



The Effect of Surgical Nurses' Attitudes Towards Evidence-Based Practices on Patient Safety Culture: Descriptive and Relationship-Seeking Study

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Abstract

Aim: This study was aimed to evaluate the relationship and the effect of surgical nurses' attitudes to evidence-based nursing (EBN) practices on patient safety culture (PSC).

Material and Method: The study was descriptive and correlational. The sample consisted of 364 nurses working in the surgical departments of a university hospital. Data were collected by using individual information form, attitude towards EBN scale and PSC scale.

Results: The average total score of PSC of surgical nurses was 3.60 ± 0.38 and the average total score of attitudes towards EBN practice was 60.07 ± 6.01 . There was a strong positive correlation between EBN practices and PSC ($r=0.705$, $p=0.000$). In the regression analysis, it was seen that the attitude towards EBN practices, which was the predictor variable, explained approximately 49.7% of the variance in the predicted variable of PSC ($F=358.175$; $R^2=0.497$; $p=0.000$).

Conclusion: It was determined that the attitudes of surgical nurses towards EBN practices and PSC were positive. It was found that surgical nurses with higher attitudes towards EBN practices had more positive attitudes towards PSC. Although PSC is important for nurses working in all clinics, it is more important for nurses working in surgical clinics. Therefore, it is recommended that working conditions should be improved and in-service trainings should be planned in line with the latest evidence findings.

Keywords: Patient safety, patient safety culture, evidence-based nursing practices, surgical nurses

INTRODUCTION

Patient Safety (PS) is defined as a concept that aims to reduce the risk of harm to individuals while receiving healthcare services and determines the quality of care services (1). This is considered a critical issue that should be handled carefully by healthcare institutions and healthcare personnel and is directly related to efforts to prevent medical errors (2,3). According to data published by the World Health Organization (WHO), one out of every ten patients in the world is exposed to medical errors and is faced with health problems as a result of this situation (2,4). Accurate diagnosis, appropriate treatment and safe storage of patient information has a crucial

role in the prevention of medical errors (5,6). In addition, a collective safety culture should be developed in all health care institutions and health personnel to prevent medical errors. For the development of this culture, it is of great importance to create educational content including audit and quality control strategies based on academic foundations (1,5-7). The increasing global interest in improving quality and safety in healthcare both increases efforts to update training programmes for healthcare professionals and encourages policy-making regarding clinical practice (8). Surgical areas are an area where patient safety is emphasised and handled with care as an area where patients experience one of the most sensitive and high-risk treatment processes (9). The role of surgical

CITATION

Kapikiran G, Cetin Y, Agrali C, Unal E. The Effect of Surgical Nurses' Attitudes Towards Evidence-Based Practices on Patient Safety Culture: Descriptive and Relationship-Seeking Study. *Med Records*. 2024;6(1):37-43. DOI:1037990/medr.1374672

Received: 12.10.2023 **Accepted:** 25.11.2023 **Published:** 10.01.2024

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nurses is critical in ensuring patient safety at every stage of surgical interventions. Therefore, evidence-based nursing (EBN) methods and procedures applied by surgical nurses constitute one of the cornerstones of patient safety culture (PSC). EBN practice refers to the integration of scientific evidence and the latest research into clinical practice, which is critical for PSC (10). Clinical procedures and care standards applied by surgical nurses are updated in line with the constantly developing scientific knowledge in the field of health services. EBN practices have a crucial role in this process and form the basis of clinical decisions to ensure that patients have a safer and more effective surgical experience (11). Attitudes of surgical nurses towards EBN practice are critical for the adoption and implementation of this innovative perspective (12).

PS should be at the centre of health services. For this purpose, surgical nurses' acceptance and use of EBN practices may contribute to the prevention of adverse events. However, the attitudes of surgical nurses towards EBN practices may change under the influence of many factors. The effect of these factors on PSC has not been completely determined in studies. The study investigated the effect of surgical nurses' attitudes towards EBN practices on PSC.

MATERIAL AND METHOD

Study Type

The study was descriptive and correlational type.

Research Design and Participants

The study samples comprised of 564 surgical nurses employed in a university hospital between July 2022 and June 2023. It was determined that a minimum of 229 surgical nurses should be reached by power analysis with 5% margin of error and 95% confidence interval. However, the data collection process was extended in the study and it was aimed to reach the entire population and the study was completed with 364 surgical nurses. The participation rate in the study was 64%.

Inclusion criteria;

- Being a nurse,
- Working in surgical department for at least 6 months,
- To be willing to participate in the Research.

Exclusion criteria;

- Surgical nurses who incompletely completed the data collection form were excluded.

Data Collection and Measures

The aim of the study was declared and the necessary consent was obtained within the scope of the Declaration of Helsinki. The questionnaire form created by the researchers was collected through Google Form.

Data Collection Tools

Individual information form, attitudes towards EBN scale, PSC scale were used for data collection. It took approximately 10 minutes to complete the data collection form.

Individual Information Form

The individual information form was prepared by analysing the relevant literature (1-8,13,14) and consisted of 12 questions questioning the socio-demographic characteristics of the individual and research-specific information.

Attitude Scale towards Evidence-Based Nursing (ATEBNS)

The scale was developed by Ruzafa-Martinez and co-authors (15). It's Turkish validity and reliability were examined by Ayhan and co-authors (16). It consists of 15 items, 3 sub-dimensions and 5-point Likert structure. Scores between 15 and 75 points can be obtained from the scale. The higher the score, the more positive the attitude towards EBN. While the alpha reliability coefficient of the scale developed in Turkish was 0.86, this value was 0.96 in this study.

Patients Safety Culture Scale (PSCS)

PSCS was developed by Türkmen and co-authors (17). The scale consists of 51 items, 5 sub-dimensions and a 4-point Likert scale. Scored between 1 and 4 points, the lower the score on the scale indicates a negative PSC and the higher the score indicates a positive PSC (17). The alpha reliability coefficient of the scale developed by Türkmen and co-authors was 0.97 and this value was calculated as 0.77 in this study.

Statistical Analysis

The study data were analysed using IBM SPSS version 23.0. Skewness and Kurtosis tests were performed, determining that the data adhered to a normal distribution. Independent two-group t test was employed to compare two independent groups while a one-way analysis of variance test was used for comparing more than two independent groups. Pearson correlation of scales and linear regression analysis was used for regression analysis. The level statistical significance was set at $p < 0.05$.

Ethical Endorsement

Ethics committee approval was received from the Social and Human Sciences Ethics Committee at Adiyaman University on 16th February 2022 (Decision no: 218). After obtaining institutional and ethics committee approval, the principles of the Declaration of Helsinki were adhered to and the participants were informed on the first page of the Google Forms and their consent was obtained. They were informed that they could withdraw from the study at any point.

RESULTS

The mean age of the surgical nurses included in the study was 30.83 ± 5.16 , 54.9% were married, 79.7% were bachelor's degree, 75.8% had an income equal to their expenses, 71.2% lived in the city, 46.7% worked in surgical clinics, 39.6% had been working as a nurse for 0-5 years, 73.1% had been working in their current clinic for 0-5 years, 72% worked 40 hours per week, 81.9% worked in shifts (both day and night), 93.4% chose the nursing profession willingly (Table 1).

Table 1. Socio-demographic characteristics of nurses				
Personal characteristics	(Mean±SD)	Min-Max	Patient safety culture	Evidence-based nursing practice
Age	30.83±5.16	22-50	r: -.094, p: 0.072	r: -.105, p: 0.054
	n	%	Mean±SD	Mean±SD
Gender				
Female	207	56.9	3.56±0.43	59.37±7.02
Male	157	43.1	3.66±0.28	60.99±4.17
			t: -2.629, p: 0.009*	t: -2.736, p: 0.007*
Marital Status				
Married	200	54.9	3.62±0.36	59.86±6.53
Single	164	45.1	3.58±0.39	60.32±5.31
			t: .844, p: 0.399	t: -.733, p: 0.464
Education Level				
High school	26	7.1	3.63±0.32	61.73±3.09
Associate degree	20	5.5	3.42±0.55	57.35±9.38
Bachelor's degree	290	79.7	3.60±0.36	60.03±5.90
Post graduate	28	7.7	3.82±0.25	62.25±1.48
			F: 4.418, p: 0.005*	F: 3.513, p: 0.015*
Economic Situation				
Income < expense	32	8.8	3.29±0.43	57.28±5.90
Income ≈ expense	276	75.8	3.63±0.38	60.25±4.06
Income > expenditure	56	15.4	3.64±0.25	60.80±6.01
			F: 12.481, p: 0.000*	F: 4.051, p: 0.018*
Where you lived with your family for the longest time				
Village	30	8.2	3.54±0.46	60.26±5.65
Town	28	7.7	3.49±0.52	58.82±8.05
City	259	71.2	3.64±0.31	60.53±5.25
Metropolitan	47	12.9	3.50±0.52	58.17±8.15
			F: 3.158, p: 0.250	F: 2.521, p: 0.058
Which surgical unit				
Surgical clinics	170	46.7	3.74±0.20	62.44±1.07
Surgical intensive care units	133	36.5	3.53±0.44	58.41±8.26
Operating room	61	16.8	3.37±0.46	57.09±5.83
			F: 27.735, p: 0.000*	F: 29.808, p: 0.000*
How many years have you been a nurse?				
0-5 years	144	39.6	3.63±0.35	60.58±4.76
6-10 years	121	33.2	3.60±0.39	60.10±6.21
11 years and over	99	27.2	3.55±0.39	59.29±7.24
			F: 1.339, p: 0.263	F: 1.357, p: 0.259
How many years have you been working in the clinic?				
0-5 years	266	73.1	3.58±0.39	60.01±6.07
6-10 years	82	22.5	3.67±0.34	60.25±6.27
11 years and over	16	4.4	3.57±0.25	60.06±3.27
			F: 1.723, p: 0.180	F: .049, p: 0.953
Weekly working time				
39 hours or less	45	12.4	3.71±0.25	61.75±2.05
40 hours	262	72.0	3.56±0.39	60.32±5.31
41 hours and over	57	15.6	3.60±0.38	60.43±6.01
			F: 4.821, p: 0.009*	F: 2.374, p: 0.095
Working times				
Continuous daytime	66	18.1	3.95±0.13	61.98±6.41
Shift (Both day and night)	298	81.9	3.52±0.37	59.65±3.03
			t: -15.516, p: 0.000*	t: -4.428, p: 0.000*
The status of choosing nursing willingly?				
Yes	340	93.4	3.64±0.33	60.77±4.78
No	24	6.6	3.02±0.49	50.16±11.11
			t: 6.137, p: 0.000*	t: 4.645, p: 0.000*

Min: minimum, Maks: maximum, SD: standart deviation, *p<0.05

It was concluded that the mean scores of those who chose the nursing profession willingly were higher in both PS and EBN practices and were statistically significant ($p < 0.05$). According to the educational status, it was seen that as the educational level increased, both PSC and EBN practices total scores increased and were statistically significant ($p < 0.05$). According to the department, it was observed that nurses working in surgical clinics had higher attitudes towards both PSC and EBN practices compared to nurses working in intensive care units and operating rooms, and this was statistically significant ($p < 0.05$). It was concluded that the mean score of PSC was higher and statistically significant in those whose weekly working hours were less than 39 hours ($p < 0.05$). According to the working time, it was observed that the mean scores of both PSC and EBN practice were higher and statistically significant in continuous daytime workers compared to shift workers ($p < 0.05$) (Table 1).

The results of the study display the mean scores for the total score and sub-dimensions of the PSCS and attitudes towards EBN scale, as well as the correlation analysis, which can be found in Table 2. The mean value of the total score of the PSCS was 3.60 ± 0.38 , with the highest mean score of 3.68 ± 0.41 recorded in the sub-dimension of employee training. The mean score for attitudes towards EBN practices was 60.07 ± 6.01 , with the beliefs and expectations sub-dimension recording the highest mean score of 34.04 ± 2.55 points (Table 2). The study revealed a strong positive correlation between EBN practices and PSC ($r = 0.705$, $p = 0.000$). In other words, adherence to EBN practices and their implementation in patient care by surgical nurses resulted in improved patient safety behaviours. Table 2 shows that there is a moderate positive relationship between the "employee behaviour" subcategory of PSCS and the EBN practices indicator ($r = 0.687$, $p = 0.000$) (Table 2).

Table 2. Scale mean scores and correlation analysis

Variables	Mean \pm SD (Min-Max)	PSCS (Total)	Management and leadership	Employee behavior	Unexpected event and error reporting	Employee training	Maintenance environment	Attitude Towards Evidence-Based Nursing (EBN) Scale	Beliefs and expectations towards EBN	Emotions about EBN	EBN implementation intention
Patient Safety culture PSCS (Total)	3.60 \pm 0.38 (2.14-4)	1									
Management and leadership	3.54 \pm 0.39 (1.71-4)	.923**	1								
Employee behavior	3.61 \pm 0.43 (1.79-4)	.963**	.850**	1							
Unexpected event and error reporting	3.63 \pm 0.45 (1.60-4)	.911**	.782**	.877**	1						
Employee training	3.68 \pm 0.41 (1.57-4)	.870**	.705**	.808**	.801**	1					
Maintenance environment	3.64 \pm 0.40 (2-4)	.867**	.695**	.803**	.788**	.793**	1				
Attitude Towards Evidence-Based Nursing (EBN) Scale (Total)	60.07 \pm 6.01 (28-63)	.705**	.631**	.687**	.667**	.669**	.573**	1			
Beliefs and expectations towards EBN	34.04 \pm 2.55 (22-35)	.511**	.451**	.495**	.469**	.521**	.410**	.760**	1		
Emotions about EBN	15.23 \pm 1.84 (7-16)	.556**	.522**	.537**	.496**	.551**	.406**	.684**	.755**	1	
EBN implementation intention	15.88 \pm 2.29 (7-17)	.568**	.503**	.549**	.508**	.563**	.480**	.767**	.762**	.759**	1

Min: minimum, Max: maximum, SD: standart deviation, * $p < 0.05$

A simple linear regression analysis was conducted to evaluate the impact of attitudes towards EBN practices on PSC, with statistically significant outcomes ($F: 358.175$, $p: 0.000$). The explanatory power of the model is determined by the R^2 value, which was calculated to be 0.497. As such,

the predictor variable attitude towards EBN practices elucidates almost 50% of the variability observed in the predicted variable of PSC ($R^2: 0.497$). The beta coefficient of the predictor variable incorporated in the regression model was $\beta: 0.705$ as shown in Table 3.

Table 3. Regression analysis results for the patient safety culture scale of the evidence-based nursing practice scale

Dependent variable	Independent variable	β	t	p	F	Model (p)	R	Adjusted R ²
Patient Safety Culture	Constant	0.916	6.410	0.000	358.175	0.000	0.705	0.497
	Evidence Based Nursing Practices	0.045	18.926	0.000				

DISCUSSION

The use of EBN practices in nursing practices has a very important place in making decisions based on continuously updated scientific knowledge in the professionalisation process of the nursing profession (18). EBN provides continuous access to new scientific information, effective application of the latest research evidence on the patient and safe care delivery in PS (19). The results of the impact of the attitudes of nurses working in surgical clinics towards EBN practices on PSC were discussed in line with the literature.

According to the findings obtained, the average age of surgical nurses was 30.83 ± 5.16 years, 56.9% were female, 54.9% were married, the majority of nurses are undergraduate graduates, 39.6% had been working as a nurse for 0-5 years, 73.1% had been working in the same clinic for 0-5 years, the majority of nurses are worked in shifts, 72% worked 40 hours per week, most nurses are chose the nursing profession willingly, and 79.9% did not follow EBN practices (Table 1). The data obtained are similar to the results of the studies published in the literature (20,21).

This study concluded that the attitudes of nurses working in surgical clinics towards EBN were at a high level with a score of 60.07 ± 6.01 (Table 2). Considering the studies in the literature in which attitudes towards EBN were examined, Köse et al. found the total scores of the EBN practices scale to be 55.46 ± 9.80 (22), Danacı et al. 62.90 ± 8.90 (20), Doğan et al. 60.68 ± 8.62 (23), Karakoç et al. 58.23 ± 9.34 (18), Dikmen et al. 57.20 ± 9.06 (24), Şen and Yurt 51.33 ± 5.18 (13,18,20-25). The attitudes towards EBN examined in the literature were found to be similar to the findings of our study (13,18,20-25). However, in another study of nurses, which examined their attitudes towards the application of research findings in practice, the attitudes of nurses were found to be negative and it was concluded that the most important obstacle was lack of time (26). In a different study in the literature, it was reported that nurses' attitudes towards EBN practices were negative (27). Considering both our study and other recent studies, the studies concluded in recent years show that the attitude towards EBN has increased positively (13,18,20-25). It is thought that the presence of EBN courses in education curricula, the use of EBN research findings in in-service training, increased opportunities for post-graduate education, easier access to information and increased number of open access journals contribute to the attitude towards EBN over time. The utilization of evidence in nursing practice presents an opportunity to professionalise the nursing field as well as a vital aspect of enhancing society's health and implementing PS issues at a high level (28). Using the latest research findings that have evidence value in EBN practices contributes to the provision of more effective, more efficient and safer patient care (19).

In the study, the mean PSCS score for nurses working in

surgical clinics was 3.60 ± 0.38 . The highest mean score obtained for the PSCS was 3.68 ± 0.41 in the employee training sub-dimensions, whereas the lowest mean score was 3.54 ± 0.39 in the management and leadership sub-dimensions. As seen in the description of the PSCS, when it is considered that the mean score approaching 4 is positive on PSC (17) the data obtained in this study show that PSC is at a high level (Table 2). When the studies on PSC in the literature were examined, Kapıkıran et al. found 3.36 ± 0.21 (29), Karaca and Arslan found 3.09 ± 0.38 and 2.86 ± 0.69 (14), Ertürk et al. found 2.81 ± 0.40 (30), Erdağı and Özer found the lowest 2.45 ± 0.61 and the highest 2.68 ± 0.54 (31) in their study conducted with nurses in two different hospitals. When reviewing other studies utilising diverse measuring tools in the literature, a positive attitude towards PS was observed among nurses who worked in surgical centres (32,33). It was observed that the findings of the studies on PSC examined in the literature were similar to the findings of this study (14,29-33) In the studies in the literature where PSC is analysed, it can be said that the mean PSC scores are higher among nurses working in surgical units (29,30). This situation can be explained by the fact that many of the parameters evaluated within the scope of PS in hospitals are actively fulfilled in surgical clinics. Surgical nurses who adhered to EBN practices and implemented them in patient care exhibited a greater degree of PSC attitudes, according to observations ($r=0.705$, $p=0.000$) recorded in Table 2. In the literature, Sevinç Turaç and Top concluded that EBN practices had a moderate ($r=0.430$) effect on PSC in their study on nurses (34). Sonğur et al. reported that EBN practices had a moderate ($r=0.418$) effect on PSC in their study on nurses (35). When the literature was examined, it was observed that the findings of the studies examining the effect of attitude towards EBN practices on PSC were similar to the findings of this study (34,35). However, it is suggested that the high Correlation coefficient found in the study as compared to literature may be attributed to the fact that the study was carried out exclusively in surgical clinics.

CONCLUSION

The attitudes of surgical nurses towards EBN practices and PSC were found to be positive. It was concluded that surgical nurses with high attitudes towards EBN practices had more positive attitudes toward surgical PSC. Although PSC is important for nurses working in all clinics, it is more important for nurses working in surgical clinics. Therefore, it is recommended that working conditions should be improved, training nurses who follow EBN practices up to date and in-service trainings should be planned in line with the latest evidence findings.

Financial disclosures: The authors declared that this study has received no financial support.

Conflict of Interest: The authors have no conflicts of interest to declare.

Ethical approval: Ethical approval was obtained from Adıyaman University Social and Human Sciences Ethics Committee (Date: 16.02.2022, Decision no: 218). The research was conducted in accordance with the principles of the World Medical Association Declaration of Helsinki.

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