



ORIGINAL ARTICLE

An Investigation of the Effect of Professional Values and Certain Variables on Surgical Clinic Nurses' Attitudes Toward Medical Errors: A Descriptive Study

Cerrahi Klinik Hemşirelerinin Tıbbi Hata Tutumları Üzerinde Mesleki Değerlerin ve Bazı Değişkenlerin Etkisinin İncelenmesi: Tanımlayıcı Bir Çalışma

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Abstract

Objective: This study aims to investigate the effect of professional values and certain descriptive variables on surgical nurses' attitudes toward medical errors.

Method: This descriptive study was conducted among 285 nurses working in the surgical units of a university hospital between March and June, 2024. Data were collected using the descriptive characteristics form, the attitudes toward medical errors scale, and the nursing professional values scale.

Results: The mean score on the professional values scale was 98.83±19.80; the mean score on the attitudes toward medical errors scale was 2.23±0.42. Subscale mean scores were 3.00±0.69 for perceptions of medical errors, 2.03±0.54 for approach to medical errors, and 2.30±0.54 for causes of medical errors. Results of stepwise regression analysis showed that the number of patients cared for, duration of work, overtime work, and professional values affected attitudes toward medical errors, and these variables explained 23.5% of the variance in attitudes toward medical errors.

Conclusion: This study found that the nurses had an above-average mean score for professional values and generally low attitudes toward medical errors. Nurses' attitudes toward medical errors were significantly affected by the number of monthly shifts, overtime work, number of patients cared for, and professional values.

Keywords: Medical errors, attitudes, professional values, surgical nurse, surgical care

Öz

Amaç: Cerrahi hemşirelerin tıbbi hata tutumları üzerinde mesleki değerler ve bazı tanıtıcı değişkenlerin etkisini incelemek amacıyla yapıldı.

Yöntem: Tanımlayıcı türdeki bu araştırma Mart-Haziran 2024 tarihleri arasında bir üniversite hastanesinin cerrahi birimlerinde çalışan 285 hemşire ile yapıldı. "Tanıtıcı özellikler bilgi formu, tıbbi hata tutum ölçeği ve hemşirelik mesleki değerler ölçeği" ile veriler elde edildi.

Bulgular: Hemşirelerin mesleki değerler ölçeğinden aldıkları puanın ortalaması 98,83±19,80, tıbbi hata tutum ölçeği toplam puan ortalaması puanın 2,23±0,42 olurken alt boyutlarından alınan puan ise tıbbi hata algısından 3,00±0,69, tıbbi hata yaklaşımı 2,03±0,54, tıbbi hata nedenleri alt boyutundan 2,30±0,54 puan aldıkları saptandı. Yapılan regresyon analizi ile (stepways) bakım verilen hasta sayısının, çalışma süresinin, fazla mesainin ve mesleki değerlerin tıbbi hata tutumunu etkilediği ve bu değişkenlerin tıbbi hata tutumlarının %23,5'ini açıkladığı bulundu.

Sonuç: Bu araştırmanın sonucu olarak mesleki değerler puanın ortalamasının üstünde olduğu ve hemşirelerin tıbbi hata tutumlarının düşük olduğu görülmektedir. Hemşirelerin tıbbi hata tutumlarını aylık tutulan nöbet sayısının, fazla mesainin, bakım verilen hasta sayısının ve mesleki profesyonelliğin anlamlı düzeyde etkilediği bulunmuştur.

Anahtar Kelimeler: Tıbbi hatalar, tutumlar, mesleki değerler, cerrahi hemşiresi, cerrahi bakım

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Introduction

Although the principle of zero error is observed during health care delivery, the provision of health services with a complex, crowded team may lead to medical errors (1,2). Medical errors are undesirable events that occur at every stage of care, most of which fall under the responsibility of health professionals and affect the patient's health and sometimes the patient's life (3). Medical errors are an important issue for all health service providers. However, due to the variety and complexity of their duties and direct involvement in patient care, nurses are at greater risk of making medical errors than other healthcare personnel (4).

It has been reported that inadequate communication, incomplete reporting, failure to fulfil the patient advocacy role, provision of care below standards, incomplete evaluation and monitoring are among the causes of medical errors caused by nurses (5). It has been revealed that the most important cause of the legal process is negligence. Even if the patient is not harmed, nurses' errors negatively affect the patient's trust in, and satisfaction with, health care (6).

Surgical services and operating rooms, due to their complex and dynamic structures, have higher rates of causing harm to patients and medical errors compared to other units (7). In a study of nurses working in surgical units, 8.3% reported having made a medical error, and nearly half (49.7%) reported having encountered one during their professional careers (8). Another study found that 13.8% of surgical nurses had made a medical error in the past year, and 46.4% had witnessed a medical error made by a colleague (7). Studies highlight that a significant portion of these errors stems from unprofessional behaviors, such as failure to provide necessary care and services; incomplete or poorly executed professional duties; insufficient knowledge, skills, and experience; and negligent or unethical behavior (8,9). This situation underscores the importance of assessing surgical nurses' attitudes toward medical errors and the factors influencing those attitudes.

Professional values, as standards of action or behaviour, form the basis of nurses' attitudes and behaviour (10). Values can be learnt; they are shaped by the sociocultural environment, education, and previous experiences, and they motivate appropriate professional behaviours (11,12). In nursing as a profession serve as a framework for professional

standards, practice, and evaluation (13). Values also serve as a guide in providing safe care, demonstrating ethical behaviors (14), and interacting with other members of the profession, other health professionals, and society (15). The literature has documented positive relationships between value incongruence, accident propensity, (16) and burnout (17), a strong relationship between professional values and caring behaviors and competence (18), intention to act in an efficient and accountable way (19) and tendencies towards prevention of medical errors (9). However, an analysis of the literature shows that the relationship between attitudes toward medical errors and professional values has not been reported directly. This study aims to analyze the relationship between surgical nurses' descriptive characteristics and their attitudes toward medical errors and professional values, and to assess its statistical significance. The study also aims to determine the effect of professional values and descriptive characteristics on attitudes toward medical errors. In line with this information, the purpose of this study is to determine the effects of professional values and specific descriptive variables on surgical nurses' attitudes toward medical errors.

Research Questions

There is a significant difference in attitudes toward medical errors according to surgical nurses' descriptive characteristics. A significant difference exists between the descriptive characteristics and professional values of surgical nurses. Nurses' professional values and descriptive characteristics affect their attitudes toward medical errors.

Material and Method

Design

A descriptive study model was used.

Location and Time

The study was conducted between March and June 2024 among nurses working in the surgical units (operating theatre, surgical clinics, and outpatient clinics) of a university hospital in Central Anatolia. These hospitals include all surgical units, each of which has a clinic. Surgical nurses provide care services in the hospital during the day (08:00-16:00) and night (16:00-08:00) shifts.

Population and Sample

The population consisted of 304 registered nurses working in the surgical units of the hospital where the study was conducted. With a 95% confidence level and a 5% margin of error, the minimum sample size was determined to be 170 ($p=0.5$, $q=0.5$) using the sampling method for a known population. The study aimed to reach the entire target population. However, 19 nurses could not be reached: 14 were on maternity leave, 2 were performing military service, and 3 were ill; therefore, the study was completed with 285 nurses.

Main Points

- Surgical nurses showed above-average professional values but low attitudes toward medical errors.
- Attitudes toward medical errors were significantly associated with education level, years of experience, and workload-related factors.
- The number of patients cared for, overtime work, and monthly shifts negatively affected nurses' attitudes toward medical errors.
- Higher professional values contributed positively to attitudes toward medical errors.
- Reducing nurses' workload and strengthening professional values may help decrease the likelihood of medical errors.

Data Collection Tools

Questionnaire forms, created by the researchers following literature reviews and evaluations, were used to collect the data. The questionnaire included the “descriptive characteristics form, the attitudes toward medical errors scale (AMES), and the nursing professional values scale”.

The descriptive characteristics form was developed using literature (4,7-11). The form included some individual characteristics and working conditions of surgical nurses that were assumed to affect the likelihood of medical errors.

The professional values scale was developed to evaluate nurses’ perception and development of professional values. The Turkish validity and reliability of the scale were assessed by Acaroğlu (20). It consists of 26 items on a five-point Likert-type scale. The responses were evaluated as “not important, somewhat important, important, very important, and very, very important”. The total score from the scale is calculated by summing the scores corresponding to the participants’ answers. Scores obtainable on the scale range from 26 to 130, and higher scores indicate greater adaptation to professional values. There are no reversible items, sub-dimensions, or a cut-off point in the scale (20).

AMES

The scale developed by Güleç and İntepeler (21) consists of 16 questions and three sub-dimensions (perception of medical error, approach to medical error, and reasons for medical error). The scale is a five-point Likert-type scale, and items 10 and 13 are reverse-scored. For the scale calculation, the total raw score is divided by the number of items to obtain a scale score between 1 and 5. The cut-off point of the scale is 3: scores below 3 on the total scale and its sub-dimensions indicate negative attitudes toward medical error, whereas scores of 3 and above indicate positive attitudes (21).

Data Collection

The researchers explained the content of the forms and the study to the nurses in face-to-face meetings. After the interview, the prepared form was given to the nurses who wished to participate in the study. The relevant clinics were visited regularly during night shifts to reach nurses working those shifts.

Statistical Analysis

Data analysis was performed using SPSS version 23.0. Descriptive data were summarized using counts, percentages, means, and standard deviations. Skewness and Kurtosis values were assessed for normality. The independent-samples t-test and one-way analysis of

variance were performed on normally distributed data, whereas the Mann-Whitney U test and Kruskal-Wallis test were performed on non-normally distributed data. A simple regression analysis was performed to assess the effects of the influencing factors. The statistical significance level was set at $p < 0.05$.

Ethical Considerations

This study was approved by the Yozgat Bozok University Ethics Committee (approval no: 11/23, date: 21.02.2024) and by the hospital administrations (2024-411615). The details of the study were explained to the participants and their informed consent was obtained.

Results

Among the nurses in the study, 71.6% were aged 20-30 years, 65.3% were female, 72.5% were single, and 63.5% had an undergraduate degree. The majority of nurses had 1-5 years of work experience and worked 40 hours per week in shifts. Among the nurses, 61.4% had between 5 and 10 monthly shifts, and 59.3% reported being satisfied with their profession.

A comparison of nurses’ descriptive characteristics and their attitudes toward medical errors shows that attitudes increased with increasing education level and years of professional experience ($p = 0.001$); differences for other variables were not significant (Table 1). A comparison of nurses’ professional values scale scores across their descriptive characteristics showed that nurses younger than 40 years ($p = 0.003$), male, with post-graduate education ($p = 0.001$), and satisfied with their profession ($p = 0.032$) scored significantly higher on the professional values scale (Table 1).

Table 2 presents the nurses’ professional values scale and AMES total and subscale mean scores. An analysis of the table shows that the nurses’ professional values scale total mean score was 98.83 ± 19.80 , and the AMES total mean score was 2.23 ± 0.42 . The mean scores for the subscales are 3.00 ± 0.69 for the perception of medical errors, 2.03 ± 0.54 for the approach to medical errors, and 2.30 ± 0.54 for the causes of medical errors (Table 2).

Results of stepwise regression analysis showed that the number of patients cared for, years of professional experience, overtime work, and professional values affected attitudes toward medical errors, and together these variables explained 23.5% of the variance in attitudes toward medical errors (Table 3).

Discussion

Medical errors are a patient safety problem that must be addressed as a priority. Minimizing medical errors requires investigation into their causes (22). Nurses working in surgical clinics have a high propensity for medical errors, with rates ranging from 39.4% to 43.6% in these units (4), which demonstrates the necessity of examining attitudes toward medical errors in surgical clinics. This study found low levels of awareness and attitudes toward medical errors among nurses (Table 2). The literature includes studies that similarly reported low levels of attitudes among surgical

nurses toward medical errors (23), as well as studies that reported the opposite (24,25). This finding is likely affected by the descriptive characteristics of the nurses included in the sample, such as education level and years of professional experience. Therefore, the significance test assessing associations between attitudes toward medical errors and descriptive characteristics showed that surgical nurses' attitudes toward medical errors were more positive with increasing education level and years of professional experience (Table 1). In addition, the study was conducted in a tertiary care hospital. Tertiary hospitals serve a large number of patients and employ advanced technologies.

Table 1.
Comparison of Nurses' Descriptive Characteristics with Their Attitudes Towards Medical Errors Scale and Professional Values Scale Mean Scores

Variables	n	%	Attitudes toward medical errors	Test statistic p	Professional values	Test statistic p
Age						
20-30	204	71.60	2.21±0.43	X ² =1.12 p=0.327	98.93±19.39	f=5.85 p=0.003
30-40	64	22.50	2.30±0.44		102.40±19.50	
40 and over	17	6.00	2.21±0.23		84.23±20.26	
Gender						
Female	186	65.30	2.20±0.40	t=-1.86	96.77±20,4	t=-2.42
Male	99	34.70	2.29±0.45	p=0.26	102.70±18.05	p=0.016
Education status						
High school	61	21.40	2.12±0.36a	X ² =12.22 p=0.001	99.40±17.27 ^a	X ² =5.93 p=0.001
Pre-graduate	24	8.40	2.15±0.30 ^a		99.95±16.26 ^a	
Undergraduate	181	63.50	2.22±0.42 ^{ab}		96.66±20.10 ^a	
Post-graduate	19	6.70	2.69±0.39 ^c		116.21±21.03 ^b	
Years of working in the profession						
1-5	154	54.00	2.15±0.42 ^a	f=8.40 p=0.001	99.08±19.29	f=0.85 p=0.42
5-10	75	26.30	2.20±0.45 ^{ab}		100.46±20.85	
10 and over	56	19.60	2.43±0.27 ^b		95.96±19.79	
Working style						
Continuously daytime	19	6.70	2.16±0.20	X ² =0.81 p=0.48	89.63±14.35	X ² =2.31 p=0.076
Continuous night	34	11.90	2.28±0.32		94.61±19.02	
Shifts	232	81.40	2.23±0.45		100.18±20.11	
Working hours per week						
40	179	62.80	2.24±0.40	t=0.43	97.27±19.32	t=-1.73
40 and over	106	37.20	2.22±0.46	p=0.66	101.46±20.40	p=0.085
Monthly watch						
0-5	62	21.80	2.29±0.35		94.70±20.19	
5-10	175	61.40	2.21±0.45	f=0.83	100.03±19.38	f=1.73
10 and over	48	16.80	2.22±0.39	p=0.43	99.79±20.50	p=0.17
Satisfaction with the profession						
Satisfied	169	59.30	2.25±0.41	t=1.15	101.89±21.11	t=-2.16
Not satisfied	116	40.70	2.19±0.43	p=0.25	96.75±18.67	p=0.032
a,b,c=superiors indicate differences between groups, χ ² =indicates the Kruskal-Wallis chi-square test statistic used for comparing non-parametric group differences						

^{a,b,c}=superiors indicate differences between groups, χ^2 =indicates the Kruskal-Wallis chi-square test statistic used for comparing non-parametric group differences

Table 2.
Scores of the Professional Values of Nurses Scale, Attitudes Towards Medical Errors Scale and Subscales

Professional values scale total mean score	Mean (SD) 98.83 (19.80)
Attitudes toward medical errors scale total mean score	2.23 (0.42)
Attitudes toward medical errors scale subscales	
Perception of medical errors	3.00 (0.69)
Approach to medical errors	2.03 (0.54)
Causes of medical errors	2.30 (0.54)
SD=standard deviation	

Table 3.
Factors Affecting Attitudes Toward Medical Errors According to Regression Analysis (Stepways)

Dependet variable	Independet variables	Unstandardized coefficients		Standardized coefficients	95.0% confidence interval for B		t	p
		B	Standard error	Beta	Lower bound	Upper bound		
Attitudes toward medical errors	Constant	2.699	0.13		2.443	2.954	20.791	0.001
	Number of patients under care	-0.043	0.006	-0.401	-0.055	-0.032	-7.387	0.001
	Years of working in the profession	0.089	0.031	0.164	0.027	0.150	2.853	0.005
	Overtime work	-0.005	0.001	-0.216	-0.007	-0.002	-4.122	0.001
	Professional values	0.003	0.001	0.147	0.001	0.006	2.68	0.008
	Adjusted R ² =0.235, Durbin-Wasson=1.69							

This condition, encountered in patient care, may have affected surgical nurses' awareness of medical errors.

Perceptions, approaches, and awareness toward medical errors are inevitably affected by nurses' personal characteristics and working conditions (23,26-28). In the current study, it was found that as nurses' level of education and years of professional experience increased, attitudes towards medical errors increased, while differences in other variables were not significant (Table 1). Most studies indicate that attitudes toward medical errors become more positive as the level of education increases (23,26,27). In line with this study, years of experience in the profession and attitudes toward medical errors were associated in many studies (26-28). For example, Demir Dikmen et al. (29) reported that nurses with less work experience have a higher propensity for medical errors, whereas Er and Özkan (24) found that nurses with approximately 10 years' experience had a higher level of awareness of medical errors. Sufficient awareness of medical errors is somewhat expected as nurses' professional experience increases. These findings suggest that hypothesis H1 was partially supported.

The participating nurses' professional values score was above average (Table 2). Recent studies investigating surgical nurses' perceptions of professional value also reported similar results (30-32). Since 2014, the title of nurse has been given only to individuals who have

completed undergraduate education in Turkey. Hence, a large proportion of nurses working in the field had an undergraduate degree. Nurses' high perception of professional values reported in recent studies may be a consequence of this development in education.

The study found that male nurses had significantly higher professional value scores than female nurses (Table 1). However, most studies report that female nurses have higher perceptions of professional values (12,32,33). This difference may be attributed to the higher proportion of male nurses included in this study compared to previous studies.

The study also found that nurses younger than 40 had significantly higher professional value scores (Table 1). While some studies indicate that nurses under 30 have lower professional values (33), others report the opposite (12). It is thought that increasing age enhances experience and professional adaptation, thereby reinforcing professional values.

The literature also demonstrates that higher education levels positively influence nurses' professional values (29,32,34). However, this study did not find a parallel increase in professional values with increasing education level, except that nurses with post-graduate education had significantly higher perceptions of professional values

than those with other education levels (Table 1). Similarly, Daştan et al. (33) reported that nurses with post-graduate education possess higher professional values. Post-graduate education may strengthen nurses' professional identities and contribute to their ability to adopt different perspectives in professional practice.

Another finding of the study is that nurses who are satisfied with their profession report higher perceived professional value. A study examining nurse managers found multiple relationships among nurses' job activities, job satisfaction, patient satisfaction, and medication errors (35). It appears that the better nurses' perceptions and awareness of professional values are, the higher their job satisfaction, which in turn is reflected in their practices.

The present study found that the number of patients cared for, years working in the profession, overtime, and professional values affected attitudes toward medical errors; these variables explained 23.5% of the variance in attitudes toward medical errors. An increased number of monthly shifts (36) and prolonged working hours (37) have been reported to increase the risk of medical errors. A study reported that when a surgical nurse caring for four patients takes on an additional patient, the patient's risk of death increases significantly (38). Another study identified the patient-to-nurse ratio as the cause of medical errors (39). These findings indicate that high workload is an important cause of medical errors. Errors in the administration of medication, one of the medical errors, included work experiences, availability of guidelines for the administration of medication, education level, interruptions during the administration of medication, and working on night shifts (40). In addition to many other factors that increase nurses' risk of committing medical errors, low perceived professional value also contributes to that risk. A strong, highly significant negative relationship was reported between professionalism and the tendency to make medical errors, and nurses' professional attitudes explained 30% of the variance in the propensity for medical errors (8). These findings suggest that explaining the causes of medical errors requires evaluating various factors.

Study Limitations

The sample size was calculated by power analysis and in addition to being based on sampling probability.

Conclusion

This study is one of the few that examine the impact of professional values and certain variables on the attitudes of nurses in surgical clinics toward medical errors. The findings from this study will guide future research and provide new evidence on the importance of professional nursing. This study found that nurses had an above-average mean score for professional values and low attitude scores toward medical errors. Nurses' attitudes toward medical errors were found to be significantly affected by the number of monthly shifts, overtime work, the number of patients cared for, and

professional values. A high workload inevitably increases the propensity for medical errors. The positive development in nurses' perception of professional values in the country should not be overlooked. These could be considered the results of the separation of job descriptions, positive developments in education levels, and improvements such as the conferment of the title "specialist nurse" in the country's recent nursing regulation. Positive effects on the propensity to commit medical errors are considered inevitable among nurses who perceive themselves as valuable with regard to professional development. Based on the results of this study, it is recommended that surgical nurses' workload be reduced and perceived professional value be improved through policies aimed at minimizing medical error rates. Another recommendation is to consider multiple factors when investigating the causes of medical errors.

Ethics Committee Approval: This study was approved by the Yozgat Bozok University Ethics Committee (approval no: 11/23, date: 21.02.2024) and by the hospital administrations (2024-411615).

Informed Consent: The details of the study were explained to the participants and their informed consent was obtained.

Footnotes

Author Contributions: Concept - K.A.A., Ö.Ş.A., A.A.; Design - K.A.A.; Data Collection or Processing - K.A.A.; Analysis or Interpretation - K.A.A., Ö.Ş.A.; Literature Search - K.A.A., Ö.Ş.A.; Writing - K.A.A., Ö.Ş.A.

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