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Araştırma Makalesi/ Research Article

Investigation of the Relationship Between Nursing Students' Teamwork Aptitude and Their Avoidance of Medical Error in Surgical Patient Care

Hemşirelik Öğrencilerinin Cerrahi Hasta Bakımında Tıbbi Hatalardan Sakınabilme Durumu ile Ekip Çalışmasına Yatkınlıkları Arasındaki İlişkinin İncelenmesi

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ABSTRACT

Objective: Impaired teamwork between healthcare professionals in the surgical patient care is considered to be one of the major causes of medical errors in perioperative process. However, scientific data on the relationship between teamwork aptitude and ability to avoid medical error in surgical patient care is limited. The aim of this study was to examine the relationship between student nurses' teamwork aptitude and their ability to avoid medical errors in the care of surgical patients.

Methods: This cross-sectional study was conducted with 492 nursing students. They were surveyed using the teamwork aptitude scale and a researcher-designed instrument to assess avoidance of medical errors in surgical care. Correlation analysis was used to assess the relationship between teamwork aptitude and medical error prevention. To identify significant predictors associated with medical error avoidance, multiple linear regression analysis was used.

Results: There was a significant relationship between teamwork aptitude and avoidance of medical errors ($r=0.332$, $p<0.001$). Teamwork aptitude ($\beta=0.309$, $p<0.001$), gender ($\beta=0.091$, $p=0.030$) and reason for choosing nursing ($\beta=0.142$, $p=0.001$) were found to significantly predict the level of avoidance of medical errors in surgical patient care.

Conclusions: The development of teamwork skills in nursing students as part of the educational process can contribute to a reduction in medical errors in perioperative process and thus an increase in the quality of surgical patient care.

Keywords: Medical error, nursing, surgical care, teamwork

ÖZ

Amaç: Cerrahi hasta bakımında sağlık profesyonellerinin ekip çalışmasında yaşanan aksaklıklar, ameliyat sürecindeki tıbbi hataların önemli nedenlerinden biri olarak kabul edilmektedir. Bununla birlikte ekip çalışmasına yatkınlık ile tıbbi hatalardan sakınabilme durumu arasındaki ilişkiye dair bilimsel veriler sınırlı düzeydedir. Bu çalışmanın amacı, öğrenci hemşirelerin cerrahi hastaların bakımında ekip çalışmasına yatkınlıkları ile tıbbi hatalardan sakınabilme durumları arasındaki ilişkinin incelenmesidir.

Yöntem: Kesitsel nitelikteki bu çalışma 492 hemşirelik öğrencisi ile gerçekleştirildi. Veri toplama aracı olarak ekip çalışmasına yatkınlık ölçeği ve cerrahi bakımda tıbbi hatalardan sakınabilme durumunu değerlendirmek amacıyla araştırmacılar tarafından geliştirilen veri formu kullanıldı. Ekip çalışmasına yatkınlık ile tıbbi hatalardan sakınabilme arasındaki ilişki korelasyon analizi ile değerlendirildi. Tıbbi hatalardan kaçınmayla ilişkili anlamlı yordayıcıları belirlemek için çoklu doğrusal regresyon analizi kullanıldı.

Bulgular: Ekip çalışmasına yatkınlık ile tıbbi hatalardan sakınabilme durumu arasında anlamlı bir ilişki olduğu görüldü ($r=0.332$, $p<0.001$). Ekip çalışmasına yatkınlık ($\beta=0.309$, $p<0.001$), cinsiyet ($\beta=0.091$, $p=0.030$) ve hemşirelik mesleğini seçme nedeni ($\beta=0.142$, $p=0.001$) cerrahi hasta bakımında tıbbi hatalardan sakınabilme durumunu anlamlı düzeyde yordayan değişkenler olarak saptandı.

Sonuç: Eğitim sürecinin bir parçası olarak hemşirelik öğrencilerinin ekip çalışması becerilerinin geliştirilmesi, ameliyat sürecinde tıbbi hataların azalmasına dolayısıyla da cerrahi hasta bakımının kalitesinde artışa katkı sağlayabilir.

Anahtar Kelimeler: Cerrahi bakım, hemşirelik, takım çalışması, tıbbi hata

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Introduction

Medical errors, which are recognised as a key indicator of the quality of care and the patient safety, pose a serious threat to public health (Fain et al., 2019). Every year, hundreds of thousands of deaths and injuries are caused by medical errors worldwide. In relation to this issue, it has been suggested that in the United States, more than 250,000 deaths per year are caused by medical errors (Makary and Daniel, 2016). Between April 2019 and March 2020, 2,246,597 incidents in which patients were harmed were reported in England, 4,241 of these incidents resulting in death (NHS, 2020). However, there is significant under-reporting of medical errors worldwide for reasons such as a 'blame culture', fear of litigation or prosecution, and the lack of an effective medical error reporting system (Poorolajal et al., 2015). Therefore, reported numbers are not a reliable indicator of how many medical errors actually occur.

There is no standardised terminology for the term "medical error". However, the most widely used definition for data analysis, synthesis and evaluation of medical errors is that of the Institute of Medicine (IOM). According to the IOM, a medical error is the failure to perform a planned action as intended or the use of a wrong plan to achieve a particular goal (Sirota, 2000). Medical errors happen when healthcare professionals fail to follow standard procedures, lack the necessary knowledge and skills, or provide inadequate treatment and care, which leads to harm (Carver et al., 2022). Some of the most common types of medical errors are adverse drug events, burns, falls, inappropriate transfusions, misdiagnosis, delayed diagnosis, patient misidentification, pressure injuries and deep vein thrombosis, restraint-related death, medication errors, wrong site surgery, and surgical errors (Rodziewicz et al., 2018).

Medical errors occur in all areas of healthcare, but are particularly common in the high-risk, dynamic speciality of surgery. It is estimated that more than 200 million major surgeries are carried out around the world every year and despite increasing awareness of surgical safety, a significant number of medical errors continue to occur at high rates in surgical patient care (WHO, 2008). Surgical errors cover a wide spectrum, such as operating on the wrong side, infection and late response to complications in the postoperative period. It is worth noting that errors made before and after surgery are more common than those made in the operating theatre. The main causes of medical errors in surgical patient care are lack of education, experience, guidance and skills, lack of standardised protocols, significant communication gaps between members of the medical team and with patients, time pressure and poor teamwork (Rodziewicz et al., 2018).

Surgical care requires invasive procedures and the involvement of caregivers from many different healthcare disciplines. This makes surgical processes prone to high risk of medical errors (Weaver et al., 2017). Effective teamwork based on communication, coordination and collaboration is considered key to ensuring patient safety and is paramount to increased patient satisfaction and improved healthcare outcomes in surgical processes (Ojuka et al., 2019). Dalen et al. reported that safety-threatening events were mostly related to interactions between members of the surgical team (van Dalen et al., 2022). The literature also shows that conflict in the healthcare team and poor communication between team members can lead to life-threatening complications and a reduction in the quality of care (Cullati et al., 2019; Tiwary et al., 2019). Indeed, poor teamwork is recognised to be associated with medical errors, but there is an apparent gap in the scientific evidence to confirm this relationship.

According to the World Health Organization (WHO), in low and middle-income countries, about 134 million adverse events and 2.6 million deaths occur each year as a result of unsafe practices in healthcare facilities. In addition, 15% of hospital expenditure in Organisation for Economic Co-operation and Development (OECD) countries is spent on addressing patient safety failures (WHO, 2019). Furthermore, healthcare professionals may experience severe psychological problems such as anger, guilt, inadequacy, depression and even suicidal thoughts when they commit or are likely to commit a medical error. The psychological problems experienced by health professionals may be exacerbated by legal action such as investigation and punishment (Rodziewicz et al., 2018).

Nurses are in contact with all members of the surgical care team and are at the crossroads of information transfer between team members. More importantly, surgical nurses are the team members who observe the patient the most and spend the most of their time with the patient in the surgical team. In this regard, nurses have important roles and responsibilities in identifying surgical risks, identifying solutions to improve care, preventing medical errors and improving patient safety

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(Henriques et al., 2016). Developing teamwork skills during the educational process is seen as an important strategy for nurses to fulfil these responsibilities within the surgical team, thus contributing to effective teamwork and patient safety. However, the relationship between nurses' tendency to make medical errors and their aptitude for teamwork is an unexplored issue.

Aim

The aim of this study was to examine the relationship between student nurses' avoidance of medical errors in surgical patient care and their aptitude for teamwork.

Method

Research Design

This cross-sectional study was conducted online.

Study Population and Sample Size

In this study, non-probability convenience sampling was used for the accessible target group of 576 nursing students enrolled in two universities in the north-eastern part of Türkiye. The G*Power programme was used to calculate the sample size to be achieved in the study. The sample size necessary to test the relationship between nursing students' teamwork aptitude and their avoidance of medical errors was estimated to be 616, by taking low effect size (d=0.1), 5% margin of error (α=0.05), and 80% power (1-β=0.80) as the basis for the correlation test (Faul et al., 2007). Since the evaluation of the data gathered showed that there was a moderate (r>0.3) correlation between nursing students' aptitude for teamwork and their avoidance of medical errors, the study was ended when 496 students were reached.

Voluntary participation in the study and having done an internship in surgical clinics for at least one semester were selected as the study inclusion criteria. Having completed a surgical clinical internship with one of the distance education methods was accepted as a criterion for exclusion from the study.

Data Collection

The data was collected between the 16th of June and the 23rd of June 2023. Data collection tools included the Teamwork Aptitude Scale and researcher-designed forms to identify demographic characteristics of participants and to assess nursing students' avoidance of medical errors in surgical patient care. Google Forms software was used to make the data collection tools suitable for online sharing. The link to the form was then sent by the researchers (GÇÖ, MEY) to the nursing students via WhatsApp.

Data Collection Tools

Demographic information form: This form included seven questions to evaluate age, gender, marital status, school, class, reason for choosing nursing, and planned future profession.

Questionnaire for evaluating student nurses' avoidance of medical errors in surgical patient care: This questionnaire was created based on the researchers' experiences and literature knowledge (Cebeci et al., 2012; Kandemir and Yüksel, 2020; Sivrikaya and Kara, 2019; Şahin and Özdemir, 2015). A total of 31 questions were asked in the questionnaire regarding patient falls (4), infection control (7), medication errors (7), documentation errors (3) communication (4) and patient follow-up (6).

The questionnaire was evaluated by five experts who hold a doctoral degree, teach nursing courses at undergraduate level, and hold an assistant professorship or higher professional position. The evaluation was carried out using the Davis technique. For each item in the survey, the experts marked their assessment as 4=very appropriate, 3=appropriate, 2=somewhat appropriate and 1=not appropriate. The content validity index (CVI), which expresses the proportion of experts who rated the items as very appropriate or appropriate, was then calculated. A CVI>0.80 was accepted as the cut-off point in the study, and the CVI for the items was between 0.8 and 1 (Davis, 1992). These experts assessed the relevance of each item and five of the items were revised for wording.

A pilot implementation of the questionnaire was carried out with 52 students. It was seen in the pilot implementation that there were no confusing questions. The data obtained from the pilot implementation were analysed and the Cronbach alpha value for questionnaire was calculated as 0.962. The Cronbach alpha values calculated for the sub-dimensions were as follows: patient falls=0.893, infection control=0.868, medication errors=0.882, documentation errors=0.779, communication=0.804, and patient follow-up=0.908. In addition, the questionnaire was administered twice with an interval of 15 days with the participation of 30 students. The correlation coefficient for the results obtained from the two administrations was r=0.3, p=0.05 for the total questionnaire, and ranged between 0.4 and 0.5 for the sub-dimensions. These results confirm that the developed questionnaire is a reliable data collection tool.

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The questionnaire was designed to be scored on a Likert scale as follows: I always pay attention=5; I usually pay attention=4; I sometimes pay attention, sometimes not=3; I don't pay much attention=2; I don't pay attention at all=1 point. A decrease in the score obtained from the questionnaire indicates a tendency to make medical errors, while an increase indicates ability to avoid medical errors.

Teamwork Aptitude Scale: This scale consists of seven sub-dimensions. These are Confidence, Identifying and Analysing the Problem, Responsibility (initiative, willingness), Cooperation, Education and Guidance, High Intrinsic Motivation, and Leadership. The scale consists of a total of 28 items, 14 with positive values and 14 with negative values. Items 1, 2, 3, 4, 12, 14, 15, 16, 18, 20, 24, 26, 27 and 28 in the scale have positive values and indicate a high aptitude for teamwork, while items 5, 6, 7, 8, 9, 10, 11, 13, 17, 19, 21, 22, 23 and 25 have negative values and indicate a low aptitude for teamwork (Tuncer, 2008). In this study, the Cronbach alpha reliability coefficient of the Teamwork Aptitude Scale was calculated as 0.740.

Data Analysis

Four of the participants were excluded from the study because their data forms contained outliers and extreme values and data were analysed using the IBM Statistical Package for the Social Sciences (IBM SPSS; Armonk, NY, USA) software program. Statistical significance level was set at $p < 0.05$ with a 95% confidence interval. In the study, conformity of the data to normal distribution was determined according to kurtosis and skewness values between -1.5 and +1.5 (ISU, 2023). Descriptive data were presented with numbers and percentages, and the relationship between aptitude for teamwork and avoidance of medical errors was evaluated using correlation analysis. Multiple linear regression analysis was used to determine significant predictors associated with avoidance of medical errors.

Ethical Considerations

Artvin Çoruh University Ethics Committee for Scientific Research and Publication approved this study (Date:14.06.2023, number: E-18457941-050.99-94549). Students were informed that their participation in the study was voluntary. Furthermore, the online form provided explanatory information about the study. Participants were requested to confirm that they had been informed about the research and that they were in agreement with their participation by ticking the 'I give my consent' box on the form.

Results

The study was completed with the participation of 496 of the 576 eligible nursing students (response rate=86.1%). The findings of the study are presented by analysing the data obtained from 492 nursing students.

The mean age of the students participating in the study was 21.6±1.95 years, 75.4% were female, and 99.0% were single. It was determined that 50.6% of the participants chose the nursing profession because of the wide opportunity to find a job, and that 49.4% of them planned to practise the nursing profession in the future. In the study, it was assessed whether the nursing students had made any kind of medical error during their student years. It was determined that 14.4% of the participants had made at least one medical error during their student lives (Table 1).

Table 1. Demographic characteristics (n = 492)

Age (mean±SD)		21.6±1.95
Gender	**n**	**%**
Female	371	75.4
Male	121	24.6
Marital status		
Single	487	99.0
Married	5	1.0
Reason for choosing nursing		
Opportunity for employment	249	50.6
Love of the profession	155	31.5
Accordance with exam grade	78	15.9
Other	10	2.0
Planned future profession		
Nursing	243	49.4
Academic career in nursing	201	40.9
Other profession	44	8.9
Undecided	4	0.8
Case of making medical errors		
Made some kind of medical error	71	14.4
Did not make any kind of medical error	421	85.6

In the study, it was determined that among the types of medical errors, nursing students were most prone to making documentation errors (13±1.89). It was found that students were more inclined to make medical errors regarding medication errors (31.9±2.97) and infection control (31.3±3.32) than in other areas. It was revealed that among the practices that should be implemented to avoid medical errors, the practice that the students paid the least attention to was "checking whether the surgical site skin preparation is carried out according to evidence-based guidelines" (4±0.87) (Table 2).

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Table 2. Evaluation of avoidance of medical errors in surgical patient care (n=492)

Items	Mean±SD
Patient falls	
I evaluate the risk of falling in the patients I care for.	4.6±0.54
I take the necessary measures to prevent the patient from falling out of bed.	4.6±0.53
I check the patient's vital signs before mobilisation.	4.5±0.67
I check the environmental safety before mobilisation.	4.4±0.66
Total	18.1±1.8
Infection control	
I check whether the surgical site skin preparation is carried out to according to evidence-based guidelines.	4.00±0.87
I obey the sterility rules while helping the nurse with the surgical site dressing.	4.7±0.55
I assess the incision site for infection before dressing.	4.5±0.64
I adhere to the principles of sterilisation and asepsis in invasive procedures.	4.6±0.54
I assess the catheter site for signs of infection.	4.4±0.73
I assess the catheter drainage tubes for signs of infection.	4.4±0.72
I dispose of contaminated materials in containers that comply with infection control rules.	4.7±0.56
Total	31.3±3.32
Medication errors	
I pay attention to the correct time for medication.	4.6±0.54
I check whether the medication is correct in drug administrations under the supervision of a nurse.	4.7±0.59
I can calculate the appropriate drug dose for the patient under the supervision of a nurse.	4.4±0.76
I check whether the right patient is administered the medication under the supervision of a nurse.	4.8±0.47
I take care to administer the medication in the correct way (IV, IM, etc.) under the supervision of a nurse.	4.8±0.48
Following treatment, I assess the patient for the effects of the medication.	4.2±0.77
I check whether there is a contraindication for medication.	4.4±0.74
Total	31.9±2.97
Documentation errors	
I record the practices I perform in surgical patient care in full.	4.5±0.62
I complete a safe surgery checklist for the patients I care for.	4.2±0.87
I check whether the necessary tests are done from the patient file.	4.3±0.80
Total	13±1.89
Communication	
I consult healthcare professionals regarding nursing practices that are beyond my own competence within the scope of surgical patient care.	4.6±0.59
I inform the surgical team about the problems I have detected regarding the patient's condition.	4.6±0.63
I consult the surgical team when I encounter treatment and care practices that I am not familiar with.	4.7±0.51
If I doubt that I have correctly understood the tasks assigned to me, I ask for confirmation in order to make sure.	4.7±0.51
Total	18.6±1.82
Patient follow-up	
I monitor the patient with regard to their physiological parameters without delay.	4.5±0.61
In the postoperative period, I monitor whether the patient was placed in a suitable position for the surgery.	4.3±0.68
I monitor whether the patient performs the necessary physical movements based on the surgery.	4.2±0.76
I monitor the amount of drainage in patients with drains.	4.4±0.76
I monitor fluids in patients with intravenous fluid therapy.	4.5±0.66
I monitor the patient's compliance with the oral intake restriction before and after surgery.	4.5±0.68
Total	26.4±3.16

In the study, it was found that the avoidance of making medical errors by female students (140.1±12.26) was more than that of male students (137.3±12.56). Moreover, it was determined that those who chose the nursing profession because they were interested in it were significantly less likely to make medical errors ($p<0.001$) and exhibited a significantly greater aptitude for teamwork ($p=0.001$) compared to other students.

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In terms of future career plans, no difference was found between students in terms of tendency to make medical errors or aptitude for teamwork (p>0.05) (Table 3). In the study, it was also determined that there was a positive, moderate and significant correlation between avoidance of medical errors and aptitude for teamwork in surgical patient care (r=0.332, p<0.001).

The factors predicting nursing students' level of avoidance of medical errors in surgical patient care were evaluated with multiple linear regression analysis. In the analysis, it was determined that a one-point increase in the teamwork aptitude scale score resulted in an increase of 0.376 in taking care to avoid medical errors (β=0.309, p<0.001). In the study, it was also determined that gender (β=0.091, p=0.030) and reason for choosing nursing (β= 0.142, p=0.001) were significant predictors of avoidance of medical errors (Table 4).

Table 3. Avoidance of medical errors and aptitude for teamwork according to demographic variables (n=492)

Variables	Avoidance of medical errors (mean±SD)	Aptitude for teamwork (mean±SD)
Gender		
Female	140.1±12.26	94.8±9.98
Male	137.3±12.56	94.1±10.83
Test and p value	t=2.173 p=0.030	t=0.645 p=0.519
Reason for choosing nursing		
Interest in the profession	142.7±10.07	96.8±10.73
Other	137.8±13.03	93.6±9.78
Test and p value	t=4.572 p<0.001	t=3.214 p=0.001
Planned future profession		
Nursing	139.3±12.5	94.2±10
Other	139.4±12.3	95.1±10.4
Test and p value	t=-0.090 p=0.928	t =-0.966 p=0.334

Table 4. Factors predicting the level of avoidance of medical errors in surgical patient care (n=492)

	R	R^2	Adjusted R^2	B	Std. Error	*β*	*t*	*p*
Individual success								
(Constant)	0.371	0.138	0.133	100.668	4.932		20.413	0.000
Teamwork scale score				0.376	0.052	0.309	7.273	0.000
Gender				2.625	1.208	0.091	2.174	0.030
Reason for choosing nursing				3.784	1.131	0.142	3.346	0.001

*Reference categories: Gender: male; Reason for choosing nursing: Reasons other than interest in the profession F=*26.013

Discussion

In this study conducted to determine the relationship between nursing students' avoidance of medical errors and their aptitude for teamwork, a moderate correlation was observed between aptitude for teamwork and avoidance of medical errors. Moreover, it was determined that a greater aptitude for teamwork was a significant predictor of a higher level of avoidance of medical errors. Furthermore, when aptitude for teamwork was evaluated together with other variables affecting avoidance of medical errors, it was found that female students were more likely to avoid medical errors than males and that students who chose the nursing profession because of their interest in it were more likely to avoid medical errors than those who chose the nursing profession for other reasons.

In the present study, we found that nursing students with a greater aptitude for teamwork were more likely to avoid medical errors. Several studies have shown that conflict in the healthcare team and poor communication between members of the team can lead to life-threatening complications and a reduction in the quality of care (Cullati et al., 2019; Tiwary et al., 2019). Furthermore, events that threaten the safety of surgical patient care are most often linked to poor communication and teamwork (van Dalen et al., 2022). These findings provide support for our research. Teamwork skills include carrying out responsibilities within a team, communicating effectively and collaborating with other team members (Rosen et al., 2018). Given that deficiencies in these skills are associated with medical errors, the contribution of a tendency to work in a team to the prevention of medical errors can be better understood (Manias, 2018; San Román and Gómez-Huelgas, 2022). In October 2004, the World Health Organization (WHO) launched the World Alliance for Patient Safety, stating that although medical errors are not completely preventable, health professionals must learn from mistakes and try to prevent or reduce them for the benefit of patients (de Mesquita et al., 2016). Undoubtedly, medical errors are a multifactorial threat to safety and occur as a result of the interaction of causes such as systemic factors and

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individual factors (Singh et al., 2021). However, the development of teamwork skills in students can be seen as a factor that can improve surgical patient safety.

It is an important responsibility for patient safety that nurses record all procedures and care they give to patients and any emergencies that occur during the care (De Groot et al., 2019). The study showed that student nurses were most likely to make documentation errors when caring for surgical patients. Similarly, documentation errors were found to be a common medical error in nursing care in the study by Al-Hussein et al (Al-Hussein and Ramadhan, 2018). Furthermore, Abid et al. reported that nursing documentation of care in surgical wards is inadequate (Abid et al., 2018). A number of reasons, such as unreliable access to the system, lack of technical support and lack of motivation, create barriers to patient documentation (Bjerkan et al., 2021). Nevertheless, the quality of nursing documentation and continuity of patient care have a statistically significant positive correlation (Abd El Rahman et al., 2021). In addition, documentation errors have been highlighted as a major threat to the provision of quality and safe care (Kaihlanen et al., 2021). Considering this, it can be strongly recommended that educational programmes include training in nursing documentation to increase knowledge and awareness among student nurses.

In the study, it was determined that nursing students were least likely to make medication errors in surgical patient care. However, it is well known that medication errors are one of the most common types of medical errors made by healthcare providers (Sutherland et al., 2020). The literature also shows that medication errors are the most common type of of medical error committed by nursing students (Stolic et al., 2022). Nursing students may make medication errors due to factors such as incorrect medication calculations, inadequate pharmacological training, illegibility of patient records, distracting environmental noise, crowding and stress in an urgent situation (Enaam-Al-Hagh et al., 2014). In research centres, student nurses can administer medication under the supervision of nurses after checking the 'five rights'of medication adminstration. This method greatly reduces the likelihood of students making medication errors. It can be argued that students' low tendency to make medication errors is related to this practice.

When genders were compared in the study, no significant difference was found regarding aptitude for teamwork, but in terms of tendency to make medical errors, it was determined that males were more likely to make medical errors than females. Similarly, in the study by Durmuş et al., when the tendency to make medical errors was examined according to gender, it was stated that male nurses had a higher tendency to make medical errors (Durmuş et al., 2022). In the study by Aktan and Atay, it was stated that the mean score in the scale sub-dimension "approach to medical error" was higher in men and that a statistically significant difference was found (Aktan and Atay, 2021). These results have been in line with the findings of the current research.

In the study, it was determined that students who chose the nursing profession because of their interest were less likely to make medical errors and exhibited a greater aptitude for teamwork compared to those who chose the nursing profession for other reasons. It is thought that nurses who practise their profession with interest and willingness will have a high commitment to the profession. In this context, in support of this relationship, it is stated in the study by Uysal and Karakurt that as nurses' level of professional commitment increases, their tendency to make medical errors decreases (Uysal and Karakurt, 2020). Since nurses who are interested in and committed to their profession are individuals who strive to improve themselves both academically and clinically, to progress in their careers, and to perform their duties in the best possible way, it is thought that this situation may prevent nurses from making medical errors.

Limitations of the study

The results of this study must be considered in the context of several methodological limitations. The most important limitation of this study is the lack of generalisability due to the convenience sampling method. This is a non-probability sampling method. Therefore, the findings may not be generalisable to different settings in Türkiye or elsewhere. Notwithstanding the limitation of generalisability, the study certainly adds to our understanding of the relationship between nursing students' aptitude for teamwork and tendency to make medical errors in surgical patient care. Future studies could consider using both quantitative and qualitative approaches to gain a deeper insight into the issue. In addition, a longitudinal study could be conducted to see if nursing students' views change over time.

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Conclusion and Recommendations

Teamwork is an essential part of surgical patient care. This study shows that an increase in nursing students' aptitude for teamwork is associated with a decrease in their tendency to make medical errors in surgical patient care. Undergraduate education is vital to the professionalism of nursing and can be used as a great opportunity to develop students' teamwork skills, thereby improving the quality of surgical patient care. The study also found that those who chose the nursing profession because of their interest were more likely to avoid medical errors than those who chose it for other reasons. These data suggest that attitudes towards the profession may have a significant effect on the ability to avoid medical errors, and it is recommended that this be further investigated in further studies.

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What did the study add to the literature?

- The research showed that there was a significant relationship between nursing students' teamwork aptitude and their ability to avoid medical errors in surgical patient care.
- It was revealed that the areas where nursing students were least likely to avoid medical errors in surgical patient care were documentation errors, patient falls, and communication errors, respectively.

References

Abd El Rahman AI, Ibrahim MM, Diab GM. (2021). Quality of nursing documentation and its effect on continuity of patients' care. Menoufia Nursing Journal, 6(2), 1-18.

Abid R, Majeed H, Mohammed T. (2018). Assessment of nurses documentation for nursing care at surgical wards in baghdad teaching hospitals. Journal of Pharmaceutical Sciences and Research, 10.

Aktan U, Atay S. (2021). Nurses' attitudes to medical errors and the ınvestigation of affecting factors. Acıbadem Universitesi Journal of Health Sciences, 12(2), 376-384.

Al-Hussein R, Ramadhan R. (2018). Nurses' errors during nursing work. Journal of the Bahrain Medical Society = Majallat Jam'īyat al-Atibbā' al-Bahraynīyah, 30, 35-44. https://doi.org/10.26715/jbms.xx.x.2018.xxx

Bjerkan J, Valderaune V, Olsen RM. (2021). Patient safety through nursing documentation: Barriers identified by healthcare professionals and students. Frontiers in Computer Science, 3, 624555.

Carver N, Gupta V, Hipskind JE. (2022). Medical error. In StatPearls [Internet]. StatPearls Publishing.

Cebeci F, Gürsoy E, Tekingündüz S. (2012). Determining the level of tendency in malpractice among nurses. Anatolian Journal of Nursing and Health Sciences, 15(3), 188-196.

Cullati S, Bochatay N, Maître F, Laroche T, Muller-Juge V, Blondon KS, et al. (2019). When team conflicts threaten quality of care: A study of health care professionals' experiences and perceptions. Mayo Clinic Proceedings: Innovations, Quality & Outcomes, 3(1), 43-51.

Davis LL. (1992). Instrument review: Getting the most from a panel of experts. Applied Nursing Research, 5(4), 194-197.

De Groot K, Triemstra M, Paans W, Francke AL. (2019). Quality criteria, instruments, and requirements for nursing documentation: A systematic review of systematic reviews. Journal of Advanced Nursing, 75(7), 1379-1393.

de Mesquita KO, da Silva LCC, Lira RCM, Freitas C, Lira GV. (2016). Patient safety in primary health care: an integrative review. Cogitare Enferm, 21(2), 1-8.

Durmuş SÇ, Erdem Y, Yilmaz ED. (2022). Tendency of Nurses to make medical error: The case of a public university medical faculty hospital. Kırıkkale Üniversitesi Tıp Fakültesi Dergisi, 24(1), 153-162.

Enaam-Al-Hagh C, Maryam Y, Salehinia H, Ali N, Masoud T. (2014). The types and causes of medication errors in nursing students. Science Road Journal, 2(8), 48-54.

Fain R, Healey B, Sudders M, Palleschi M, Campbell E. (2019). The Financial and Human Cost of Medical Error. Betsy Lehman Center for Patient Safety: Boston, MA, USA.

Faul F, Erdfelder E, Lang AG, Buchner A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behavior Research Methods, 39(2), 175-191.

Henriques AHB, Costa S, Lacerda J. (2016). Nursing care in surgical patient safety: An integrative review. Cogitare Enferm, 21(4), 1-9.

ISU. (2023). SPSS: Descriptive Statistics. Illinois state university. Retrieved 11.06.2023 from https://psychology.illinoisstate.edu/jccutti/138web/spss/spss3.html

Kaihlanen AM, Gluschkoff K, Saranto K, Kinnunen UM, Heponiemi T. (2021). The associations of information system's support and nurses' documentation competence with the detection of documentation-related errors: Results from a nationwide survey. Health Informatics Journal, 27(4), 14604582211054026.

Kandemir A, Yüksel S. (2020). Determination of surgical nurses' attitudes and trends towards medical errors. Anatolian Journal of Nursing and Health Sciences, 23(2), 287-297.

Makary MA, Daniel M. (2016). Medical error-the third leading cause of death in the US. BMJ, 353, i2139. https://doi.org/10.1136/bmj.i2139

Manias E. (2018). Effects of interdisciplinary collaboration in hospitals on medication errors: An integrative review. Expert Opinion on Drug Safety, 17. https://doi.org/10.1080/14740338.2018.1424830

NHS. (2020). NRLS national patient safety incident reports: commentary. Retrieved 05.06.2023 from https://www.england.nhs.uk/wp-content/uploads/2020/03/NAPSIR-commentary-Sept-2020-FINAL.pdf

Ojuka DK, Okutoyi L, Otieno FC. (2019). Communication in surgery for patient safety. In Vignettes in Patient Safety- 4, IntechOpen.

Poorolajal J, Rezaie S, Aghighi N. (2015). Barriers to Medical Error Reporting. International Journal of Preventive Medicine, 6, 97. https://doi.org/10.4103/2008-7802.166680

Rodziewicz TL, Houseman B, Hipskind JE. (2018). Medical error reduction and prevention. StatPearls Publishing LLC. https://www.ncbi.nlm.nih.gov/books /NBK499956/

Rosen MA, DiazGranados D, Dietz AS, Benishek LE, Thompson D, Pronovost PJ, et al. (2018). Teamwork in healthcare: Key discoveries enabling safer, high-quality care. The American Psychologist, 73(4), 433-450. https://doi.org/10.1037/amp0000298

San Román C, Gómez-Huelgas R. (2022). Medical errors and communication. Spanish Journal of Medicine, 2. https://doi.org/10.24875/SJMED.22000009

Singh G, Patel RH, Boster J. (2021). Root cause analysis and medical error prevention. StatPearls Publishing LLC. https://www.ncbi.nlm.nih.gov/books/NBK570638/

Sirota RL. (2000). The Institute of Medicine's report on medical error. Implications for pathology. Archives of Pathology and Laboratory Medicine, 124(11), 1674-1678. https://doi.org/10.5858/2000-124-1674-tiomsr

Sivrikaya SK, Kara AŞ. (2019). Determination the tendency of the nurses to make medical mistake. Balikesir Journal of Health Sciences, 8(1), 7-14.

Stolic S, Ng L, Southern J, Sheridan G. (2022). Medication errors by nursing students on clinical practice: An integrative review. Nurse Education Today, 112, 105325.

Sutherland A, Canobbio M, Clarke J, Randall M, Skelland T, Weston E. (2020). Incidence and prevalence of intravenous medication errors in the UK: A systematic review. European Journal of Hospital Pharmacy, 27(1), 3-8.

Şahin ZA, Özdemir FK. (2015). Examination of the tendency for nursing malpractice and affecting factors. Journal of Education and Research in Nursing, 12(3), 210-214.

Tiwary A, Rimal A, Paudyal B, Sigdel KR, Basnyat B. (2019). Poor communication by health care professionals may lead to life-threatening complications: Examples from two case reports. Wellcome Open Research, 4, 7.

Tuncer U. (2008). A study on the evaluation of development programs prepared for the psycho-social development of human resources: The case of man Türkiye AŞ. Gazi University Institute of Social Sciences, Ankara. 2008.

Uysal A, Karakurt PD. (2020). The effect of nurses' profession commitment situation to tendency of making medical error. Turkish Journal of Family Medicine and Primary Care, 14(3), 349-361.

van Dalen ASHM, Jung JJ, van Dijkum EJN, Buskens CJ, Grantcharov TP, Bemelman WA, et al. (2022). Analyzing and discussing human factors affecting surgical patient safety using innovative technology: Creating a safer operating culture. Journal of Patient Safety, 18(6), 617-623.

Weaver SJ, Benishek LE, Leeds I, Wick EC. (2017). The relationship between teamwork and patient safety. Surgical patient care: improving safety, quality and value, 51-66. Springer International Publishing. https://doi.org/10.1007/978-3-319-44010-1_5

WHO. (2008). World Allıance For Patıent Safety The Second Global Patıent Safety Challenge Safe Surgery Saves Lives Retrieved 2008. Retrieved 11.06.2023 from https://apps.who.int/iris/bitstream/handle/10665/70080/WHO_IER_PSP_2008.07_eng.pdf;jsessionid=8C1745ABF564CAD9CC60E16CBEA611CC?sequence=1.

WHO. (2019). World Patient Safety Day. 2019. Retrieved 12.06.2023 from https://www.who.int/campaigns/world-patient-safety-day/2019