knowledge and future use sub-dimensions scores were at a moderate level. Çelik et al. (2021) stated that undergraduate nursing students' knowledge, attitude, and future use mean scores were at a good level, practice mean score was at a moderate level, and the age and class of the students were effective in their knowledge, attitude, future use, and practice mean scores. Arslan and Çelen (2018) stated that nursing students' attitudes towards evidence-based nursing were at a moderate level; Başdaş and

Özbey (2020) stated that nursing students' attitudes towards evidence-based nursing were at a high level; and Kalkım and Midilli (2020) stated that nursing students' attitudes towards evidence-based nursing were at a good level. The results of the study are important in terms of showing that students who can reach information quickly use this interest in professional fields and attach importance to the fact that their practices are evidence-based. It is considered that this situation in undergraduate students will enable students pursuing postgraduate studies to further their education; both apply evidence-based practices and will enable the use of evidence-based practices in the studies planned by the students and their reflection in the care practices.

It was determined that there was a significant difference between the education stage of postgraduate nursing students and the attitude sub-dimension of the scale, and this was due to the master's thesis phase group. It can be stated that the fact that students do more literature review and review of publications during the master's thesis period, which is the stage in which they conduct extensive research for the first time, affects their attitudes towards evidence-based practices.

Also, it was determined that there was a significant difference between the attitude sub-dimension of the students who took scientific research courses, the attitudes of using evidence-based practices in clinical patient care, and their attitudes to future use. These results are significant in terms of showing that the students are affected by the courses they take and the purposes of using the evidence obtained.

It has been reported in the literature that there is a significant difference between the students' attitudes towards evidence-based nursing and their state of taking research courses, reading journals related to the nursing profession, participating in scientific meetings, and wishing to carry out scientific research on the profession after graduation (Arslan and Çelen 2018), and the difference between the attitudes of students towards evidence-based nursing and the scores of students who took courses on evidence-based nursing and were willing to take part in the research was significant (Kalkım and Midilli 2020). Brown et al. (2010) stated that the knowledge, attitude, and future use sub-dimension mean scores of the scale increased compared to academic years, while Özdemir and Akdemir (2009) stated that appreciating the use of evidence in clinical practice is very important in overcoming the difficulty of reaching evidence-based practice.

Although they are different sample groups, it was found that undergraduate and postgraduate nursing students have similar perspectives, study results are parallel to each other, the student awareness about the importance of the evidence-based approach in care practices has arisen, and postgraduate students have higher evidence-based nursing attitudes, especially at the thesis stage. It has been determined that the use of evidence-based nursing in practice contributes to the increase in the quality of the care provided, the improvement of patient care outcomes, the standardization of care, and the increase in nurse and patient satisfaction (Başdaş and Özbey 2020). These results show that the inclusion of evidence-based practices in clinical practice and postgraduate education has a significant effect on improving patient care and clinical practices positively.

Limitations

This research has some limitations. First, this research was conducted using the non-probability sampling method. Therefore, the results obtained represent the students included in the study and cannot be generalized. Research data were collected using a scale. Therefore, the findings are limited to the content of this scale.

Conclusion

This study had determined that the knowledge, attitudes, and behaviors of the postgraduate nursing students were at a good level. It has been determined that the students are willing to do scientific research and follow up with the scientific literature. The evaluation of the research findings in the education of nursing students who want to specialize in their field by doing postgraduate education after basic nursing education will use their research and reflection skills in the clinical environment, which includes attitude-enhancing courses and activities on evidence-based practices in order to raise students' awareness about conducting scientific research and participating in scientific activities as is important.

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