The Relationship Between Perceived Quality of Care and the Patient Safety Culture of Turkish Nurses

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ABSTRACT

Background: Evaluating nurses’ perceived quality of care and safety culture is an essential part of the nursing practice and critical to improving the quality of nursing care.

Purpose: This study aimed to examine the relationship between perceived quality of care and Turkish nurses’ patient safety culture.

Methods: This was a descriptive cross-sectional study. The data were collected from a foundation university hospital in Istanbul. The sample consisted of 116 nurses, and data were collected using the Caring Behaviors Inventory-24 and Patient Safety Culture Scale. The nurses were asked to complete the questionnaires.

Results: The mean age of participating nurses was 25.95 (SD = 6.72) years. The mean duration of professional experience of the participants was 6.37 (SD = 6.05) years. Most (72.4%) of the participants were women who had graduated from vocational high schools (52.6%) and were working in the neonatal intensive care unit (37.9%). The highest mean subdimension score on the Caring Behaviors Inventory-24 was 5.78 (SD = 0.43) for the knowledge and skills subdimension. The highest mean subdimension score on the Patient Safety Culture Scale was 3.55 (SD = 0.48) for the unexpected event and error reporting subdimension. Statistically significant correlations were found between Caring Behaviors Inventory-24 and Patient Safety Culture Scale scores (r = .553, p < .01), with the lowest correlation found between the employee behavior and knowledge and skills dimensions (r = .305, p = .01). The highest statistically significant correlation coefficients that were found were between the Patient Safety Culture Scale total scores and the connectedness dimension of the Caring Behaviors Inventory-24 (r = .58, p < .001).

Conclusions/Implications for Practice: Nurses perceive patient care positively and have a positive perception of safety culture. Evaluating the perceived quality of care and patient safety culture perceptions will help prevent adverse events related to patient care and improve the quality of care.

Key Words:

nursing care, perceived quality of care, patient safety, patient satisfaction.

Introduction

Patient safety is a primary and indispensable condition of qualified healthcare, as it prevents errors during the provision of healthcare, protects the patient from potential damages, and eliminates possible errors (Aktaş, 2015; Rizalar & Topcu, 2017). The organizational culture of hospitals must be based on ensuring patient safety. Hospital management teams that are focused on a patient safety culture should provide an environment for communication based on mutual trust; good information flow; a common perception of the importance of security, management, and leadership; and a noncriminal approach to incident and error reporting (Ege et al., 2019; Sarp, 2018; Wang et al., 2014).

Nurses play a critically important role in ensuring patient safety by monitoring patients for clinical deterioration, detecting errors, and understanding care processes and system weaknesses to ensure that patients receive high-quality care. Nurses’ vigilance at the bedside is essential to their ability to ensure patient safety. Improving the safety culture within healthcare is a critical component in preventing/reducing errors and improving overall healthcare quality (Agency for Healthcare Research and Quality, 2019). Concurrently, avoiding medical errors, which is essential for all healthcare professionals, is more important for nurses because related actions have a direct impact on patient care. Medical errors made by nurses may put a patient’s life at risk. The most frequently identified causative factors of medication errors include nurses’ tiredness (Akgün & Kardas, 2015; Er & Altuntas, 2016; Gorgich et al., 2016), distraction or interruption while administering drugs (Petrova et al., 2010), workload and working times (Alemdar & Aktaş, 2013; Er & Altuntas, 2016; Gorgich et al., 2016), and having an inadequate
number of nurses on duty and overburdening nurses with non-job-related responsibilities (Akgün & Kardaş, 2015). Research has shown that inexperience, stress, and insufficient professional knowledge and skills increase the risk of medication errors (Er & Altuntaş, 2016).

In prior studies, nurses' perceptions of patient safety culture have been reported as moderate (Çiğerci et al., 2016; Öğşaker & Teşekkür, 2016; A. Yılmaz & Duygulu, 2019), whereas their perceptions of nursing care quality are generally positive (Boga et al., 2020; Erol & Türk, 2019; Gül & Dinç, 2018). However, an inadequate number of studies have considered these two concepts together to evaluate the relationship between nurses' care behaviors and patient safety cultures. Because evaluating nurses' perceived quality of care in terms of care behaviors and patient safety culture enables the development of required arrangements in nursing practices and the improvement of nursing service quality, more studies are needed that examine the relationship between nurses' care behaviors and different variables (e.g., training for patient safety practices, medical error-reporting status, the number of patients they care for, working hours per week, shifts).

Thus, this study was conducted to (a) investigate the nature of nurses' perceived quality of care and perceptions of patient safety culture, (b) explore whether sociodemographic characteristics are associated with these factors, and (c) examine the association between these factors.

**Methods**

**Study Design, Setting, and Participant Recruitment**

This cross-sectional and descriptive correlational study was conducted at a university hospital in Istanbul. The sample consisted of 130 nurses working in the hospital between November and December 2019. The participants were nurses working at outpatient (outpatient clinic, operating room, and emergency room) and inpatient (internal medicine and surgical services and intensive care unit) units. The target sample included all 130 nurses. However, 116 nurses (89%) participated in the study, with the remainder declining to participate because of being on unpaid leave (maternity leave or sick leave) or of current workload. Incomplete questionnaires were not included in the analysis.

**Measures**

The data were collected using a questionnaire that included the following three surveys: the Nurse Information Questionnaire, Caring Behaviors Inventory-24 (CBI-24), and Patient Safety Culture Scale (PSCS). One researcher was responsible for distributing the questionnaires to participants and collecting the completed questionnaires 1 day later.

**Nurse Information Questionnaire**

This instrument, prepared by the researchers based on the literature (Celik et al., 2019; Jafree et al., 2017; Karlou et al., 2018), consisted of questions related to variables that were chosen based on previous research. The questions primarily addressed personal and professional variables such as age (Çiğerci et al., 2016; Öğşaker & Teşekkür, 2016), gender, marital status, educational background (Gül & Dinç, 2018), hospital units, and professional experience (Boga et al., 2020; Erol & Türk, 2019; A. Yılmaz & Duygulu, 2019). The grouping of these variables followed the practice of previous studies conducted in Turkey (Karaca & Arslan, 2014; Ruzalar et al., 2016).

The primary purpose of providing quality care and ensuring patient safety is to prevent errors during care that may harm the patient. The related risks may be reduced by implementing certain measures. Nurses' sociodemographic and occupational characteristics may influence the establishment of patient safety culture and the effectiveness with which qualified nursing care is provided. Quality of care and patient safety may be affected by individual factors such as perception, attitudes, beliefs, culture, values, and personality traits. It is also possible that factors such as work environment, working conditions, team cohesion, organizational behavior, and corporate policies may influence both quality of care and patient safety culture.

Factors related to the sociodemographic and professional characteristics of nurses may also influence quality of care and patient safety culture. For example, older age and professional experience may relate positively to knowledge and skills, and longer experience working in the unit may relate positively to treatment and care practice competencies and reduce the risk of error. Moreover, the educational level of nurses relates positively with their professional knowledge and enables them to practice more comprehensively in clinical settings. Conversely, marital status may increase the responsibility burden of nurses, which may negatively affect care by introducing familial problems into the workplace. Furthermore, specialized units such as operating rooms and emergency and intensive care units may be associated with higher patient safety risks.

**Caring Behaviors Inventory-24**

The CBI-24 was designed to evaluate the nursing care process/quality. Wolf initially developed this scale with 75 items (1981) and later revised it as a 42-item scale in 1994 (Wolf et al., 1994). The 42-item scale, which is suitable for bidirectional diagnosis use by patients and nurses, was reduced to 24 items by Wu et al. (2006) and reorganized into four subdimensions. A validity and reliability study of the Turkish version of the CBI-24 was conducted by Kursun and Kanan (2012). The CBI-24 consists of four subdimensions, including assurance, knowledge and skills, respect, and connectedness, and is scored using a 6-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = usually, 5 = often, and 6 = always), with higher scores indicating higher perceived quality of care. In the original study, the Cronbach's alpha coefficient of the CBI-24 in nurses was found to be .94 for the assurance subdimension, .81 for the knowledge and skills subdimension, .90 for the respect subdimension, .83 for the connectedness subdimension, and .96 for the total scale (Kursun & Kanan, 2012).
In this study, the Cronbach's alpha coefficients of the subdimensions were .90, .87, .84, and .86, respectively, and the total scale reliability coefficient was .96.

**Patient Safety Culture Scale**
This scale was developed by Türkmen et al. (2011) to evaluate nurses’ perceptions of patient safety culture. The PSCS consists of five subdimensions and 51 items. The subdimensions include management and leadership, employee behavior, unexpected event and error reporting, employee education, and care environment. The effectiveness of patient safety practices is rated from 1 to 4 (1 = totally disagree, 2 = disagree, 3 = agree, and 4 = totally agree), with higher mean scale scores indicating a more positive patient safety culture and lower mean scale scores indicating a more negative patient safety culture. Türkmen et al. found the Cronbach's alpha reliability coefficient of the PSCS and its subdimensions to be .97 and .83–.92, respectively. In calculating the scale score, the total score of the items is divided by the number of items. The average score for each subdimension is thus a number between 1 and 4. The means of the five subdimensions were then summed, and the total score was then divided by 5 to obtain a total score, which also ranged between 1 and 4. In this study, the Cronbach's alpha coefficients of the subdimensions were .95 for management and leadership, .95 for employee behavior, .84 for unexpected event and error reporting, .92 for employee education, and .93 for care environment. The scale’s total reliability coefficient was .98.

**Ethical Considerations**
Ethical approval was obtained from the Biruni University Clinical Research Ethics Committee (number: 2019/34-10, date: November 7, 2019). Written informed consent was obtained from the hospital management and from the researchers who had developed the scales used in this study. The participants were instructed not to write their name on the questionnaire. Written consent was obtained from the participants after explaining to them the research purpose and methodology and that the data would remain confidential and not be used or made available in any context beyond this study.

**Data Collection**
A researcher visited the clinics and distributed the study questionnaire to the nurses who had agreed to participate. The next day, the same researcher revisited the clinics and collected the completed questionnaires. Questionnaires were not collected from nurses who were on annual, maternal, illness, or unpaid leave. Two completed questionnaires were excluded because of missing information.

**Data Analysis**
Data were analyzed using IBM SPSS Statistics 21.0 (IBM Inc., Armonk, NY, USA) for Windows. The mean and standard deviation (SD) were used as descriptive statistics of the data. Skewness and kurtosis values and variance coefficients were obtained using the Shapiro-Wilk test, which was performed to determine whether the scale scores were distributed normally. If the data indicated a normal distribution, an independent t test and a one-way analysis of variance (F) were used to test the associations of sociodemographic characteristics with nurses’ perceived quality of care and perceptions of patient safety culture. If the data indicated a nonnormal distribution, nonparametric Mann–Whitney U (z) and Kruskal–Wallis H tests were used to test these associations. Spearman’s rank correlation (r_s) analysis was used to examine the association between nurses’ perceived quality of care and perceptions of patient safety culture. Cronbach's alpha was used to calculate the internal consistency coefficient of the scales. Post hoc power analysis was also performed.

**Table 1**
**Sociodemographic and Professional Characteristics of the Participants (N = 116)**

| Variable                              | Mean  | SD   |
|---------------------------------------|-------|------|
| Age (years)                           | 25.95 | 6.72 |
| Duration of professional experience (years) | 6.37  | 6.05 |
| Duration of experience in the unit (years) | 1.66  | 1.41 |
| Gender                               |       |      |
| Female                               | 84    | 72.4 |
| Male                                 | 32    | 27.6 |
| Marital status                       |       |      |
| Married                              | 30    | 25.9 |
| Single                               | 86    | 74.1 |
| Education                            |       |      |
| Vocational high school               | 61    | 52.6 |
| Associate degree                     | 34    | 29.3 |
| Undergraduate                        | 18    | 15.5 |
| Graduate                             | 3     | 2.6  |
| Unit                                 |       |      |
| Internal medicine                    | 9     | 7.8  |
| Surgery                              | 16    | 13.8 |
| Emergency                            | 10    | 8.6  |
| Intensive care unit                  | 44    | 37.9 |
| Operating room                       | 10    | 8.6  |
| Outpatient clinic                    | 10    | 8.6  |
| Other                                | 17    | 14.6 |
| Professional position                |       |      |
| Nurses working at wards              | 38    | 32.8 |
| Intensive care nurse                 | 43    | 37.1 |
| Manager                              | 8     | 6.9  |
| Others                               | 27    | 23.3 |

**Results**

**Descriptive Findings**
The power of the study sample was 83% for a type I error rate of α = .05. With regard to the sample, the mean age was 25.95
(SD = 6.72) years, the mean duration of professional experience was 6.37 (SD = 6.03) years, and the mean duration of experience at the current unit was 1.66 (SD = 1.41) years. The participants were mostly women (72.4%), graduates of vocational high schools (52.6%), and working in the neonatal intensive care unit (37.9%) or the intensive care unit (37.1%; Table 1).

Caring Behaviors Inventory-24 and Patient Safety Culture Scale Scores

The mean scores were 5.70 (SD = 0.42) for the CBI-24 and 3.48 (SD = 0.46) for the PSCS. The lowest CBI-24 subdimension mean score was obtained for the connectedness subdimension (mean = 5.63, SD = 0.52), and the highest mean score was obtained for the knowledge and skills subdimension (mean = 5.78, SD = 0.4; Table 2). The PSCS subdimensions are presented in Table 2, with the lowest PSCS subdimension mean score obtained for the employee behavior subdimension (mean = 3.41, SD = 0.53) and the highest mean score obtained for the unexpected event and error reporting subdimension (mean = 3.55, SD = 0.48).

The PSCS scores were normally distributed. However, the CBI-24 scores did not meet the normal distribution condition, with the kurtosis value of the CBI-24 scores exceeding the threshold range of −2 to +2 based on the results of the Shapiro–Wilk test.

Variables Associated With Caring Behaviors Inventory-24 and Patient Safety Culture Scale Scores

In terms of the association between the sociodemographic and professional characteristics (age, gender, marital status, educational level, unit, professional position, professional experience, and experience at the current unit) and CBI-24 score, no statistically significant differences were found between the groups (p > .05; Table 3).

As seen in Table 4, statistically significant differences between the groups were found in terms of marital status, professional position, and experience at the current unit in the employee education (p < .05).

Regarding marital status, a statistically significant difference was found between the groups in the management and leadership subdimension (p < .05), with single participants scoring higher than married participants.

With regard to educational level, a statistically significant difference was found only in the subdimension of the care environment (p < .05), with those holding a vocational high school or associate’s degree scoring higher than those with an undergraduate or higher degree.

Nurses with experience in their unit of 5 years or less scored higher on the PSCS employee education and care environment subdimension than those with 6 or more years of experience (p < .05).

Finally, a statistically significant difference was found between the groups in the unexpected event and error reporting subdimension total score and on the PSCS in the professional position (p < .05). Those participants who worked in caring units scored higher than their peers who either were managers or worked in other units.

Correlations Between Scale Scores

The study found statistically significant correlations between CBI-24 and PSCS scores, with the lowest correlation identified between the scores for the PSCS employee behavior subdimension and CBI-24 knowledge and skills subdimension (r = .31, p > .01). Furthermore, a statistically significant relationship was found between the PSCS total score and the connectedness subdimension of the CBI-24 (r = .58, p < .001; Table 5).

Discussion

Combining professional knowledge and skills to reflect the sensory and moral aspects of care in the nurse–patient relationship is one of the privileges of nursing care. Without this combination, care based on hunches, conscientiousness, compassion, and goodwill may fail to sufficiently meet patient needs, resulting in harm to the recipients of care. Medical mistakes caused by haste, negligence, or a lack of knowledge and skills may have severe consequences and threaten patient lives. This would not only violate ethical principles and human and patient rights but also threaten the quality of care and patient safety (Dinç, 2010). Nurses’ knowledge, attitudes, and skills are the basis of care behavior and evaluations of

| Scale and Subdimension | Mean | SD | Minimum | Maximum |
|------------------------|------|----|---------|---------|
| Caring Behaviors Inventory-24 | 5.70 | 0.42 | 3.67 | 6.00 |
| Assurance (eight items) | 5.70 | 0.46 | 3.75 | 6.00 |
| Knowledge and skills (five items) | 5.78 | 0.43 | 3.20 | 6.00 |
| Respect (six items) | 5.69 | 0.45 | 3.83 | 6.00 |
| Connectedness (five items) | 5.63 | 0.52 | 3.80 | 6.00 |
| Patient Safety Culture Scale | 3.48 | 0.46 | 2.25 | 4.00 |
| Management and leadership (18 items) | 3.49 | 0.50 | 2.12 | 4.00 |
| Employee behavior (15 items) | 3.41 | 0.53 | 1.93 | 4.00 |
| Unexpected event and error reporting (five items) | 3.55 | 0.48 | 2.40 | 4.00 |
| Employee education (seven items) | 3.46 | 0.59 | 2.00 | 4.00 |
| Care environment (eight items) | 3.49 | 0.50 | 2.12 | 4.00 |
care quality (Celik et al., 2019; Erol & Turk, 2019). Nevertheless, the perceived caring efficacy of nurses may be affected by individual and organizational factors (e.g., emotional job demands, emotional dissonance, supervisor support) and may influence their job satisfaction and well-being (Gonzalez et al., 2019). Personality traits, professional attitudes, kindness, affection, interest, and understanding affect how nurses employ their knowledge and skills. The quality of the nurse-patient relationship has a significant effect on quality of care and patient satisfaction (Alhusban & Abualrub, 2009).

Table 3
Comparison of Caring Behaviors Inventory-24 Scores, by Participants' Personal and Professional Characteristics (N = 116)

| Variable                              | Assurence | Knowledge and Skills | Respect | Connectedness | CBI-24 |
|---------------------------------------|-----------|----------------------|---------|---------------|--------|
|                                       | n   | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Age group (years)                     |     |      |    |      |    |      |    |      |    |      |    |
| ≤ 30                                  | 98  | 5.67 | 0.48 | 5.76 | 0.45 | 5.67 | 0.46 | 5.62 | 0.52 | 5.68 | 0.44 |
| ≥ 31                                  | 18  | 5.84 | 0.28 | 5.92 | 0.24 | 5.78 | 0.37 | 5.66 | 0.53 | 5.80 | 0.32 |
| z (p)                                 |     | 1.51 | .13 | 1.81 | .07 | 1.09 | .27 | 0.69 | .53 | 1.42 | .15 |
| Gender                                |     |      |    |      |    |      |    |      |    |      |    |
| Female                                | 84  | 5.71 | 0.45 | 5.78 | 0.43 | 5.70 | 0.42 | 5.65 | 0.47 | 5.71 | 0.40 |
| Male                                  | 32  | 5.66 | 0.48 | 5.78 | 0.44 | 5.64 | 0.51 | 5.56 | 0.64 | 5.66 | 0.48 |
| z (p)                                 |     | 0.44 | .66 | 0.54 | .59 | 0.09 | .92 | 0.06 | .96 | 0.19 | .84 |
| Marital status                        |     |      |    |      |    |      |    |      |    |      |    |
| Married                               | 30  | 5.75 | 0.34 | 5.83 | 0.35 | 5.70 | 0.40 | 5.63 | 0.46 | 5.73 | 0.36 |
| Single                                | 86  | 5.68 | 0.49 | 5.77 | 0.45 | 5.68 | 0.47 | 5.62 | 0.54 | 5.69 | 0.45 |
| z (p)                                 |     | 0.21 | .63 | 0.90 | .37 | 0.30 | .76 | 0.53 | .59 | 0.09 | .92 |
| Educational level                     |     |      |    |      |    |      |    |      |    |      |    |
| High school to associate degree       | 95  | 5.71 | 0.45 | 5.80 | 0.38 | 5.70 | 0.44 | 5.64 | 0.51 | 5.71 | 0.40 |
| Undergraduate and higher              | 21  | 5.65 | 0.51 | 5.70 | 0.62 | 5.63 | 0.51 | 5.57 | 0.56 | 5.64 | 0.51 |
| z (p)                                 |     | 0.73 | .46 | 1.05 | .29 | 0.74 | .45 | 0.97 | .33 | 0.85 | .39 |
| Unit                                  |     |      |    |      |    |      |    |      |    |      |    |
| Clinic unit (internal medicine and surgery) | 25  | 5.76 | 0.32 | 5.89 | 0.23 | 5.77 | 0.32 | 5.74 | 0.36 | 5.78 | 0.25 |
| Special unit (intensive care units, operating room, emergency room) | 64  | 5.67 | 0.46 | 5.75 | 0.43 | 5.66 | 0.47 | 5.61 | 0.56 | 5.67 | 0.45 |
| Other (outpatient clinics, etc.)       | 27  | 5.57 | 0.76 | 5.61 | 0.76 | 5.60 | 0.66 | 5.41 | 0.74 | 5.55 | 0.68 |
| KW (p)                                |     | 0.22 | .90 | 2.46 | .30 | 0.07 | .96 | 2.01 | .37 | 0.22 | .89 |
| Professional position                 |     |      |    |      |    |      |    |      |    |      |    |
| Nurse                                 | 81  | 5.69 | 0.46 | 5.79 | 0.38 | 5.71 | 0.42 | 5.66 | 0.49 | 5.71 | 0.39 |
| Managers and others                   | 35  | 5.72 | 0.48 | 5.78 | 0.54 | 5.63 | 0.52 | 5.54 | 0.59 | 5.67 | 0.50 |
| z (p)                                 |     | 0.51 | .61 | 0.76 | .44 | 0.52 | .60 | 0.97 | .33 | 0.29 | .77 |
| Professional experience               |     |      |    |      |    |      |    |      |    |      |    |
| ≤ 5 years                             | 10  | 5.60 | 0.70 | 5.58 | 0.87 | 5.63 | 0.68 | 5.56 | 0.66 | 5.60 | 0.71 |
| ≥ 6 years                             | 106 | 5.70 | 0.43 | 5.80 | 0.36 | 5.69 | 0.43 | 5.63 | 0.51 | 5.71 | 0.39 |
| z (p)                                 |     | 0.13 | .90 | 0.88 | .38 | 0.30 | .76 | 0.41 | .68 | 0.30 | .76 |
| Experience at the current unit        |     |      |    |      |    |      |    |      |    |      |    |
| ≤ 5 years                             | 33  | 5.73 | 0.45 | 5.80 | 0.52 | 5.75 | 0.42 | 5.70 | 0.46 | 5.74 | 0.43 |
| ≥ 6 years                             | 83  | 5.68 | 0.47 | 5.78 | 0.39 | 5.66 | 0.46 | 5.60 | 0.54 | 5.68 | 0.42 |
| z (p)                                 |     | 0.34 | .73 | 0.73 | .47 | 0.58 | .56 | 0.81 | .42 | 0.25 | .80 |

Note. z = Mann–Whitney U test coefficient; KW = Kruskal–Wallis test coefficient.
of nurses performing their primary roles and responsibilities adequately. Connectedness was the subdimension perceived most negatively by the participants. The participants considered clinical knowledge and skill accumulation as the most basic of care behaviors, highlighting their commitment to achieving excellence in technical skills, patient care, clinical competence, and physical and medical knowledge. This finding agrees with prior research that found that nurses place a high value on the knowledge and skills subdimension of the CBI-24 (Burston & Stichler, 2010; Cerit & Coşkun, 2018; He et al., 2013).

### Table 4
Comparison of Patient Safety Culture Scores, by Participants’ Personal and Professional Characteristics (N = 116)

| Variable                                      | n   | Mean | SD  | Mean | SD  | Mean | SD  | Mean | SD  | Mean | SD  | Mean | SD  | Mean | SD  |
|-----------------------------------------------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| Management and Leadership                     |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Employee Behavior                             |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Unexpected Event and Error Reporting          |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Employee Education                            |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Care Environment                              |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Total Score                                   |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Age group (years)                             |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| ≤ 30                                          | 98  | 3.52 | 0.50| 3.44 | 0.52| 3.57 | 0.46| 3.50 | 0.57| 3.59 | 0.48| 3.51 | 0.45|     |
| ≥ 31                                          | 18  | 3.36 | 0.50| 3.28 | 0.58| 3.40 | 0.58| 3.25 | 0.64| 3.34 | 0.57| 3.32 | 0.52|     |
| t (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Gender                                        |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Female                                        | 84  | 3.47 | 0.49| 3.39 | 0.54| 3.56 | 0.49| 3.44 | 0.57| 3.50 | 0.52| 3.46 | 0.45|     |
| Male                                          | 32  | 3.54 | 0.55| 3.48 | 0.51| 3.52 | 0.48| 3.53 | 0.63| 3.68 | 0.43| 3.54 | 0.48|     |
| t (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Marital status                                |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Married                                       | 30  | 3.32 | 0.47| 3.35 | 0.52| 3.48 | 0.54| 3.26 | 0.63| 3.34 | 0.62| 3.34 | 0.47|     |
| Single                                        | 86  | 3.55 | 0.50| 3.44 | 0.53| 3.57 | 0.46| 3.53 | 0.56| 3.62 | 0.44| 3.53 | 0.45|     |
| t (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Educational level                             |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| High school to associate degree               | 95  | 3.52 | 0.51| 3.44 | 0.51| 3.54 | 0.49| 3.46 | 0.58| 3.60 | 0.46| 3.50 | 0.46|     |
| Undergraduate and higher                      | 21  | 3.35 | 0.45| 3.31 | 0.61| 3.56 | 0.49| 3.46 | 0.64| 3.32 | 0.64| 3.37 | 0.43|     |
| t (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Unit                                          |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Clinic unit                                   | 25  | 3.49 | 0.51| 3.42 | 0.54| 3.48 | 0.50| 3.40 | 0.61| 3.50 | 0.59| 3.46 | 0.50|     |
| Special unit (intensive care units, operating room, emergency room) | 64  | 3.52 | 0.52| 3.44 | 0.49| 3.62 | 0.46| 3.51 | 0.63| 3.62 | 0.45| 3.52 | 0.46|     |
| Other                                         | 27  | 3.50 | 0.50| 3.33 | 0.55| 3.44 | 0.52| 3.37 | 0.39| 3.48 | 0.41| 3.43 | 0.40|     |
| F (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Professional position                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Nurse                                         | 81  | 3.55 | 0.49| 3.47 | 0.50| 3.62 | 0.62| 3.53 | 0.58| 3.63 | 0.48| 3.54 | 0.43|     |
| Managers and others                           | 35  | 3.36 | 0.51| 3.28 | 0.58| 3.37 | 0.53| 3.30 | 0.57| 3.38 | 0.52| 3.33 | 0.50|     |
| t (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Professional experience                       |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| ≤ 5 years                                     | 10  | 3.43 | 0.44| 3.19 | 0.62| 3.50 | 0.40| 3.59 | 0.48| 3.59 | 0.36| 3.41 | 0.36|     |
| ≥ 6 years                                     | 106 | 3.50 | 0.51| 3.44 | 0.52| 3.55 | 0.49| 3.45 | 0.60| 3.55 | 0.52| 3.49 | 0.47|     |
| t (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| Experience at the current unit                |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |
| ≤ 5 years                                     | 33  | 3.58 | 0.45| 3.47 | 0.52| 3.65 | 0.42| 3.65 | 0.49| 3.69 | 0.42| 3.58 | 0.39|     |
| ≥ 6 years                                     | 83  | 3.46 | 0.52| 3.39 | 0.53| 3.50 | 0.50| 3.39 | 0.61| 3.49 | 0.53| 3.44 | 0.48|     |
| t (p)                                         |     |      |     |      |     |      |     |      |     |      |     |      |     |      |     |

Note. t = Student t test coefficient; F = one-way analysis of variance coefficient. *p < .05.
Conducting holistic evaluations of nursing care is of paramount importance. All aspects of patient care (assurance, knowledge and skills, respect, and connectedness) should be addressed, including what the nurses know about providing care in their clinical fields. Nurses should understand their deficiencies and mistakes and strengthen and develop their skills and knowledge both on their own and through institutional and continuing education. Therefore, it is vital to use valid and reliable scales to evaluate nursing care to provide evidence-based data. The data obtained from these evaluations should be considered when determining nurses’ training requirements, and in-service training programs should be organized to develop their care-planning knowledge and skills. In addition, competence development programs should take into account all of the factors that affect nurses’ knowledge and skills, starting from pregraduation, with the cooperation of nursing schools and hospital management. Moreover, individuals should also be aware of their own responsibilities (Karahan & Kav, 2018). Furthermore, as suggested in one study, high-fidelity simulation-based training programs may be used to increase nurses’ knowledge, skills, stress management, satisfaction, and self-confidence by allowing them to preview situations they may experience in real practice (Üzen Cura et al., 2020).

### Nurses’ Perceptions of Patient Safety Culture

Safety is critical when providing healthcare. All health institutions should establish a culture of patient safety to protect patients from harm. Positive safety cultures promote communication based on mutual trust and engender common perceptions regarding the importance of patient safety (Alemdar & Yılmaz, 2020). Patient safety is a core component of high-quality healthcare. Maintaining a positive patient safety culture has been shown to improve patient and employee satisfaction (Fujita et al., 2019). In this study, the high total mean score of the participants’ safety-related survey items indicates that they placed a high value on having a patient safety culture.

In contrast to the results of this study, some prior studies have reported moderate-level PSCS scores for their participants (Çiğerci et al., 2016; Karaca & Arslan, 2014; Rizalar & Topcu, 2017). However, Alemdar and Yılmaz (2020) obtained a slightly above-average total PSCS perception score from their nursing sample. The difference in results among these studies results may relate to the characteristics of the participants or the institutions and to differences in the degree to which the administrators promoted a culture of patient safety. The National Institute of Medicine indicates that adverse event incidents are an essential indicator of preventable patient safety that, among other reasons, may be a result from insufficiencies in the skills or knowledge of nurses or physicians. Others have linked preventable system errors to management, the working environment, personnel qualifications, long working hours, and overwork (Ofuebe et al., 2018; Wang et al., 2014). Managers should support their employees to develop positive perceptions of safety. Hospital leadership must value patient safety to create and maintain a positive patient safety culture. The perceptions and attitudes of all personnel regarding patient safety should be measured to gauge the need to improve the patient safety culture (Temiz et al., 2020). These measurements provide useful information to managers and leaders for identifying patients’ concerns and areas that require further improvement (Rizalar & Topcu, 2017). These concerns should be regularly followed to allow managers and leaders to ensure the continuity of the safety culture by creating a positive perception of patient safety and ensuring that all healthcare professionals, especially nurses, are properly trained from Day 1.

Ensuring patient safety and preventing medical errors are critical elements of quality healthcare. To provide appropriate data, the table below shows the correlations between patient safety culture scores and personal characteristics among 116 participants.

### Table 5

Correlations Between Patient Safety Culture Scores and Participants’ Personal Characteristics (N = 116)

| Patient Safety Culture Scale                  | Assurance | Knowledge and Skills | Respect | Connectedness |
|----------------------------------------------|-----------|---------------------|---------|---------------|
| Caring Behaviors Inventory-24 (CBI-24)       | rs        | p                   | rs      | p             | rs   | p               |
| Management and leadership                    | .471      | <.001               | .349    | <.001         | .527 | <.001           | .544 | <.001          |
| Employee behavior                            | .400      | <.001               | .305    | <.01          | .431 | <.001           | .461 | <.001          |
| Unexpected event and error reporting        | .440      | <.001               | .357    | <.001         | .542 | <.001           | .517 | <.001          |
| Employee education                           | .398      | <.001               | .318    | <.001         | .480 | <.001           | .498 | <.001          |
| Care environment                             | .457      | <.001               | .365    | <.001         | .442 | <.001           | .475 | <.001          |
| Patient safety culture total score           | .490      | <.001               | .360    | <.001         | .532 | <.001           | .553 | <.001          |

Note. rs = Spearman correlation coefficient.
health services, medical institutions must implement the processes necessary for patient safety to be applied accurately, without error, and in line with institutional procedures (Yaprak & Intepeler, 2015). In an increasingly interconnected world, healthcare services, like many other disciplines, have become increasingly complex. Healthcare professionals make many decisions under pressure, which increases the chances for error in clinical judgments or applications that may result in patient harm (Kömeaç & Yardımıç, 2020).

In this study, the participants showed that they had the sensitivity necessary for incident and error reporting by assigning the highest positive value to the unexpected event and error reporting subdimension. This finding is significant because patient safety errors can be identified quickly using security reporting systems, allowing response measures to prevent subsequent harm/damage. In the institutional learning process, even recognizing and learning from averted harm can help hospitals prevent the recurrence of similar events. This result also provides information about the institution leaders' attitudes and behaviors toward mistakes, suggesting that when they treat mistakes as valuable lessons rather than violations requiring punitive measures, they can create a culture in which employees feel safe reporting their mistakes and asking for help. The above-average score in the management and leadership subdimension obtained in this study supports this idea. Managers should be constructive, supportive, and explanatory about errors. Otherwise, individuals may conceal their mistakes because of fear of punishment, dismissal, or stigma. Implementing a nonaccusatory patient safety learning system (critical incident reporting system) that emphasizes prevention, education, and enhanced feedback can prevent future damage by creating meaningful learning outcomes (Health Quality Ontario, 2017).

In line with other studies, this research found that transformational leadership contributed positively to the safety climate, whereas laissez-faire leadership negatively contributed to unit socialization and to fostering a culture of blame (Merrill, 2015). The distribution of the responses related to medical error perception indicated that only 9% of the employees agreed with the statement, “The person who committed the medical error is not guilty.” However, 65.8% agreed with the statement, “Understanding should be shown in case of medical error.” Furthermore, 42% agreed with the statement, “If the medical error was prevented before it happened, there is no need to report it”; 8.2% agreed with the statement, “I avoid reporting the medical errors I have committed” and 33.7% agreed with the statement, “Medical errors arise from the lack of communication of the person who committed the error.” As in Yaprak and Intepeler (2015), the participants in this study mostly agreed that people should report any medical errors that occur but that the ultimate responsibility for these errors fell to the managers and leaders.

The findings of previous studies indicate that employees are less willing to report their mistakes when their health institution penalizes medical mistakes (Celik et al., 2019; Wang et al., 2014; Xingxing et al., 2017). Many studies have found that nurses do not receive a positive response when they report errors where they work, resulting in low rates of incident reporting (Ege et al., 2019; Oşşaker & Tehçi, 2016; Rizalar & Topçu, 2017). Only one study (Alemdar & Yılmaz, 2020) was found that reported results similar to this research. Gunawan and Hariyati’s (2019) summary of 11 peer-reviewed articles on patient safety culture classified “frequency of events reported” as a strength and “nonpunitive response to errors” as a weakness.

The high score found in this study for the error reporting subdimension reflects the positive security culture in place at the targeted institution. All hospitals should establish and develop a patient safety culture that all employees adopt to minimize errors and risks. This requires measuring the institution’s patient safety culture regularly, implementing training programs and improvements as necessary, and raising employees’ awareness of the importance of patient safety. Moreover, establishing standards of care ensures that all of the nurses provide the highest quality of care, continuity, and supervision and minimizes the differences in nursing care attributable to knowledge and skills.

The employee behavior subdimension was scored most negatively by the participants in this study. Positive or negative behaviors toward patient safety culture affect whether and to what extent institutions form patient safety cultures. All health personnel working in an institution, including nurses, must be encouraged to work in harmony, maintain constant communication, and encourage each other to report errors.

Sociodemographic Characteristics and Nurses’ Perceptions of Care Quality

The influence of the independent variables of age, gender, marital status, education, unit, position, or professional experience on nurses’ perceptions of quality of care and patient safety cultures was investigated in this study. These variables were selected based on the findings of previous studies (Nordin et al., 2013; Rajalatchuni et al., 2018).

No statistically significant differences were found between nurses’ scores in terms of gender or marital status. Similarly, Gül and Dinç (2018) observed no statistically significant differences in nurses’ scores by gender, marital status, educational status, or working style. In contrast, Karlou et al. (2018) found that nurses’ perceptions of quality of care varied according to their marital status, with married participants more optimistic than their single peers. Erol and Turk (2019) determined that the CBI-24 scores of nurses differed depending on age, experience, work unit, and position.

Sociodemographic Characteristics and Nurses’ Perceptions of Safety Culture

In this study, single participants scored higher than their married peers on the management and leadership, employee education, and care environment subdimensions. Those working in patient care scored higher than managers and nurses working in other units on the unexpected event and error reporting,
employee education, and care environment subdimensions. The finding that single nurses were more likely to have better management and leadership skills than married nurses may be attributed to the latter having more external/family responsibilities. The higher unexpected event and error reporting score of nurses working directly in inpatient care was an expected result.

In this study, the single participants scored higher in the management and leadership subdimension than their married peers, suggesting that single nurses care more about management's attitudes and behaviors toward patient safety and related measures. Similarly, Özsayın and Özbayır (2016) reported that employees with more experience and those who had participated in in-service training or orientation programs had higher, positive mean safety attitude scores. These findings may be used to guide institution managers with significant responsibilities to establish a positive corporate culture and increase care quality.

The Relationship Between Nursing Care Quality and Patient Safety Culture

This research identified a statistically significant relationship between nursing care behaviors and perceptions of patient safety culture, suggesting that improving nursing behaviors and the quality of care can positively enhance attitudes toward patient safety. In other words, fostering a culture of patient safety among nurses can improve the quality of care. Relationships among the subdimensions showed that increasing perceptions of patient safety increased nursing commitments with regard to ensuring patients' participation in care planning, educating/informing patients, spending time with patients, showing patience, and understanding patients.

Study Limitations

The environmental, behavioral, and psychosocial factors that may also influence quality of care and nurses' patient safety culture were not controlled by the researchers in this study. For example, variables such as personal characteristics, income status, and working hours of the participants, which may affect nurse perceptions, could not be controlled or assessed.

Sample size and the collection of data using a self-report questionnaire were additional limitations that may have introduced biases into the findings.

Despite the emphasis on adherence to patient safety principles and patient care outcomes, the focus of this study was on nurses' adherence to patient safety principles, which may impact our understanding of variations in the factors that influence this important concept. However, the limited number of studies that met the inclusion criteria for this review prevented a full exploration of the relationship between the individual and systemic factors that impact on nurses' adherence to patient safety principles in inpatient and outpatient settings.

Finally, because the study included nurses working in one foundation university hospital only, the results may not be generalizable to the perceptions of nurses working in public university hospitals, Ministry of Health hospitals, or other private hospitals in Turkey.

Conclusions and Recommendations

In this study, nurses were found to hold a positive perception of both nursing care and safety culture. In addition, a significant relationship was found between the perceptions of caring behaviors and patient safety culture among the nurses. Because creating a culture of patient safety and determining nurses' perceptions about this issue may help nurses prevent adverse patient care events and improve quality of care, similar studies should be conducted with patients or nurses in other cultures and sectors. Moreover, further studies should be conducted with larger sample groups for comparison, including nurses working in state institutions and private institutions.

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Author Contributions

Study conception and design: All authors
Data collection: All authors
Data analysis and interpretation: All authors
Drafting of the article: All authors
Critical revision of the article: All authors

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