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Patient Safety Culture Perception Among Surgical Nurses

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Abstract

Background: Human and technology factors in healthcare can lead to errors that threaten human life. A strong patient safety culture in hospitals may be linked to better patient outcomes. Because of the potential for mistakes in surgical departments, surgical nurses are critical to establishing and maintaining a patient safety culture.

Aim: The aim of this study was to explore the patient safety culture perceptions of surgical nurses.

Methods: This descriptive study was performed with 206 nurses working in the surgical clinics and operating rooms of 1 university hospital, 2 public hospitals, and 1 private hospital. A "Questionnaire" and the "Hospital Survey on Patient Safety Culture" were used for data collection. The data were analyzed using mean, number, and percentage values, 1-way analysis of variance, Tukey Honestly Significant Difference (HSD), and chi-square tests.

Results: The study revealed that surgical nurses' patient safety culture perception was at a medium level. The highest mean rate of positive responses in The Hospital Survey on Patient Safety Culture came from "Teamwork within units" and the lowest mean rate of positive answers came from the "Non-punitive response to errors" subdimension. In addition, 85.7% of the surgical nurses did not report any errors in the previous 1 year, and nurses who had been working for ≥11 years submitted more error reports (P=.001).

Conclusion: Nurses' patient safety culture perception was at a medium level. Recommendations for improving patient safety culture should include on-the-job training programs and improvements in employees' working conditions.

Keywords: Medical errors, patient safety, safety culture, surgical nursing

Introduction

Health services are directly concerned with human health and exist for the benefit of all citizens. However, human and technological factors in providing health services can result in compromising situations and errors capable of directly threatening human life.[1-3]

Minimizing patient safety errors and medical practice errors requires maximizing the knowledge levels of both healthcare workers and the public.[4] Patient safety awareness can be greatly improved when healthcare services consider and implement the needs, preferences, values, continuity, transparency, and teamwork of both patients and nurses into organizational policy.[5]

A large part of actual patient safety is dependent on the existing patient safety culture. This culture is defined as the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's safety management.[6] The creation of a patient safety culture in an organization requires all personnel to be thoroughly informed about existing safety practices, to strictly adhere to these safety practices, and to work as a team.[4,7] Communications based on mutual trust, safety, and the belief that preventive measures are beneficial receive high priority in organizations with a positive safety culture. The development of a positive and successful patient safety culture in an organization makes it possible to discuss errors, processes, and system-related problems clearly and without fear of reprisal or punishment. In this way, organizations can continue to research ways to achieve optimal patient safety programs. Doing so will help improve health outcomes regarding patient treatment and care.[8,9]

Adverse events are common occurrences in surgical units due to the complexity of procedures, the patient profile, the multidisciplinary health-care approach, and working under pressure.[10] Surgical nurses are therefore frequently confronted with unexpected

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patient safety-related situations or medical errors.[11] Surgical nurses play a crucial role in preventing or minimizing the undesired results of medical procedures and treatments and in consolidating patient safety culture.[12,13]

The issue of patient safety culture has become increasingly important in recent years. Numerous scientific studies have been conducted with health-care professionals on this subject. Some such studies have determined a medium level of patient safety culture perception among health-care professionals,[5,14] while others have reported low levels.[15] Similarly, studies involving surgical nurses have reported medium[16] or low[17,18] levels of perception of patient safety culture.

A strong perception of patient safety culture on the part of surgical nurses is necessary to provide highly safe care. However, few studies have focused on surgical nurses.[11,19] The present study was therefore designed to seek answers to the following question:

1. What are the patient safety culture perceptions of nurses working in surgical clinics?

Material and Methods

Study Design

The research was performed as a descriptive study intended to determine the patient safety culture perceptions of surgical nurses.

Sample

This study was performed between January and February 2016 in the surgical clinics and operating rooms of 1 university hospital, 2 public hospitals, and 1 private hospital in Türkiye's Eastern Black Sea region.

The population of the study consisted of 297 nurses who had been working in surgical departments (operating room, orthopedic, urology, brain surgery, cardiovascular surgery, thoracic surgery, general surgery, otorhinolaryngology surgery, eye diseases, and plastic and reconstructive surgery) of these hospitals for at least 6 months. The entire population was included in the study, although individuals who were unwilling to take part and those who were off duty during the study period were excluded. The study was finally completed with 206 nurses, giving a participation rate of 70.0%.

Measurements

The "Hospital Survey on Patient Safety Culture (HSOPSC)" and "The Questionnaire" were used as data collection tools.

Hospital Survey on Patient Safety Culture

The HSOPSC was developed by the Agency for Healthcare Research and Quality (AHRQ) in 2004, and its reliability and validity have been confirmed. Cronbach alpha values for the subdimensions ranged from 0.63 to 0.84 in a previous study.[20] The HSOPSC was adapted into Turkish by Bodur and Filiz,[21] and the Cronbach alpha coefficients of 8 safety culture subdimensions out of 12 exceeded 0.50 (0.51-0.92). In the present study, the Cronbach alpha coefficient of the survey was 0.86, and the Cronbach alpha coefficients of 8 safety culture subdimensions exceeded 0.50 (0.57-0.86).

The HSOPSC contains 42 statements and 12 subdimensions. It has a 5-point Likert format with the following subdimensions: Overall perceptions of patient safety (A10, A15, A17, and A18); frequency of events reported (D1, D2, and D3); teamwork across units (F2, F4, F6, and F10); handoffs and transitions (F3, F5, F7, and F11); supervisor/manager expectations and actions promoting patient safety (B1, B2, B3, and B4); organizational learning and continuous learning (A6, A9, and A13); teamwork within units (A1, A3, A4, and A11); communication openness (C2, C4, and C6); communication and feedback about errors (C1, C3, and C5); non-punitive response to errors (A8, A12, and A16); staffing (A2, A5, A7, and A14); and management support for patient safety (F1, F8, and F9). In addition, the participants were asked 1 question about the degree of patient safety and the number of events reported.

The survey contains 8 negatively worded statements (items A5, A7, A8, A10, A12, A14, A16, A17, B3, B4, C6, F2, F3, F5, F6, F7, F9, and F11). Once negatively worded questions have been reversed, researchers decide which statement belongs under which dimension. Positive responses given for each item are scored "Strongly agree (5)" or "Disagree (4)" and "Most of the time (4)" or "Always (5)." The sum of the scores is divided by the total scores possible for all criteria together and multiplied by 100 to yield the rate of positive responses given to items in percentages. "Strongly Disagree (1)" and "Never (1)," "Disagree and Rarely (2)," "Neither Agree nor Disagree and Sometimes (3)" responses are not included in the calculation of positive responses. Mean positive response rates range between 0% and 100%, with higher scores indicating mean positive response rates.

The Questionnaire

The form consisted of 2 parts and 15 multiple-choice questions. The first part included 8 questions concerning nurses' sociodemographic characteristics (age, gender, and educational status). The second part included 7 questions about patient safety and medical errors (units' status in terms of patient safety, reasons for medical errors, and attitudes in case of medical errors).

Before beginning data collection, a pilot test was performed with 10 surgical nurses. These nurses were excluded from the subsequent research, and the necessary adjustments were made to the questionnaire.

Data Collection

To prevent nurses from being influenced by the researchers, the data collection tools were given to the clinic charge nurses so that no interaction should take place between the data collectors and respondents. In addition, participants did not provide their names on the questionnaires and left the completed questionnaires in a box in the clinic. The clinics were visited twice to collect the completed questionnaires from the clinic charge nurses. The questionnaires were completed in approximately 10 minutes.

Statistical Analysis

The study data were analyzed using IBM Statistical Package for Social Sciences 22.0 (IBM SPSS; Armonk, NY, USA) software program. The mean, number and percentage were used for the descriptive statistical analysis. One-way analysis of variance was applied to compare continuous variables in more than 2 groups and Tukey's HSD (Honestly Significant Difference) for multiple comparisons. The Chi-square test was employed for qualitative data comparisons.

Ethical Considerations

The ethical suitability of this research was approved by Karadeniz Technical University Faculty of Medicine Scientific Research Ethics Committee (Date: 22/07/2015, Approval No:24237859-488). The study was performed according to the guidelines of the Declaration of Helsinki.

Official permission was also obtained from the institutions involved. Permission for the use of the "HSOPSC" was obtained from the authors. In addition, the requisite explanations concerning the research were given to the participants and informed consent forms were obtained.

Results

The mean age of the participating nurses was 29.08 ± 6.60 years (range: 18-49), 84.5% were female, 64.9% had an undergraduate degree, 59.2% had ≤5 years' experience in nursing, and 73.8% had been working in surgical units for ≤5 years. In addition, 50.5% of the surgical nurses were employed at public hospitals, 82.0% worked both day and night shifts, and 74.6% did not work more than 40 hours per week (Table 1).

The study results showed that the positive response rate among surgical nurses to the HSOPSC was 46%. The positive response rate of surgical nurses in terms of patient safety culture was 51% at the university hospital, 47% at the private hospital, and 43% at the public hospitals. Hospital Survey on Patient Safety Culture scores ($F=7.15$; $P=.001$) differed significantly between the different types of hospitals. This difference was identified between the university hospital and the public hospital ($P=.001$).

The highest mean rates of positive answers on the HSOPSC came from the "Teamwork within units (74%)" and "Feedback and communication about error (64%)" subdimensions, while the lowest mean rates of positive answers came from the "Non-punitive response to errors (23%)," "Staffing (25%)," and "Frequency of events reported (25%)" subdimensions. Positive response rates among surgical nurses in terms of patient safety were lower than 50% in the other 7 HSOPSC dimensions (Table 2).

Our results showed that 54.1% of surgical nurses found the surgical units' status to be satisfactory regarding patient safety (30.0% "excellent"; 24.1% "very good"). However, 43.8% of the surgical nurses considered the surgical units' status as "acceptable" (1.5% "poor" and 0.5% "failing"). Furthermore, 71.1% of the nurses relied much on their knowledge to prevent medical errors (Table 3).

The study results also showed that 85.7% of the participants did not report "any medical errors" in the previous 1 year, 9.9% of them reported medical errors "once or twice," and 4.4% of them reported medical errors "3-5 times" (Table 4). In addition, no medical error reports were made "at all" by any of the nurses employed at the private hospital, by 96.2% of those at the public hospitals, and by 68.4% of those at the university hospital. The difference among the hospitals in terms of reporting medical errors was statistically significant ($P < .001$). Nurses who had been working for ≥11 years made more error reports than those who had been working for ≤10 years ($P < .001$).

In terms of responsibility for errors, 49.5% of the surgical nurses believed that both the organizations concerned and the individuals who made errors shared the responsibility for them, 33.2% thought only those who made errors were responsible, and 17.3% thought that only the organizations should be held responsible for errors. In addition, 85.7% of the nurses considered that medical error events should be reported, 57.1% thought that health-care staff should offer explanations to patients about errors, and 38.4% believed that nurses should apologize to patients if they make a medical error (Table 3).

Surgical nurses cited the following as basic reasons for medical errors—"high patient ratios per nurse (94.2%)," "fatigue and stress caused by long working hours (87.9%)," and "carelessness, forgetfulness, and sleeplessness" (56.8%) (Table 4).

Table 1. Sociodemographic and Professional Characteristics of the Nurses (n=206)

Sociodemographic and Professional Characteristics	n	%
Age ± SD: 29.08 ± 6.60		
Gender		
Female	174	84.5
Male	32	15.5
Educational status (n=205)*		
High school	48	23.4
Associate degree	21	10.2
Undergraduate degree	133	64.9
Master	3	1.5
Experience in the nursing profession		
6 months-5 years	122	59.3
6-10 years	45	21.8
11-15 years	18	8.7
16-20 years	11	5.3
≥21 years	10	4.9
Years of work in the surgical unit		
6 months-5 years	152	73.8
6-10 years	34	16.5
11-15 years	12	5.8
16-20 years	5	2.4
≥21 years	3	1.5
Type of the hospital		
Public hospital	104	50.5
University hospital	82	39.8
Private hospital	20	9.7
Type of shift (n=205)*		
Day shift and night shift	168	82.0
Continuous day shift	34	16.5
Continuous night shift	3	1.5
Weekly working hours (n=205)*		
≤40 hours	153	74.6
40-49 hours	47	22.9
≥50 hours	5	2.5

*Percentages were calculated with those who responded questions.

Discussion

The surgical nurses in this study exhibited a medium level of patient safety culture perception. These results were compatible with those of Bodur and Filiz's[5] study with health-care staff. However, the

Table 2. Mean Rates of Positive Responses in Subdimensions of Hospital Survey on Patient Safety Culture (n=206)

Subdimensions of Hospital Survey on Patient Safety Culture	Mean Positive Responses (%)
Teamwork within units	74
Communication and feedback about an error	64
Handoffs and transitions	61
Overall perceptions of patient safety	58
Organizational learning and continuous learning	55
Teamwork across units	48
Management support for patient safety	39
Supervisor/manager expectations and actions promoting patient safety	36
Communication openness	35
Frequency of events reported	25
Staffing	25
Non-punitive response to errors	23

Table 3. Nurses' Perceptions about Patient Safety and Medical Errors (n=206)

Opinions about Patient Safety and Medical Errors	n	%
Status of units about patient safety (n=203)*		
Excellent	49	24.1
Very good	61	30.0
Acceptable	89	43.8
Poor	3	1.5
Failing	1	0.5
Status of reliance on knowledge to prevent medical errors (n=201)*		
Much	143	71.1
A little	56	27.9
Not at all	2	1.0
Number of errors reported in the last 12 months (n=203)*		
None	174	85.7
1-2 errors	20	9.9
3-5 errors	9	4.4
Those who should be held responsible for medical errors (n=202)*		
Both the organizations and those who made errors	100	49.5
Only those who made errors	67	33.2
Only the organizations	35	17.3
Attitudes in case of medical errors (n=203)*		
The event should be reported	174	85.7
Healthcare workers should make explanations to patients about errors	116	57.1
Healthcare workers should apologize to patients	78	38.4
Those who are subjected to medical errors should sue health-care personnel	9	4.4

*Percentages were calculated with those who responded to questions, and since more than 1 answer was given, n increased.

surgical nurses' patient safety culture perception in the present study was higher than that in Bodur and Filiz[21] and lower than in some other studies.[22-24] The differences among these studies may be attributed to the various professional groups included in them and to the organizations themselves.

Surgical nurses employed at the university hospital demonstrated a higher mean positive response rate for patient safety culture than those at other hospitals. The second highest mean positive response rate was observed among the nurses at the private hospital, followed by those at the public hospitals, and the difference between the hospitals was statistically significant. The AHRQ report stated that small-scale hospitals exhibited a better positive response rate for patient safety culture than larger hospitals.[25] The results of the current study differ from those of the previous literature. We believe that our finding may have been caused by university hospitals employing a larger number of experienced nurses with undergraduate degrees than private hospitals.

The highest mean positive response rates in this study came from the "Teamwork within units" and "Feedback and communication about error" subdimensions of the HSOPSC. The lowest mean positive response rates came from the "Non-punitive response to errors," "Staffing," and "Frequency of events reported" subdimensions. Some other studies have reported the highest mean rate in "Teamwork within units."[5,22,24-27] The lowest mean rate in these studies was similar to that in the present study. From that perspective, the present study was compatible with the previous literature. In addition, the positive response rate among surgical nurses for patient safety was lower than 50% in the other 7 dimensions of the HSOPSC (Table 3). Bodur and Filiz[5] reported a positive response rate for patient safety lower than 50% in 4 dimensions of the HSOPSC. The AHRQ found that the positive response rate for patient safety was lower than 50% in 2 dimensions of the HSOPSC.[28] The present study is thus not in agreement with the previous literature.

More than half of the surgical nurses in this study regarded patient safety in the unit as satisfactory. The proportion of surgical nurses who considered their units satisfactory regarding patient safety was lower than those in some other studies but higher than in others.[5,24,25,28] However, the fact that more than half of our participants perceived patient safety in the unit as satisfactory suggested a need for regular reviews of organizational regulations and policies.

Nearly a quarter of the surgical nurses in this study relied greatly on their own knowledge to prevent medical errors. More than a quarter of the nurses had some degree of belief in their knowledge and awareness, while many did not rely on their knowledge and awareness at all. In Bodur and Filiz's[5] study, the number of nurses who relied significantly on their knowledge to prevent medical errors was smaller than that in the present study, while the proportion of nurses who relied to some degree on their knowledge to prevent medical errors was higher. Since many of the participating nurses in the present study

Table 4. Reasons to Commit Medical Errors According to Nurses (n=206)

Reasons to Commit Medical Errors*	n	%
High patient ratios per nurse	194	94.2
Fatigue and stress caused by long working hours	181	87.9
Carelessness-forgetfulness-sleeplessness	117	56.8
Ambiguity in nurses' duties, authority, and responsibility	91	44.2
Lack of communication	71	34.5
Lack of teamwork	60	29.1
Inadequate knowledge, skills, and education	59	28.6
Lack of interest toward the nursing profession	59	28.6
Lack of inspection and management of medical services	55	26.7
Inability to provide high-quality nursing care	29	14.1

*Since more than 1 answer was given, n increased.

had undergraduate and master's degrees, we concluded that these relied on and trusted their knowledge to prevent medical errors.

The study findings also showed more than four-fifths of the participants had not reported any medical errors during the previous 1 year. Higher rates of reporting of medical errors have been determined in some previous studies.[5,19,28] Based on these study results, we think that the lack of effective error reporting systems, an unwillingness to recognize or acknowledge medical errors which do not harm patients seriously, and the fear that medical personnel will be punished when they commit medical errors may be responsible for low numbers of medical error reports being issued.

Nurses who had been working for ≥11 years submitted more error reports than those who had been working for ≤10 years. Furthermore, all the nurses employed at the private hospital, nearly all those at the public hospitals, and more than two-thirds of those at the university hospital did not submit any medical error reports. Findings in the literature regarding the relationship between professional experience and error reporting are inconsistent. Topaloğlu et al[29] and Gündoğdu and Bahçecik[14] reported that nurses with greater professional experience reported more errors. In contrast, Karagözoğlu et al[30] and Chiang et al[31] found that the error reporting rate decreased in line numbers of years worked. We think that these differences in reporting errors derive from nurses' personal characteristics.[29] A study of nurses working in private hospitals identified fear of job losses as a major reason for not reporting medical errors.[32] The fact that patient safety practices at university hospitals receive more organizational and institutional attention may therefore account for the higher level of medical error reports made compared to other hospitals.

Nearly half of the surgical nurses thought that both the organizations and those who had made errors should be held responsible for them, two-thirds believed that only those who had caused errors should be considered culpable, and nearly one-fifth believed that only the organizations should be held responsible for errors. Gallagher et al[33] reported that half of their participants believed that only those who had caused errors should be held responsible for them. The fact that a majority of the participants held both the organizations and those who had made medical errors responsible showed that medical errors originated not only from individual factors but also from organizational ones.

The methods to be followed in the event of a medical error play a key role in reducing the recurrence of medical errors. In the present study, more than four-fifths of the surgical nurses thought that events should be reported in case of medical error. Nearly two-thirds believed that health-care staff should explain any errors made to patients, and nearly two-fifths thought that nurses should apologize to patients when they make such an error. Kalra et al[34] not only recommended that criminal charges should be avoided but also suggested that when a medical error takes place, the events should be reported and explanations should be given to patients. We therefore concluded that the majority of the nurses stated that medical errors should be reported so that actions can be taken to prevent future errors.

The surgical nurses in this study listed high patient ratios per nurse, fatigue, and stress caused by long working hours, carelessness, forgetfulness, and sleeplessness as reasons for medical errors. Other studies on the same subject have also indicated that medical errors can be multifactorial. These factors include a lack of medical materials and staff, fatigue caused by an excessive number of patients per nurse, lack of experience and knowledge, a shortage of staff, lack of warning signs to prevent errors, poor communication, intense working conditions, and infrequent inspections.[2,35,36] These studies are thus consistent with our own study results.

Limitations

This study has some limitations. First, the study only included surgical nurses in a province in a specific region. However, patient safety culture can be influenced by many factors such as hospital management, policies, education, working environment and characteristics of the patient profile. Therefore, the results obtained cannot be used to generalize directly about surgical nurses in other regions or different provinces. Secondly, since the study was based on self-reports, the information reported by the participants may have been influenced by biased recall, subjective responses or self-assessment errors. Given these limitations, further researches may be needed to provide a broader perspective.

Conclusion

The surgical nurses in this study exhibited a medium level of patient safety culture perception. More than half regarded patient safety in their units as satisfactory, and more than four-fifths did not make any medical error reports. The essential key to minimizing medical errors is the presence of a high level of safety culture. This "patient safety culture" should therefore be prioritized, particularly by health-care administrators and decision-makers. Strategies should also be developed to resolve problems in the system through evidence collection and research. A system should be established in which errors can be easily and quickly reported without hesitation or reservation. On-the-job training should be provided for health-care staff to enable them to internalize the patient safety culture. These components should be included in the nursing curriculum so that students can graduate from health education schools with this culture embedded in them. The number of nurses working in hospitals should also be increased and long working hours should be reduced. Finally, if a patient safety culture is to be created and maintained, all the staff in organizations should internalize this issue, incorrect professional

behaviors should be detected and corrected, organizations should allocate funds and resources for patient safety measures, and open communication should be encouraged between hospital personnel and patients.

Ethics Committee Approval: Ethic committee approval was received for this study from Karadeniz Technical University Faculty of Medicine Scientific Research Ethics Committee (Date: 22/07/2015, Approval No:24237859-488).

Informed Consent: Verbal consent was obtained from surgical nurses who participated in this study.

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