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The Relationship between Nurses' Attitudes towards Evidence-Based Nursing and Barriers to Research Utilization: A Cross-Sectional Survey

Hemşirelerin Kanıta Dayalı Hemşireliğe Yönelik Tutumları ve Araştırma Kullanımındaki Engelleri Arasındaki İlişki: Kesitsel Bir Araştırma

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ABSTRACT

Objective: This study was conducted to determine the relationship between nurses' attitudes towards evidence-based nursing and barriers to the use of research.

Methods: This study was a descriptive cross-sectional survey. The study carried out with 500 nurses working in a state hospital in Turkey. The data were collected with using a Nurse Descriptive Form, the Evidence-Based Nursing Attitude Questionnaire and the Barriers to Research Utilization Scale. The analysis of data was used the Kruskal Wallis analyses, post hoc test (Tamhane's), Mann Whitney U-test, and Spearman correlation analysis.

Results: The mean age of the nurses was 31.50 ± 7.57 years, 72.6% of them were female, and 54.4% had bachelor degree level education. The nurses' Attitude Scale item total mean score was 3.58 ± .48. The belief subscale of this scale has the highest score with 3.80 ± .59. The nurses' Barriers Scale item total mean was 2.65 ± .28. On this scale, the subscale with the highest score was setting, with 3.04 ± .47. Nurses' between attitude and barriers scale item total mean was found a weak correlation ($r = .199$, $p < .05$).

Conclusion: Nurses had highly positive attitudes towards evidence-based nursing. They had a medium level of barriers to the use of research. The nurses' greatest barriers came from the subscale of setting. Even though nurses' scores on attitudes towards evidence-based nursing were high, it was seen that there were barriers to the use of research. For this reason, a plan should be developed to increase nurses' knowledge and awareness of the research process that will increase compliance with future protocol practices, through the implementation of evidence-based nursing and identifying barriers to research use.

ÖZ

Amaç: Bu çalışma hemşirelerin kanıta dayalı hemşireliğe yönelik tutumları ve araştırma kullanımındaki engelleri arasındaki ilişkiyi belirlemek amacıyla yapılmıştır.

Yöntem: Bu çalışma tanımlayıcı kesitsel bir çalışmadır. Bu çalışma Türkiye'de bir devlet hastanesinde çalışan 500 hemşire ile yürütülmüştür. Veriler Hemşire Tanılama Formu, Kanıta Dayalı Hemşirelik Tutum Ölçeği ve Araştırma Kullanım Engelleri Ölçeği kullanılarak toplanmıştır. Verilerin analizinde Kruskal Wallis, post hoc test (Tamhane's), Mann Whitney U-test ve Spearman korelasyon analizi kullanılmıştır.

Bulgular: Hemşirelerin yaş ortalaması 31.50 ± 7.57'dir. Hemşirelerin %72.6'sı kadın ve %54.4'ü lisans mezunudur. Hemşirelerin tutum ölçeği madde puan ortalaması 3.58 ±.48'dir. Tutum ölçeğin inanç alt ölçeği 3.80 ±.59 ile en yüksek puana sahiptir. Hemşirelerin engelleri ölçeği madde puan ortalaması 2.65 ±.28'dir. Engeller ölçeğin en yüksek puanlı alt ölçeği 3.04 ±.47 ile ortam alt ölçeğidir. Hemşirelerin tutum ve engeller ölçeği madde puan ortalamaları arasında zayıf bir ilişki bulunmuştur ($r = .199$, $p < .05$).

Sonuç: Hemşirelerin kanıta dayalı hemşireliğe yönelik tutumları oldukça olumludur. Hemşirelerin araştırma kullanımına yönelik engelleri orta düzeydedir. Hemşirelerin en büyük engelin ortam alt ölçeğinden gelmiştir. Hemşirelerin kanıta dayalı hemşireliğe yönelik tutumları yüksek olmasına rağmen araştırma kullanımında engellerinin olduğu görülmüştür. Kanıta dayalı hemşireliğin uygulanması ve araştırma kullanımın önündeki engellerin belirlenmesi yoluyla, gelecekteki protokol uygulamalarına uyumu artıracak araştırma sürecine ilişkin hemşirelerin bilgisini artırmak için bir plan geliştirilebilir.

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INTRODUCTION

Evidence-based nursing (EBN) is the process of making decisions using nurses' clinical expertise, patients' preferences and the best available evidence in care environments where sources can be obtained (Kaseka and Mbakaya, 2022; Yurt, Kolaç and Şadi Şen, 2021). In the last 20 years, EBN has become one of the main policies of the health system, in many countries evidence-based decision making has been adopted, and evidence-based practice guides have been developed (Ayhan, Kocaman and Bektaş, 2015; Rojjanasrirat and Rice, 2017). Evidence-based nursing improves care quality and care outcomes, reduces costs, shortens hospital stays, makes a difference in clinical practices and patient care outcomes, standardizes care, and increases nurses' satisfaction (Azami, Sharifi and Alvandpur, 2020; Kaseka and Mbakaya, 2022; Yurt et al., 2021). Also, making use of research, or in other words transferring research results into care practice, is something which means that many factors must be taken into account, and also that interventions must be well arranged and all affecting factors included (Kes and Öztürk Şahin, 2019). For a profession to acquire scientific qualities, the members of that profession must define the problems they are faced with, be able to determine a problem and the variables relating to it, and to find a solution to these problems by using scientific research procedures (Ünver, Semerci, Özkan and Avcıbaşı, 2018). In order to encourage nurses in evidence-based practices, it is necessary for them first to access the most recently performed and up-to-date research in the field, to read and assess this research, to perform analysis- synthesis, and to transfer it into practice (Aydın, Adıgüzel and Topal, 2015). Nurses all over the world are taking on the necessity of conducting scientific research to answer the expectations of speedy and permanent recovery (Ünver et al., 2018), while in Turkey, nurses generally believe in the benefit of research, but state that the results of research are not clinically applicable (Ay and Gençtürk, 2015; Aydın et al., 2015).

It has been emphasized that the gap in nursing practices between existing evidence practices and those used in the clinic is a significant barrier to the use of evidence. It is seen when examining the barriers which nurses encounter in the use of research that there are many individual, institutional, and professional research-derived barriers (Lingcon, 2018). Individual barriers are nurses not being interested in research, not believing in the benefits of research, being unwilling to try out new ideas, and feeling inadequate to evaluate the quality of research. Organizational and professional barriers are the lack of a written basis which makes it compulsory to change procedures, a lack of time for nurses to read about research in the working environment, a lack of support by managers for colleagues and other workers, and a lack of authority to put research results into practice. Research-derived barriers are difficulty of access to research results, lack of interest in applying research topics, the excessive amount of information given in research studies confusing nurses, the findings and recommendations of research studies not being written in a comprehensible way, and the center where research results are collected not being just one (Lingcon, 2018, Yurt et al., 2021). Understanding the barriers to the use of research and the efforts to reduce these barriers will spread EBN among nurses (Brown et al., 2010; Shayan, Kiwanuka and Nakaye, 2019).

It may be possible to reflect evidence-based practice in the clinic with awareness and a positive attitude regarding this topic on the part of nurses. In determining strategies to encourage changes in clinical practice, taking as a basis the barriers to nurses' use of evidence-based practices will increase the chances of a successful result (Yılmaz, Düzgün and Dikmen, 2019). Creating evidence-based practice is a lifelong process, necessitating continuous research and education. In order to develop evidence-based practice in the nursing profession, it is necessary to increase knowledge and skill in this area, and to reduce barriers to practicing care based on scientific data. Examining both Turkish and international studies in the literature, it was seen that there are few studies examining nurses' attitudes to evidence-based practices and the barriers to the use of research, and so it was thought that the information to be obtained in this study on nurses' attitudes evidence-based practices and barriers to the use of research would be significant in making a contribution to the literature. Therefore, an examination was made in this study of the relation between nurses' attitudes to evidence-based nursing and barriers to the use of research.

METHODS

Research Design

This study was a descriptive cross-sectional survey.

Population and Sample

Between November 2019 and April 2020, nurses at a state hospital in a western Turkish city participated in this study. The population of the study consisted of the nurses (N = 608) who were working in the state hospital. Individuals who formed the universe and met the inclusion criteria were included in the sample of the study. The criteria for inclusion in the study were nurses who were (a) working in the hospital during the study period, (b) willing to participate in the study, (c) working in the hospital for at least one year, and (d) working in the profession for at least one year. The sample consisted of 500 nurses.

Data Collection

These forms were completed by face to face interview with the researcher in the nursing room, when the nurse was available, without affecting the nurse's working plan, and outside the hours of treatment and patient visits. It took approximately 15 minutes to complete these tools.

Data Collection Tools

Three tools were used in this study: a nurse descriptive form, the Evidence-Based Nursing Attitude Questionnaire (EBNAQ) and the Barriers to Research Utilization Scale.

Nurse Descriptive Form: The researchers created the form, which included 15 questions about nurses' sociodemographic characteristics and information that could affect research and evidence-based practice.

The Evidence-Based Nursing Attitude Questionnaire (EBNAQ): EBNAQ was developed by Ruzafa-Martinez, Lopez-Ibaorra and Madrigal-Torres. Ayhan et al. (2015) investigated the validity and reliability of the Turkish version. It contains 15 items and three factors (beliefs and expectations, intention of conduct, and feelings) scored on a five-point scale from ‘‘1-completely disagree’’ to ‘‘5-completely agree.’’ The scale has no cutoff point. A high score on the scale shows that the attitude towards evidence-based nursing is positive. When the Turkish scale's validity and reliability were tested, the Cronbach alpha coefficient was .90 (Ayhan et al., 2015). The Cronbach alpha coefficient of the scale was.73 in this study.

The Barriers to Research Utilization Scale: The scale was developed by Funk et al. (1991) to identify barriers to nurses' research results (Bayık, Uysal, Ardahan and Ozkahraman, 2010). Bayık, Uysal, Ardahan and Ozkahraman (2010) investigated the validity and reliability of the Turkish version for the Turkish population. The total scale internal consistency reliability coefficient was.92, and the subscales ranged from .73 to.80. Total-item correlation coefficients ranged from .37 to .60. The Barriers Scale consists of four sub-scales; nurse (nine items), setting (eight items), research (six items), and presentation (six items), and 29 items relating to barriers to nurses' use of research in clinical practice. Respondents are asked to rate each item on a five-point Likert-type scale to indicate how much they believe the item is a barrier to research utilization (1, not at all; 2, to a small extent; 3, to a moderate extent; 4, to a great extent). A 'no opinion' response item with a score of 0 is also available. The Barriers Scale scores can therefore range from 0 to 116. Higher scale scores indicate that the level of the barriers of nurses to research utilization is high (Bayık, Uysal, Ardahan and Ozkahraman, 2010). For this study, the Cronbach's alpha coefficient of the scale was .63.

Data Analysis

Data were analyzed using SPSS for Windows, Version 22.0. Descriptive statistics such as numbers, percentages, means and standard deviations were used to describe the nurses' descriptive characteristics and scale scores. Data were not normally distributed (Kolmogorov-Smirnov test= .105, $p < .001$ for barriers total score, Kolmogorov-Smirnov test= 0.054, $p < .001$ for attitude total score). Kruskal Wallis analyses, post hoc test (Tamhane's), Mann Whitney U-test, and Spearman correlation analysis were used to assess associations between scale scores and variables. Statistical significance was accepted as $p < .05$.

Ethical Considerations

The hospital's management and the Medical Faculty's Ethics Committee of Manisa Celal Bayar University approved the study's ethical conduct (Date:, Decision number: 20478486-050.04.04-E.96730 on 13 November 2019). The nurses taking part in the study provided informed consent both orally and in writing. The information provided included the study's purpose and procedures, the voluntary nature of their participation, and the option to withdraw at any time.

RESULTS

The mean age of the nurses was 31.50 ± 7.57 years (min : 19, max : 52), 72.6% of them were female, and 54.4% had bachelor degree level education. They had 10.12 ± 7.81 years (min : 1, max : 34) of experience of

working as nurses; 61.8% of them were clinic nurses, 55.4% worked for 41 hours a week or more, and 59.4% worked day and night.

It was found that 42.8% of the nurses had not had research classes in undergraduate education, 74.4% had not taken part in any postgraduate research, and 63% had not participated in any research activity. Also, 62.8% said that they did not know how to scan the scientific literature, 85.2% that they did not regularly follow any scientific journal, and 75.4% that they had experienced problems in accessing scientific evidence. It was stated by 59.6% of the nurses that they wanted to take part in scientific research and by 63.6% that they had not had nursing management support in the use of research results.

The nurses' Attitude Scale item total median score was 3.53 (IR:0.73). On this scale, the subscale with the highest score, 3.78 (IR:0.71) (Table 1).

Table 1. Nurses' Evidence-Based Nursing Attitude Questionnaire and Subscales Mean Scores (n=500)

Scale and subscales	**Median**	**I R**
EBNAQ total	3.53	0.73
Belief subscale	3.78	0.71
Intention subscale	3.25	0.75
Feelings subscale	3.50	1.00

IR: Interquartile range

Table 2 shows the EBNQ Attitude Scale mean scores according to the nurses' sociodemographic characteristics, education and research activities. Those with a bachelor degree level education (x^2 = 34.791, p = .000), those working as clinical nurses (x^2 = 15.342, p = .004), and nurses who had classes on research (z = 3.774, p = .000) scored statistically significantly higher than the others on the Attitude Scale and all its subscales ($p < .05$). A significant difference was found in the Attitude Scale (x^2 = 8.080, p = .018) and the subscale of feelings (x^2 = 15.789, p = .000) according to the shift on which the nurses worked. It was found that the mean scores of nurses who wanted to take part in research activities on the Attitude Scale (z = 3.067, p = .002) and the intention subscale (z = 3.663, p = .000) were statistically significantly high. The mean scores on the Attitude Scale (z = 2.054, p = .040) and the belief subscale (z = 3.735, p = .000) of the nurses who received managers' support in using research results were determined to be higher than those of the others. Knowing how to scan the literature made no difference on the Attitude Scale (z = 1.241, p = .214), but a significant difference was observed on the intention subscale (z = 1.969, p = .049). A statistically significant negative correlation was found between the Attitude Scale and the number of years working in the nursing profession (r = - 0.121, p = .007). No correlation was found between the Attitude Scale and the nurses' age, gender, number of hours worked per week, or participation in a research course or research activities ($p > .05$).

Table 2. According to Nurses' Sociodemographic Characteristics, Research Activities Evidence- Based Nursing Attitude Questionnaire Scale Mean Scores (n=500)

Variables		Attitude Total Scale		Belief subscale		Intention subscale		Feelings subscale	
	n (%)	Med. IR	Test	Med. IR	Test	Med. IR	Test	Med. IR	Test
Gender									
Female	363 (72.6)	3.60 .67	z = .446	3.71 .71	z = .136	3.25 .75	z = .939	3.50 1.00	z=1.183
Male	137 (27.4)	3.53 .67	*p*= .656	3.85 .71	*p*= .891	3.50 .75	*p*= *.348*	3.50 .88	*p*= *.237*
Education									
High school[a]	38 (7.6)	3.40 .47	x^2= 34.791	3.57 .71	x^2= 24.782	3.50 .81	x^2= 23.059	3.25 .75	x^2= 23.447
Pregraduate[b]	136 (27.2)	3.46 .53	*p* < *.001****	3.85 .57	*p* < *.001****	3.25 .50	*p* < *.001****	3.25 1.00	*p* > *.001****
Bachelor' degree[c]	272 (54.4)	3.73 .78	a <c, b<c d<c	3.85 .71	a <b, a<c, d<c	3.50 1.00	b<c, d<c	3.50 1.00	a<c, b<c,
Master or Doctoral[d]	54 (10.8)	3.46 .75		3.57 .61		3.25 .81		3.50 1.31	
Nurse position									
Clinical nurse[a]	309 (61.8)	3.60 .73	x^2= 15.342 *p* = *.004***	3.85 .71	x^2= 9.678 *p* = *.046***	3.50 .75	x^2= 16.966 *p* = *.002***	3.50 1.00	x^2= 22.160 *p* < *.001****
Policlinic nurse[b]	25 (5.0)	3.47 .83	c<a, e<a,	4.00 .79	c<a, e<a,	3.00 1.50	c<a, e<a,	3.00 1.00	c<d, e<d<a
Intensive care nurse[c]	68 (13.6)	3.47 .45		3.71 .89		3.25 .75		3.25 1.00	
Operation room nurse[d]	46 (9.2)	3.50 .65		3.71 .57		3.25 .50		3.63 .75	
Nurse manager, training nurse, orthers[e]	52 (10.4)	3.00 .27		3.57 .71		3.25 .94		3.00 1.25	
Shift									
Day	177 (35.4)	3.46 .73	x^2= 8.080	3.71 .71	x^2= 4.666	3.25 .88	x^2= 3.615	3.25 1.00	x^2= 15.789
Night	26 (5.2)	3.43 .82	*p* = *.018**	3.50 1.14	*p* = *.097*	3.13 .63	*p* = *.164*	3.50 1.06	*p* < *.001****
Day + Night	297 (59.4)	3.60 .63		3.85 .57		3.50 .75		3.50 1.00	
Research Lesson									
Yes	286 (57.2)	3.66 .73	z=3.774	3.85 .71	z=3.320	3.50 1.00	z=2.803	3.50 1.00	z=2.705
No	214 (42.8)	3.46 .53	*p* < *.001****	3.71 .86	*p* = *.001***	3.25 .75	*p* = *.005***	3.25 1.00	*p* = *.007***
Research course									
Yes	128 (25.6)	3.46 .92	z=1.292	3.85 .86	z = .601	3.25 1.00	z= .287	3.25 1.25	z=1.227
No	372 (74.4)	3.60 .67	*p* = *.196*	3.71 .71	*p* = *.548*	3.25 .75	*p* = *.774*	3.50 1.00	*p* = *.220*
Literature review									
Yes	186 (37.2)	3.60 .67	z = .737	3.71 .71	z = .988	3.50 .75	z=1.969	3.50 1.00	z=1.241
No	314 (62.8)	3.53 .73	*p* = *.461*	3.85 .71	*p* = *.323*	3.25 .75	*p* = *.049**	3.50 1.25	*p* = *.214*
Research activity									
Yes	185 (37.0)	3.60 .83	z = .767	3.85 .86	z=1.189	3.25 .75	z = .215	3.50 1.25	z= 1.044
No	315 (63.0)	3.53 .60	*p* = *.443*	3.71 .71	*p* = *.234*	3.25 .75	*p* = *.830*	3.50 .75	*p* = *.297*
Willingness to take part in research									
Yes	298 (59.6)	3.60 .73	z=3.067	3.85 .75	z = .695	3.50 1.00	z=3.663	3.50 1.00	z=1.932
No	202 (40.4)	3.50 .53	*p* = *.002**	3.71 .71	*p* = *.487*	3.25 .50	*p* < *.001****	3.50 1.00	*p* = *.053*
Support of managers in using research									
Yes	182 (36.4)	3.60 .87	z=2.054	3.71 .71	z=3.735	3.38 1.00	z=1.372	3.25 1 .25	z=1.432
No	318 (63.6)	3.53 .67	*p* = *.040**	3.73 .63	*p* < *.001****	3.25 .75	*p* = *.170*	3.50 1.00	*p* = *.152*

z: Mann Whitney U test, x^2: Kruskall Wallis test **p* < .05 ***p*<.01 ****p* < .001

The nurses' Barriers Scale item total median was 2.69 (IR:0.37). On this scale, the subscale with the highest score was setting, with 3.13 (IR:0.63). The next highest Barriers subscale was nurse, with 2.63 (IR:0.50) (Table 3).

Table 3. Barriers to Research Utilization Scale and Subscales Mean Scores (n=500)

Scale and Subscales	**Median**	**IR**
Nurse subscale	2.63	.50
Presentation subscale	2.33	.50
Research subscale	2.43	.29
Setting subscale	3.13	.63
Barriers Total Scale	2.69	.37

Table 4 shows Barriers Scale mean scores according to nurses' sociodemographic characteristics, education, and research activities. Those with a low level of education ($x2 = 180.762$, $p < .001$) and those who had not had research classes in their education ($z = 4.159$, $p = .000$) had a high mean score on the Barriers Scale and its subscales ($p < .05$). Nurses who had not participated in any research course had higher mean scores on the Barriers Scale ($z = 3.267$, $p = .001$) and its subscales except for the research and presentation subscales ($p < .05$). Those who did not know how to scan the literature and those who had not participated in any research activity ($z = 0.803$, $p = .422$) had higher scores on the Barriers Scale and its subscales except for the presentation subscale ($p < .05$). Being unwilling to take part in any research made a significant difference in the Barriers Scale ($z = 2.561$, $p = .010$) and the research and setting subscales ($p < .05$). Nurses not getting manager's support in the use of research results affected the Barriers Scale ($z = 2.360$, $p = .018$) and the setting subscale ($p < .05$). Despite not making a difference in the Barriers Scale score ($x2 = 5.073$, $p = .280$), a nurse's position affected the presentation ($x2 = 15.991$, $p = .003$) and research ($x2 = 11.832$, $p = .019$) subscales, and a nurse's shift affected the nurse ($x2 = 7.131$, $p = .028$) and research ($x2 = 9.229$, $p = .010$) subscales. No significant correlation was found between the Barriers Scale and the nurses' age, gender, years in the profession, nurse position, hours of work per week, or shift ($p > .05$).

Table 4. According to Nurses' Sociodemographic Characteristics, Research Activities Barriers to Research Utilization Scale Mean Scores (n=500)

Variables		Nurse		Presentation		Research		Setting		Barriers Scale	
	n (%)	Median IR	Test	Median IR	Test	Median IR	Test	Median IR	Test	Median IR	Test
Gender											
Female	363 (72.6)	2.62 .50	z = .248 *p = .804*	2.33 .50	z = .082 *p = .934*	2.43 .43	z = .072 *p = .943*	3.13 .75	z = .339	2.69 .38	z = .246 *p = .805*
Male	137 (27.4)	2.63 .50		2.33 .50		2.43 .29		3.00 .63	*p* = .734	2.69 .34	
Education											
High school[a]	38 (7.6)	2.63 .41	x^2 = 152.92 *p*	2.50 .33	x^2 = 66.183 *p* <	2.43 .43	x^2 = 147.884 *p* <	2.88 .50	x^2 = 145.841 *p* <	2.59 .23	x^2 = 18 .762
Pregraduate[b]	136 (27.2)	3.13 .50	< .001***	2.17 .50	*.001*** a>d,	2.57 .29	*.001*** b>c>d	3.38 .63	*.001*** b>c>d	2.86 .31	*p < .001***
Bachelor' degree[c]	272 (54.4)	2.63 .38	b>c>d	2.50 .33	b>c>d	2.43 .29		3.13 .63		2.69 .28	b>c>d
Master or Doctoral[d]	54 (10.8)	2.25 .38		2.17 .33		1.57 .57		2.38 .25		2.10 .17	
Nurse position											
Clinical nurse[a]	309 (61.8)	2.63 .50	x^2 = 6.903 *p = .141*	2.33 .50	x^2 = 15.991 *p = .003*** b<a,	2.43 .43	x^2 = 11.832 *p = .019**	3.13 .75	x^2 = 5.443 *p = .245*	2.69 .38	x^2 = 5.073 *p = .280*
Policlinic nurse[b]	25 (5.0)	2.75 .63		2.17 .58	b<d	2.57 .29		3.38 .63		2.76 .38	
Intensive care nurse[c]	46 (9.2)	2.63 .53		2.33 .50		2.43 .18		3.13 .69		2.67 .36	
Operation room nurse[d]	68 (13.6)	2.62 .50		2.50 .50		2.43 .29		3.00 .59		2.66 .30	
Nurse manager, trainee nurse, orthers[e]	52 (10.4)	2.88 .63		2.33 .33		2.50 .29		3.00 .63		2.71 .45	
Shift											
Day	177 (35.4)	2.75 .50	x^2 = 7.131	2.33 .50	x^2 = .989	2.43 .29	x^2 = 9.229	3.13 .88	x^2 = 1.588	2.69 .34	x^2 = 5.277
Night	26 (5.2)	2.75 .75	*p = .028**	2.25 .50	*p = .610*	2.57 .61	*p = .010**	3.13 .41	*p = .452*	2.74 .34	*p = .071*
Day + Night	297 (59.4)	2.63 .63		2.33 .50		2.43 .36		3.13 .75		2.69 .38	
Research Lesson											
Yes	286 (57.2)	2.63 .63	z = 4.589	2.33 .50	z = 2.170	2.43 .43	z = 4.533	3.00 .66	z = 3.329	2.66 .39	z = 4.159
No	214 (42.8)	2.81 .63	*p* < .001***	2.33 .33	*p = .030**	2.43 .43	*p = .001***	3.13 .63	*p = .001***	2.72 .32	*p < .000****
Research course											
Yes	128 (25.6)	2.63 .63	z = 2.643	2.33 .63	z= 1.946	2.43 .43	z = .881	3.00 .75	z = 3.240	2.62 .41	z = 3.267
No	372 (74.4)	2.75 .50	*p* = .008**	2.33 .50	*p* = .052	2.43 .29	*p = .379*	3.13 .63	*p = .001***	2.72 .34	*p = .001***
Literature review											
Yes	186 (37.2)	2.50 .63	z = 4.412	2.33 .50	z = .303	2.43 .43	z = 3.520	2.88 .75	z = 3.857	2.62 .41	z = 4.538
No	314 (62.8)	2.75 .50	*p* < .001***	2.33 .50	*p = .762*	2.43 .29	*p < .001****	3.13 .50	*p < .001****	2.72 .32	*p < .001****
Research activity											
Yes	185 (37.0)	2.63 .63	z = 2.576	2.33 .50	z= .803	2.43 .57	z = 3.836	3.00 .88	z = 2.330	2.66 .45	z = 3.128
No	315 (63.0)	2.75 .50	*p* = .010*	2.33 .50	*p = .422*	2.43 .29	*p < .001****	3.13 .63	*p = .020**	2.69 .31	*p = .002***
Willingness to take part in research											
Yes	298 (59.6)	2.63 .63	z = 1.920 p	2.33 .50	z = .056	2.43 .43	z = 2.366	3.00 .75	z = 2.495	2.66 .38	z = 2.561
No	202 (40.4)	2.75 .63	= .055	2.33 .50	*p = .955*	2.43 .29	*p = .018**	3.13 .75	*p = .013**	2.72 .31	*p = .010**
Support of managers in using research											
Yes	182 (36.4)	2.63 .63	z = 1.338	2.33 .50	z = .620	2.43 .43	z = 1.399	3.00 .63	Z = 2.881	2.66 .39	Z = 2.360
No	318 (63.6)	2.75 .50	*p* = .181	2.33 .50	*p = .535*	2.43 .29	*p = .162*	3.13 .66	*p = .04**	2.72 .34	*p = .018**

x^2: Kruskall Wallis test, z: Mann Whitney U *p < .05 **p < . 01 ***p < .001

Table 5 shows the correlation between the Barriers Scale and the Attitudes Scale. A weak correlation was found between the Barriers Scale and the Attitudes Scale ($r = .199$, $p < .05$) and the belief subscale of the Attitude Scale ($r = 0.125$, $p < .01$). Weak correlations were seen between the nursing subscale of the Barriers Scale and the belief subscale of the Attitudes Scale ($r = .111$, $p < .05$), and between the setting subscale of the Barriers Scale and the Attitudes Scale ($r = .139$, $p < .01$) and its subscale of belief ($r = .181$, $p < .01$).

Table 5. Correlations between Barriers to Research Utilization and Evidence-Based Nursing Attitude (n=500)

Scales	**BARRIERS**				
EBNAQ	**Total*(r)***	**Nursing*(r)***	**Presentation*(r)***	**Research*(r)***	**Setting*(r)***
Total	.199*	.065	.020	.032	.139**
Belief	.125**	.111*	.043	.047	.181**
Intention	.037	.016	.062	.001	.038
Feelings	.016	.019	.069	.001	.034

*$p < .05$, **$p < .01$, r:spearman correlation analysis

DISCUSSION

Nurses have the skill to increase knowledge, to improve the quality of patient care, patient outcomes and patient satisfaction, to access the best research evidence, to evaluate, and to integrate this into the process of clinical decision making. Regarding the possession of this skill, nurses see evidence-based practice as important in developing new nursing interventions for which they have to be responsible (Da'seh and Rababa, 2021; Kilicli, Kelber, Akyar and Litwack, 2019).

In this study, it was found that nurses had highly positive attitudes towards EBN and also on the beliefs subscale of the EBNQ. These findings are seen to conform to the findings of studies conducted with nurses both in Turkey (Dikmen, Filiz, Tanrıkulu, Yılmaz and Kuzgun, 2018; Kilicli, Kelber, Akyar and Litwack, 2019; Yılmaz, Düzgün and Dikmen, 2019) and in other countries (Al-Maskari and Patterson, 2018; Atakro et al., 2020; Azami et al.,2020). The positive attitude shown by nurses in Turkey to evidence-based practice can be explained by the importance accorded both to the importance of this topic being mentioned in the nursing education curriculum and to the application of evidence-based practice to the quality of patient care in the clinical environment.

Significant differences were found between the nurses' attitude, feelings, beliefs, and intentions towards EBN based on some affected variables. It was seen in our study that there was a highly positive attitude to EBN among nurses who were educated to bachelor degree level (Kilicli, Kelber, Akyar and Litwack, 2019), who worked in a clinic in a managerial position (Yılmaz, Düzgün and Dikmen, 2019), who worked on rotation (day and night) (Kilicli, Kelber, Akyar and Litwack, 2019), who had taken classes on scientific research (Dikmen, Filiz, Tanrıkulu, Yılmaz and Kuzgun, 2018;), who were willing to take part in research (Kilicli, Kelber, Akyar and Litwack, 2019), and who stated that they had received managerial support in the use of research results (Jabonete and Roxas, 2022), and similar results were obtained in studies reported in the literature. In obtaining of these results; for nurses to have knowledge about this issue and be able to transfer knowledge to their practice in a clinical setting and to implement evidence-based practices, it was considered that nurses manager who mobilize the necessary resources, create a supportive environment, create policies and guidelines and play an important role in organizing training for nurses for evidence-based nursing have more experience.

It was found in this study that nurses had a medium level of barriers. It was seen that the nurses' greatest barriers came from the subscale of setting. At the same time, the most important barriers to nurses using research results were *organizational characteristics* (lack of receiving support and cooperation from professional colleagues) and *professional characteristics* (not believing that research results can be used in the working environment, and being far from knowledgeable colleagues with whom they can discuss topics relating to research). Similarly, the barriers reported as greatest in some studies on the topic are organizational characteristics and professional characteristics (Ay and Gençtürk, 2015; Stavor, Zedreck-Gonzalez and Hoffmann, 2017). The first barrier in this study, lack of cooperation of doctors with nurses on putting research results into practice, came second or later in some other studies (Ay and Gençtürk, 2015; Demir et al., 2012;), and the barrier which was second in this study, nurses not having enough time to put new views into practice in the environments where they work, was seen to be the first and most important barrier in some studies (Chien, Bai, Wong, Wang and Lu, 2013; Jabonete and Roxas, 2022).

Higher barriers to the use of research results were found in nurses whose education level was low (pregraduate degree), who had not participated in a research course, who did not know how to scan the literature, who were unwilling to conduct research, or who did not receive management support in the use of research results. In fact, the basic factors negatively affecting the development of a culture of evidence-based practice in nursing are that nurses do not know the results of research, do not know how to apply them, and are frequently not given permission to apply them in the working environment (Watson, Clarke, Swallow and Forster, 2005). Therefore, in order to improve the attitude to evidence-based practice in nurses, it is necessary to remove the barriers to the use of research results or to support the factors which make it easier. Although, the results of studies conducted on the topic in Turkey (Cebeci, Çatal, Dağ, Karazeybek and Aksoy, 2019; Demir et al., 2012) and in other countries (Cidoncha-Moreno MÁ and Ruíz de Alegría-Fernandez de Retana, 2017) are similar to the results of this study, institutional and managerial support, giving research education and providing more institutional support for scientific activities are seen as the most important facilitating factors in increasing the use of research results (Shayan, Kiwanuka and Nakaye, 2019; Stavor, Zedreck-Gonzalez and Hoffmann, 2017; Lovink et al., 2022).

A weak correlation was found in the study between nurses' barriers to the use of research results and their attitudes to EBN. The barriers to the use of research by the nurses participating in the study did not have a negative effect on their attitudes to EBN. In a study by Brown et al. (2010), it was found that barriers had a minimum effect on nurses' application of evidence-based practice. In another study, different from the result of our study, the strongest correlations were found between barriers and the practice, knowledge and attitudes of nurses concerning evidence-based practice at an academic medical center (Brown, Wickline, Ecoff and Glaser, 2009). One of the most important barriers to the use of research is the lack of awareness on this topic (Ay and Gençtürk 2015), and one of the important characteristics of nurses regarding the use of research is nurses' beliefs and attitudes towards EBN (Kilicli, Kelber, Akyar and Litwack, 2019; Lovink et al., 2022). Different from the literature, it was found in this study that however great nurses perceived the barriers to the use of research results and the barriers arising from the setting to be, their scores on attitudes to EBN and attitudes on the belief scale were higher. Also, however high the nurses perceived barriers arising from nursing to be, their scores on attitudes to EBN on the belief scale were higher. This result suggests to us that nurses are aware of the barriers to the use of research, because their scores on attitudes and beliefs to EBN are high.

Limitations

One limitation of this study is that it was only conducted on nurses in one city in Turkey. As a result, the findings may not be applicable to all nurses in Turkey or other countries. We recommend that future studies examine factors that influence attitudes towards barriers to nurses' research results and EBN using larger sample sizes.

CONCLUSIONS

Even though nurses' scores on attitudes to EBN were high, it was seen that there were barriers to the use of research. Nevertheless, the barriers to nurses' use of research did not have a negative effect on their attitudes to EBN.

Nurses are an important agent for change in the practice of evidence-based nursing care and in removing barriers to the use of research. For nurses' clinical decisions to be correct and evidence-based, it is necessary to determine strategies to remove uncertainties, and to seek and apply solutions. In removing barriers and for change, it would be beneficial in determining individual and common strategies for managers and nurses to make use of change models in education, and to develop new approaches. By determining the barriers to applying evidence-based nursing and to the use of research, a plan can be developed to increase nurses' knowledge on the research process, which will increase compliance with protocol applications in the future. Also, the best targets in removing barriers to the use of research by nurses are increasing nurses' perceptions of institutional support and increasing knowledge for the use of research.

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Conception and design: T.S.M., A.K. Data collection: S.D. Data analysis and interpretation: A.K., T.S.M. Writing manuscript: T.S.M., A.K., S.D. Critical Review: T.S.M., A.K., S.D.

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REFERENCES

Al-Maskari, M. A., Patterson, B. J. (2018). Attitudes towards and perceptions regarding the implementation of evidence-based practice among Omani nurses. *Sultan Qaboos University Medical Journal*, *18*(3), 344–349. https://doi.org/10.18295/squmj.2018.18.03.013

Atakro, C A., Atakro, A., Akuoko, C.P., Aboagye, J. S., Blay, A. A., Addo S. B., … Sarpong, Y. G. (2020). Knowledge, attitudes, practices and perceived barriers of evidence-based practice among Registered Nurses in a Ghanaian Teaching Hospital. *International Journal of Africa Nursing Sciences*, *12*, 100204. https://doi.org/10.1016/j.ijans.2020.100204

Ay, F., Gençtürk, N. (2015). Use of the barriers scale between the years 2000 and 2012 in Turkey. *Archives of Health Science and Research*, *2*(1), 125-137.

Aydın, Y., Adıgüzel, A., Topal, E. A. (2015). Determining the attitudes of midwives and nurses towards scientific studies. *Journal of Human Rhythm*, *1*(4), 168-175.

Ayhan, Y., Kocaman, G., Bektaş, M. (2015). The validity and reliability of attitude towards evidence based nursing questionnaire for Turkish. *Journal of Research and Development in Nursing*, *17*(2-3), 21- 35.

Azami, M., Sharifi, H., Alvandpur, S. (2020). Evaluating the relationship between information literacy and evidence-based nursing and their impact on knowledge and attitude of nurses working in hospitals affiliated to Kerman University of Medical Sciences on medication errors. *Journal of Family Medicine and Primary Care*, *9*(8), 4097–4106. https://doi.org/10.4103/jfmpc.jfmpc_5_20

Bayık, T. A., Uysal, A., Ardahan, M., Ozkahraman, S. (2010). Barriers to research utilization scale: psychometric properties of the Turkish version. *Journal of Advanced Nursing*, *66*(2), 456–464. http://doi.org/10.1111/j.1365-2648.2009.05162.x

Brown, C. E., Ecoff, L., Kim, S. C., Wickline, M. A., Rose, B., Klimpel, K., & Glaser, D. (2010). Multi-institutional study of barriers to research utilization and evidence-based practice among hospital nurses. *Journal of Clinical Nursing*, *19*(13-14), 1944–1951. https://doi.org/10.1111/j.1365-2702.2009.03184.x

Brown, C. E., Wickline, M. A., Ecoff, L., Glaser, D. (2009). Nursing practice, knowledge, attitudes and perceived barriers to evidence-based practice at an academic medical center. *Journal of Advanced Nursing*, *65*(2), 371–381. https://doi.org/10.1111/j.1365-2648.2008.04878.x

Cebeci, F., Çatal, E., Dağ, S. G., Karazeybek, E., Aksoy. N. (2019). Nurses' research utilization barriers, facilitators and determination of affecting factors. *Turkiye Klinikleri Journal of Nursing Sciences, 11*(2), 129-139. https://doi:10.5336/nurses.2018-63006

Chien, W. T., Bai, Q., Wong, W. K., Wang, H., Lu, X. (2013). Nurses' perceived barriers to and facilitators of research utilization in mainland china: a cross-sectional survey. *The Open Nursing Journal*, *7*, 96–106. https://doi.org/10.2174/1874434601307010096

Cidoncha-Moreno, M. Á., Ruíz de Alegría-Fernandez de Retana, B. (2017). Barriers to the implementation of research perceived by nurses from Osakidetza. Percepción de barreras para la utilización de la investigación en enfermeras de Osakidetza. *Enfermeria Clinica*, *27*(5), 286–293. https://doi.org/10.1016/j.enfcli.2017.03.015

Da'seh, A., Rababa, M. (2021). Military nurses' perspectives towards research utilization barriers. *Heliyon*, 7(10): e08181. https://doi.org/10.1016/j.heliyon.2021.e08181

Demir, Y., Ak, B., Bilgin, N., Efe, H., Albayrak, E., Çelikpençe, Z., Güneri, N. (2012). Barriers and facilitating factors to research utilization in nursing practice. *Journal of Contemporary Medicine*, *2*(2), 94-101.

Dikmen, Y., Filiz, N. Y., Tanrıkulu, F., Yılmaz, D., Kuzgun, H. (2018). Attitudes of intensive care nurses towards evidence-based nursing. *International Journal of Health Sciences and Research*, *8*(1), 138-143.

Funk, S. G., Champagne, M. T., Wiese, R. A., Tornquist, E. M. (1991). Barriers: the barriers to research utilization scale. *Applied Nursing Research, 4*(1), 39-45. http://doi.org/10.1016/S0897-1897(05)80052-7

Jabonete, F. G. V., Roxas, R. E. O. (2022). Barriers to research utilization in nursing: A Systematic Review (2002-2021). *SAGE Open Nursing*, *8,* 1-11. http://doi:10.1177/23779608221091073

Kaseka, P.U., Mbakaya, B.C. (2022). Knowledge, attitude and use of evidence based practice (EBP) among registered nurse-midwives practicing in central hospitals in Malawi: a cross-sectional survey. *BMC Nursing, 21*(144), 1-13. https://doi.org/10.1186/s12912-022-00916-z

Kes, D., Öztürk, Şahin, Ö. (2019). Identification of anxiety and attitudes of nursing students for doing scientific research. *Online Turkish Journal of Health Sciences*, *4*(1), 68-78. https://doi.org/10.26453/otjhs.454446

Kilicli, A. B., Kelber, S. T., Akyar, I., Litwack, K. (2019). Attitude, source of knowledge, and supporting factors on evidence-based nursing among cardiovascular nurses: A cross-sectional descriptive study in Turkey. *Journal of Evaluation in Clinical Practice*, *25*(3), 498–506. https://doi.org/10.1111/jep.13132

Lingcon, J. M. (2018). Nurses' attitudes towards nursing research. *Global Scientific Journals, 6*(11), 275-301.

Lovink, M. H., Verbeek, F., Persoon, A., Huisman-de Waal, G., Smits, M., Laurant, M. G. H., & van Vught, A. J. (2022). Developing an evidence-based nursing culture in nursing homes: An action research study. *International Journal of Environmental Research and Public Health*, *19*(3), 1733. https://doi:10.3390/ijerph19031733

Shayan, S. J., Kiwanuka, F., Nakaye. Z. (2019). Barriers associated with evidence-based practice among nurses in low- and middle-income countries: A Systematic Review. *Worldviews on Evidence-Based Nursing*, *16*(1), 12-20. https://doi.org/10.1111/wvn.12337

Stavor, D. C., Zedreck-Gonzalez, J., Hoffmann, R. L. (2017). Improving the use of evidence-based practice and research utilization through the identification of barriers to ımplementation in a critical access hospital. *The Journal of Nursing Administration*, *47*(1), 56–61. https://doi.org/10.1097/NNA.0000000000000437

Sümbüloğlu, V., Sümbüloğlu, K. *Sağlık bilimlerinde araştırma yöntemleri*. Hatipoğlu Publishing, 1998, Ankara.

Rojjanasrirat, W., Rice, J. (2017). Evidence-based practice knowledge, attitudes, and practice of online graduate nursing students. *Nurse Education Today*, *53*, 48-53. https://doi.org/10.1016/j.nedt.2017.04.005

Ruzafa-Martínez, M., López-Iborra, L., Madrigal-Torres, M. (2011). Attitude towards evidence-based nursing questionnaire: Development and psychometric testing in Spanish community nurses. *Journal of Evaluation in Clinical Practice*, *17*(4), 664-670. https://doi.org/10.1111/j.1365-2753.2011.01677.x

Ünver, S., Semerci, R., Özkan, Z. K., Avcıbaşı I. (2018). Attitude of nursing students toward scientific research: A cross-sectional study in Turkey. *The Journal of Nursing Research*, *26*(5), 356-361. http://doi.org/10.1097/JNR.0000000000000244

Watson, B., Clarke, C., Swallow, V., Forster, S. (2005). Exploratory factor analysis of the research and development culture index among qualified nurses. *Journal of Clinical Nursing*, *14*(9), 1042-1047. https://doi.org/10.1111/j.1365-2702.2005.01214.x

Yılmaz, D., Düzgün, F., Dikmen, Y. (2019). An investigation into nurses' attitudes towards evidence-based nursing. *Acıbadem University Health Sciences Journal*, *10*(4), 713-719. https://doi.org/10.31067/0.2018.91

Yurt, S., Kolaç, N., Şadi Şen, E. (2021). Nurses' views on the use of evidence-based practice in the clinic: A Qualitative Study. *Journal of Education and Research in Nursing, 18*(2), 150-155. https://doi.org/10.5152/jern.2021.48254