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Structural Modeling of Patient Safety Culture Based on the Professional Nursing Practice Environment: The Mediating Role of Missed Nursing Care Among Inpatient Nurses

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A B S T R A C T

Purpose: This study aimed to examine a structural model of patient safety culture based on the professional nursing practice environment, with missed nursing care as a mediating variable among nurses working in inpatient hospital wards.

Methods and Materials: This cross-sectional analytical study was conducted in 2026 among 392 registered nurses working in inpatient wards of Imam Khomeini Hospital Complex, Tehran, Iran. Participants were selected using proportionate stratified random sampling. Data were collected using the Hospital Survey on Patient Safety Culture, the Practice Environment Scale of the Nursing Work Index, the Persian MISSCARE Survey, and a demographic-professional characteristics form. The proposed measurement and structural models were tested using covariance-based structural equation modeling. Model fit was evaluated using χ^2/df, CFI, TLI, RMSEA, and SRMR. The indirect effect was examined using bias-corrected bootstrapping with 5,000 resamples.

Findings: The professional nursing practice environment was significantly and negatively associated with missed nursing care ($\beta = -.47$, $p < .001$) and positively associated with patient safety culture ($\beta = .41$, $p < .001$). Missed nursing care was negatively associated with patient safety culture ($\beta = -.34$, $p < .001$). The indirect association between the professional nursing practice environment and patient safety culture through missed nursing care was statistically significant ($\beta = .16$, 95% bootstrap CI [.11, .22], $p < .001$), indicating partial mediation. The structural model demonstrated acceptable fit (χ^2/df = 2.22, CFI = .948, TLI = .941, RMSEA = .056, SRMR = .049) and explained 46% of the variance in patient safety culture.

Conclusion: A more favorable professional nursing practice environment was associated with stronger patient safety culture both directly and indirectly through lower levels of missed nursing care. Improving staffing and resource adequacy, nursing leadership, interdisciplinary collaboration, and nurses' participation in organizational decision-making may reduce missed nursing care and strengthen patient safety culture. Longitudinal and multicenter studies are recommended to further examine the temporal and causal relationships among these variables.

Keywords: *Patient safety culture; Nursing practice environment; Missed nursing care; Structural equation modeling; Nurses; Patient safety*

1. Introduction

Patient safety is a fundamental dimension of healthcare quality and an essential criterion for evaluating the effectiveness, reliability, and ethical performance of healthcare organizations. Although advances in medical science, nursing knowledge, clinical technologies, and quality-improvement systems have substantially expanded the capacity of hospitals to diagnose and treat illness, the delivery of healthcare continues to involve preventable risks arising from complex interactions among patients, professionals, organizational structures, work processes, and resource constraints. Contemporary approaches to patient safety therefore extend beyond the prevention of isolated clinical errors and increasingly emphasize the organizational conditions that shape safe practice. Within this perspective, patient safety culture has emerged as a central construct reflecting the extent to which safety-related values, beliefs, norms, behaviors, communication patterns, and management priorities are embedded within healthcare organizations. For nurses in particular, safety culture is highly consequential because nursing care is continuous, encompasses multiple dimensions of patient surveillance and treatment, and frequently represents the final point at which emerging complications, medication-related risks, communication failures, or deterioration in patients' clinical status can be detected and addressed. International evidence nevertheless indicates considerable variability in nurses' perceptions of safety culture across hospital systems, suggesting that the organizational foundations required to achieve consistently safe care remain unevenly developed (Kyriakeli et al., 2025).

The importance of examining patient safety culture among nurses is particularly evident when safety is understood as an organizational rather than exclusively individual phenomenon. Nurses work within clinical systems that determine staffing arrangements, workload distribution, managerial support, access to equipment and supplies, interdisciplinary collaboration, participation in decision-making, communication about errors, and opportunities for organizational learning. Consequently, even technically competent and professionally committed nurses may experience difficulty maintaining optimal standards of care when the surrounding organizational system does not adequately support safe practice. A systematic review of Iranian hospital studies has similarly shown that nurses' perceptions of patient safety culture are closely related to nursing-sensitive outcomes and organizational conditions, while weaknesses in dimensions such as staffing, management support, communication, and nonpunitive approaches to error remain important challenges (Hajizadeh et al., 2025). These observations indicate that strengthening safety culture requires identifying not only whether nurses perceive their organization as safe, but also the structural and care-process mechanisms through which such perceptions are developed and sustained.

Among the organizational factors most consistently associated with nursing performance is the professional nursing practice environment. The nursing practice environment refers to the organizational characteristics that facilitate or constrain high-quality professional nursing practice, including nurses' participation in institutional affairs, the presence of strong foundations for quality care, managerial competence and leadership support, staffing and resource adequacy, and constructive nurse–physician relationships. These characteristics determine whether nurses have sufficient professional authority, organizational support, material resources, human resources, and interdisciplinary cooperation to meet patients' needs reliably. International benchmarking of nursing practice environments has demonstrated substantial variation across healthcare systems and has identified staffing and resource adequacy as a particularly vulnerable dimension, reinforcing the view that the conditions under which nurses work are not peripheral employment concerns but fundamental determinants of care delivery (Lake et al., 2024). A supportive practice environment can facilitate clinical vigilance, teamwork, communication, professional autonomy, organizational commitment, and timely response to patients' changing needs; conversely, unfavorable environments may generate excessive workload, competing priorities, stress, fragmentation of care, and conditions in which essential nursing activities cannot always be completed.

The relationship between the nursing practice environment and safety-related outcomes can also be understood through the job demands and resources available to nurses. When organizational resources are adequate and leadership is supportive, nurses are better positioned to manage clinical demands, coordinate with colleagues, and sustain safety-oriented behavior. In contrast, insufficient resources combined with high workload may intensify occupational stress and undermine favorable safety attitudes. Research among newly employed nurses has demonstrated that the practice environment is significantly associated with

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both job stress and patient safety attitudes, providing evidence that organizational characteristics may influence safety not only directly but also through intermediate psychological and work-process pathways (Wang et al., 2024). This is particularly important in inpatient wards, where patient acuity can change rapidly and nurses must continuously balance surveillance, medication administration, documentation, coordination, education, physical care, emotional support, and emergency demands. Under such circumstances, even relatively small deficits in organizational support may translate into meaningful variations in the completeness and reliability of nursing care.

One of the most important manifestations of this discrepancy between required care and available organizational capacity is missed nursing care. Missed nursing care encompasses necessary nursing activities that are omitted, partially performed, or delayed. It may include routine but clinically important activities such as patient assessment, monitoring, mobilization, hygiene, medication-related tasks, education, discharge preparation, documentation, emotional support, response to patient requests, and participation in interdisciplinary care. Rather than representing merely an individual failure or lack of professional responsibility, missed nursing care is increasingly conceptualized as a system-level indicator reflecting the rationing of nursing activities when available time, staffing, resources, or organizational support are insufficient to meet competing patient-care demands. An umbrella review of the missed-care literature has emphasized that omissions occur across multiple dimensions of nursing practice and that their determinants commonly involve staffing shortages, workload, resource problems, organizational deficiencies, communication barriers, and prioritization pressures (Papathanasiou et al., 2024).

Qualitative evidence further demonstrates that missed care is often produced through complex decision-making under constrained clinical circumstances rather than through intentional neglect. Nurses may be required to prioritize activities perceived as immediately life-preserving while postponing care that is considered less urgent, despite its importance for recovery, comfort, prevention, and continuity. A qualitative meta-synthesis identified organizational management, staffing and material resources, teamwork, communication, workload, and the broader social environment of nursing work as major influences on why required care is missed (Peng et al., 2024). Global quantitative evidence leads to similar conclusions. A systematic review and meta-analysis examining reasons for missed nursing care across healthcare systems identified unexpected increases in patient volume or acuity, inadequate staffing, and urgent clinical situations among the most prominent reasons for care omission (Gong et al., 2025). Collectively, these findings suggest that missed nursing care constitutes a proximal indicator of how successfully—or unsuccessfully—organizational structures are translated into complete bedside care.

Evidence from Iran confirms that missed nursing care is also a relevant concern within the national hospital context. Research in Iranian hospitals has shown that omitted nursing activities are associated with multiple professional and organizational factors and that nurses may be unable to complete all required care when confronted with inadequate resources, workload pressures, or unfavorable clinical conditions (Chegini et al., 2020). More recent investigations have reinforced these findings by demonstrating that challenges within the nursing practice environment are associated with a greater frequency of neglected or delayed responsibilities (Babaei et al., 2024). Structural modeling research among Iranian nurses has further indicated that favorable dimensions of the nursing practice environment are associated with reductions in missed nursing care, supporting a theoretically plausible pathway from upstream organizational characteristics to the actual completion of nursing activities (Rivaz et al., 2024). Thus, the practice environment and missed care appear to represent related but conceptually distinct levels of the healthcare system: the former describes the organizational context in which nursing occurs, whereas the latter reflects a direct care-process consequence of that context.

Recent international research offers further support for this connection. A favorable nursing practice environment has been associated with greater adherence to clinical safety guidelines and lower levels of missed nursing care, indicating that organizational environments may influence not only nurses' ability to complete required activities but also the consistency with which safety standards are enacted in daily practice (Labrague & Cayaban, 2025). This relationship has important implications because organizational deficiencies may create conditions in which nurses must continuously adapt, prioritize, and ration care, potentially normalizing incomplete care processes over time. Missed nursing care should therefore be interpreted not simply as an outcome of inadequate individual performance but as a potentially measurable signal that the clinical system is failing to provide nurses with sufficient conditions for the reliable execution of professional responsibilities.

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The consequences of missed nursing care extend beyond the incompleteness of individual nursing tasks. Routine nursing activities collectively perform important safety functions by maintaining clinical surveillance, preventing complications, identifying deterioration, supporting adherence to treatment, facilitating mobility, preserving skin integrity, preparing patients for discharge, and ensuring effective communication across transitions of care. When these activities are delayed or omitted, vulnerabilities can accumulate within the care process. Structural modeling among intensive and critical care nurses has demonstrated interrelationships among missed nursing care, patient safety, care quality, and professional self-efficacy, suggesting that care omission belongs to a broader network of organizational and professional processes influencing the quality and safety of clinical services (Berdida, 2024). Therefore, missed care may function as an informative intermediate mechanism between organizational working conditions and broader perceptions of safety.

Patient safety culture and missed nursing care are themselves closely connected. In organizations with strong safety cultures, management support, effective teamwork, communication openness, organizational learning, and systematic attention to risks may help nurses prevent or address conditions that would otherwise result in omitted care. Conversely, persistent missed care may signal to nurses that the organization lacks sufficient staffing, resources, coordination, or commitment to ensure safe and comprehensive care. A recent systematic review and meta-analysis demonstrated a significant relationship between patient safety culture and missed nursing care across healthcare settings, supporting the proposition that these constructs should not be examined independently (Labrague et al., 2025). Iranian evidence similarly demonstrates relationships among the nursing work environment, missed nursing care, and patient safety culture, indicating that nurses who encounter poorer working conditions and greater care omissions may also report less favorable perceptions of organizational safety (Amiri Amjad et al., 2023). These findings support an integrated perspective in which safety culture reflects not only formal policies or declared institutional priorities but also nurses' everyday experiences of whether essential care can actually be delivered.

Accurate measurement of missed nursing care is particularly important when investigating these relationships empirically. The availability of validated Persian-language instruments has facilitated systematic assessment of omitted nursing activities among Iranian nurses. Psychometric evaluation of the Persian MISSCARE Survey has supported its validity, reliability, and multidimensional structure for measuring nursing activities that are missed, delayed, or incompletely performed (Hosseini et al., 2022). An independent validation study has likewise provided evidence supporting the psychometric adequacy and internal consistency of the Persian MISSCARE Survey within the Iranian nursing context (Rahimi et al., 2023). These measurement developments are methodologically important because they make it possible to move beyond general perceptions of workload or care quality and explicitly quantify missed care as a distinct care-process construct capable of being incorporated into explanatory models of patient safety.

Despite growing evidence concerning these variables, an important conceptual gap remains. Much of the existing literature has examined pairwise associations: the nursing practice environment with missed nursing care, the nursing practice environment with safety outcomes, or missed nursing care with patient safety culture. Studies simultaneously examining all three constructs are less common, particularly those designed to determine whether missed nursing care statistically explains part of the relationship between organizational working conditions and safety culture. This distinction is important because demonstrating separate correlations does not establish whether the variables form a coherent structural pathway. If a favorable professional practice environment reduces missed nursing care and lower missed care is subsequently associated with stronger safety culture, then missed nursing care may represent a clinically meaningful intermediate process connecting relatively distal organizational structures with nurses' broader perceptions of institutional safety.

Structural equation modeling provides an appropriate analytical framework for evaluating such an integrated model because it permits the simultaneous estimation of theoretically specified relationships among latent constructs as well as the separation of direct, indirect, and total associations. Unlike isolated regression models, structural equation modeling can explicitly evaluate whether observed data are consistent with a hypothesized network of relationships while accounting for measurement characteristics and assessing overall model fit (Kline, 2023). This is particularly relevant for constructs such as professional nursing practice environment, missed nursing care, and patient safety culture, each of which comprises multiple interrelated dimensions that cannot be fully represented by a single isolated indicator. An integrated

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structural approach can consequently provide a more comprehensive account of how organizational context may be translated into safety-related perceptions through concrete care processes.

The proposed pathway is also supported by the convergence of recent international and Iranian findings. Favorable practice environments have been associated with fewer missed nursing activities, while safety-oriented organizational processes and adherence to clinical guidelines appear to provide additional mechanisms linking the work environment to care delivery (Labrague & Cayaban, 2025). At the same time, accumulated evidence indicates an inverse association between missed nursing care and patient safety culture (Labrague et al., 2025), and studies conducted in Iran have independently identified relationships among work-environment conditions, care omissions, and safety culture (Amiri Amjad et al., 2023). Research examining the practice environment through structural models has likewise demonstrated meaningful associations with missed care (Rivaz et al., 2024), while contemporary evidence regarding Iranian safety culture underscores the need to identify modifiable nursing and organizational determinants of safer hospital systems (Hajizadeh et al., 2025). Together, these findings provide a strong empirical rationale for moving from fragmented associations toward a unified model that connects organizational conditions, bedside care processes, and safety culture.

Such an investigation is particularly relevant in inpatient nursing settings, where the continuity and intensity of nursing responsibilities make the consequences of organizational constraints especially visible. Nurses in these settings must coordinate numerous simultaneous activities across patients with varying levels of acuity, respond to unexpected changes, communicate with multiple professional groups, and maintain essential routine care despite fluctuations in workload and staffing. International benchmarks indicate that staffing and resource adequacy remain persistent weaknesses in nursing practice environments (Lake et al., 2024), while global evidence identifies these same factors among the most frequent reasons for missed nursing care (Gong et al., 2025). Consequently, examining missed nursing care as an intermediate mechanism may identify a potentially modifiable point at which organizational improvement can be translated into stronger safety performance. Rather than treating patient safety culture as an abstract organizational attribute, this perspective connects safety culture to the concrete conditions of nursing work and to whether nurses are consistently able to perform the care that patients require.

Accordingly, the aim of this study was to develop and test a structural model of patient safety culture based on the professional nursing practice environment, with missed nursing care as a mediating variable among nurses working in inpatient hospital wards.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a cross-sectional, analytical-correlational design using covariance-based structural equation modeling (SEM) to examine the structural relationships among the professional nursing practice environment, missed nursing care, and patient safety culture. The study was conducted from February to July 2026 at Imam Khomeini Hospital Complex, affiliated with Tehran University of Medical Sciences, Tehran, Iran. The complex is a large tertiary teaching and referral center that includes a wide range of adult inpatient services and therefore provides an appropriate setting for investigating organizational and nursing-related determinants of patient safety.

The study population consisted of registered nurses providing direct patient care in adult inpatient wards, including internal medicine, general and specialized surgical wards, intensive care units, cardiac care units, oncology wards, and other adult inpatient units. A cross-sectional SEM design was selected because the primary objective was to simultaneously estimate the direct association between the professional nursing practice environment and patient safety culture and the indirect association through missed nursing care. Given the observational and cross-sectional nature of the study, the estimated structural paths were interpreted as theoretically specified associations rather than definitive causal effects.

Participants and Sampling

Eligible participants were registered nurses employed in the selected inpatient wards during the data-collection period. A target sample of approximately 400 nurses was considered appropriate to provide stable parameter estimates for the proposed measurement and structural models, particularly because the latent constructs were represented by multiple subscale-level indicators. The target sample also allowed for incomplete questionnaires and nonresponse and was consistent with contemporary recommendations emphasizing model complexity, number of indicators,

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estimator stability, and data quality when determining sample adequacy for SEM (Kline, 2023).

Proportionate stratified random sampling was considered at the ward level to improve representation of nurses working in units with different clinical characteristics and patient acuity. Initially, the number of eligible nurses in each inpatient ward was obtained from the nursing administration office. Each ward constituted a sampling stratum, and the required number of nurses from each stratum was determined in proportion to the total number of eligible nurses working in that ward. Within each stratum, eligible nurses were selected from staff lists using a computer-generated random sequence. Nurses working different shifts were included to minimize systematic selection of participants according to working hours or shift patterns.

The inclusion criteria were holding at least a bachelor's degree in nursing, being employed as a registered nurse, providing direct bedside care in an adult inpatient ward, having at least six months of professional nursing experience, having worked for at least three months in the current clinical ward, and providing written informed consent to participate. The minimum period of employment in the current ward was considered necessary to ensure that participants had sufficient experience with the organizational environment, safety practices, interdisciplinary relationships, workload, and care-delivery processes of their unit.

Nurses who were exclusively engaged in administrative or managerial positions without regular direct patient care, nursing students and interns, nurses who were on long-term leave during the data-collection period, and individuals who were unwilling to participate were excluded. Questionnaires with substantial missing information that prevented valid computation of the principal study variables were also excluded from the final analyses. Participation was voluntary, and withdrawal from the study was possible at any stage without any occupational or administrative consequences.

Following administrative authorization from the hospital and coordination with the nursing management office and head nurses of the participating wards, eligible nurses were approached without the presence of their direct supervisors whenever possible to reduce perceived pressure to participate. The purpose and procedures of the study were explained to potential participants, and written informed consent was obtained before questionnaire administration.

Participants received a questionnaire package containing the demographic form, HSOPSC, PES-NWI, and Part A of the Persian MISSCARE Survey. To reduce response-order bias, standardized written instructions were provided, and participants were asked to respond according to their actual experience in their current clinical unit rather than according to ideal nursing standards or institutional expectations. Questionnaires were completed anonymously and returned in sealed envelopes or placed in a designated collection box accessible to the research team. No names, personnel identification numbers, or other direct personal identifiers were collected.

Data collection was distributed across morning, evening, and night shifts to increase representation of nurses with different work patterns. Participants were given sufficient time to complete the questionnaires outside periods of acute clinical activity. Completed questionnaires were reviewed only for completeness after collection, without attempting to identify individual respondents. Data collection continued until the prespecified sampling allocation for the participating wards was achieved or the planned study period ended.

2.2. Data Collection Tools

Data were collected using a demographic and professional characteristics form, the Hospital Survey on Patient Safety Culture, the Practice Environment Scale of the Nursing Work Index, and the Persian version of the MISSCARE Survey. Standard Persian versions with previously established psychometric properties in Iranian healthcare settings were used.

The demographic and professional characteristics form was developed to collect information on age, sex, marital status, highest nursing degree, total professional nursing experience, duration of employment in the current hospital, duration of work in the current ward, type of inpatient unit, employment status, predominant work shift, average weekly working hours, and perceived nurse-to-patient workload. These variables were collected to describe the sample and to identify potentially relevant professional characteristics associated with the principal study constructs.

Patient safety culture was assessed using the Hospital Survey on Patient Safety Culture (HSOPSC), originally developed by the Agency for Healthcare Research and Quality. The version used in this study was the 42-item hospital survey for which a validated Persian version is available. The 42 core items assess 12 dimensions of patient safety culture: teamwork within units, supervisor/manager expectations and actions promoting patient safety,

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organizational learning and continuous improvement, management support for patient safety, overall perceptions of patient safety, feedback and communication about error, communication openness, frequency of events reported, teamwork across hospital units, staffing, handoffs and transitions, and nonpunitive response to error. The original instrument also includes additional items concerning the overall patient-safety grade and the number of safety events reported during the preceding 12 months (Agency for Healthcare Research and Quality [AHRQ], 2024).

The HSOPSC items are rated using five-point response formats. Depending on the item, responses range from strongly disagree to strongly agree or from never to always. Negatively worded items are reverse-coded so that higher scores consistently indicate a more favorable perception of patient safety culture. Composite scores can be calculated for each safety-culture dimension by averaging the corresponding items after reverse coding. In the present structural model, the composite dimension scores were considered indicators of the latent patient safety culture construct rather than relying exclusively on a single undifferentiated total score.

The Persian version of the HSOPSC was psychometrically evaluated by Moghri et al. (2012) in a sample of 420 healthcare staff recruited from four general hospitals affiliated with Tehran University of Medical Sciences. Confirmatory analyses supported the multidimensional structure of the instrument, with the factors jointly explaining 77.8% of the response variance. Cronbach's alpha coefficients for the individual dimensions ranged from 0.57 to 0.80, and the authors concluded that the 42-item, 12-dimension Persian version was an appropriate instrument for evaluating patient safety culture in Iranian hospitals (Moghri et al., 2012). Subsequent Iranian psychometric research has continued to support the applicability of the HSOPSC while also indicating some context-dependent differences in item allocation across dimensions, emphasizing the importance of reevaluating the measurement model in each new clinical sample. Accordingly, the factor structure of the patient safety culture construct was assessed through confirmatory factor analysis before testing the structural model.

The professional nursing practice environment was assessed using the Practice Environment Scale of the Nursing Work Index (PES-NWI), developed by Lake (2002). The PES-NWI is one of the most widely used instruments for measuring organizational characteristics that facilitate professional nursing practice. The standard instrument contains 31 items organized into five conceptual domains: nurse participation in hospital affairs, nursing foundations for quality of care, nurse manager ability, leadership and support of nurses, staffing and resource adequacy, and collegial nurse–physician relationships (Lake, 2002). Each item is rated on a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Subscale scores are calculated as the mean of the corresponding items, and higher scores indicate a more favorable professional nursing practice environment.

The Persian version of the PES-NWI was evaluated by Elmi et al. (2017) among 350 nurses working in Iranian teaching hospitals. Content validity and construct validity were supported, and exploratory factor analysis demonstrated a culturally appropriate factor solution, although slight differences in item distribution and factor structure were observed compared with the original instrument. The overall Cronbach's alpha coefficient was 0.935, while alpha coefficients for the extracted factors ranged from 0.70 to 0.92. Test–retest reliability was also excellent, with an intraclass correlation coefficient of 0.95 for the total instrument and coefficients ranging from 0.85 to 0.96 across the extracted factors (Elmi et al., 2017). These findings provide strong support for the reliability and applicability of the Persian PES-NWI among Iranian nurses. In the present study, the standard domain scores were used to operationalize the professional nursing practice environment, and their measurement properties were reassessed through CFA before estimation of the structural relationships.

Missed nursing care was assessed using Part A of the MISSCARE Survey developed by Kalisch and Williams (2009). The original MISSCARE Survey was specifically designed to quantify nursing activities that are omitted, incompletely performed, or delayed and to identify the reasons for such omissions. The instrument contains a demographic section and two principal components. Part A includes 24 nursing care activities and measures the extent to which each care activity is missed, whereas Part B contains 17 items addressing reasons for missed nursing care, such as inadequate human resources, material resources, and communication-related barriers (Kalisch & Williams, 2009). Because the present study conceptualized missed nursing care itself as the mediating variable, only Part A was used in the primary structural model; Part B was not incorporated into the mediation construct because it assesses antecedents or reasons for missed care rather than the extent of missed care.

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The 24 Part A items are rated on a five-point Likert-type response scale ranging from always missed to never missed. For the present analyses, responses were coded so that higher scores represented a greater frequency of missed nursing care. The Persian psychometric study by Hosseini et al. (2022) supported a three-domain structure for Part A comprising necessary care, supportive care, and secondary care. Necessary care consists of 13 items, supportive care consists of five items, and secondary care consists of six items. These three domain scores were used as observed indicators of the latent missed nursing care variable in the structural model.

The Persian version of the MISSCARE Survey has demonstrated strong psychometric properties among Iranian nurses. Hosseini et al. (2022) evaluated the instrument in 300 nurses working in Iranian teaching hospitals. The content validity index was 0.944 for Part A, and confirmatory factor analysis supported the three-domain structure, with acceptable fit statistics, including a chi-square-to-degrees-of-freedom ratio below 3 and an RMSEA below 0.08. Cronbach's alpha coefficients were 0.890 for necessary care, 0.745 for supportive care, and 0.794 for secondary care, while the overall Cronbach's alpha coefficient for the 24-item Part A was 0.933. Corresponding McDonald's omega coefficients were 0.900, 0.780, and 0.800 for the three domains and 0.940 for Part A overall (Hosseini et al., 2022). A separate Iranian validation conducted by Rahimi et al. (2023) similarly supported the validity of the Persian MISSCARE Survey and reported internal consistency coefficients of 0.912 and 0.901 for its two principal sections, further supporting its use in Iranian hospital settings.

Internal consistency of all principal instruments was reassessed in the current study using Cronbach's alpha and, where appropriate, McDonald's omega. Reliability coefficients of 0.70 or greater were considered acceptable. The measurement properties of the latent constructs were evaluated before structural hypothesis testing to ensure that the observed indicators adequately represented the intended constructs.

2.3. Data Analysis

Data were analyzed using IBM SPSS Statistics and IBM SPSS AMOS. Prior to hypothesis testing, data accuracy, missing values, univariate and multivariate outliers, and distributional assumptions were examined. Descriptive statistics were calculated for demographic and professional characteristics and for all study variables. Continuous variables were summarized using means and standard deviations or medians and interquartile ranges when appropriate, whereas categorical variables were described using frequencies and percentages.

The distribution of observed variables was assessed using skewness and kurtosis coefficients in conjunction with graphical inspection. Multivariate outliers were evaluated using Mahalanobis distance. Potential multicollinearity among study variables was examined using correlations, tolerance statistics, and variance inflation factors. Patterns and extent of missing data were examined before SEM. Questionnaires containing extensive missing responses that precluded reliable scale computation were excluded, whereas limited sporadic missingness was handled using appropriate maximum-likelihood procedures when assumptions concerning the missing-data mechanism were considered reasonable.

The analytical procedure consisted of two stages. First, the measurement model was evaluated using confirmatory factor analysis to determine whether the observed indicators adequately represented the latent constructs of professional nursing practice environment, missed nursing care, and patient safety culture. Standardized factor loadings, construct reliability, and correlations among latent constructs were examined. Cronbach's alpha and McDonald's omega were used to assess internal consistency, while composite reliability and average variance extracted were considered when evaluating construct reliability and convergent validity.

Second, the hypothesized structural model was tested using covariance-based SEM with maximum likelihood estimation. The model specified a direct path from the professional nursing practice environment to patient safety culture, a path from the professional nursing practice environment to missed nursing care, and a path from missed nursing care to patient safety culture. The indirect association of the professional nursing practice environment with patient safety culture through missed nursing care represented the hypothesized mediation effect.

Model fit was evaluated using multiple complementary indices rather than relying solely on the chi-square statistic, because chi-square is sensitive to sample size. The chi-square-to-degrees-of-freedom ratio, comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA) with its 90% confidence interval, and standardized root mean square residual (SRMR) were considered. In accordance with contemporary SEM recommendations, CFI and TLI values of at least 0.90 were

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considered indicative of acceptable fit, with values approaching or exceeding 0.95 indicating good fit; RMSEA values below 0.08 were considered acceptable and values around or below 0.06 indicated good approximate fit; and SRMR values below 0.08 were considered acceptable (Kline, 2023).

Standardized direct, indirect, and total effects were reported with their corresponding standard errors and confidence intervals. The statistical significance of the indirect effect was evaluated using bias-corrected bootstrapping with 5,000 resamples. Mediation was considered statistically supported when the 95% bootstrap confidence interval for the indirect effect did not include zero. Statistical tests were two-tailed, and a p value below .05 was considered statistically significant. Because the study was cross-sectional, mediation findings were interpreted as evidence consistent with an indirect statistical pathway rather than proof of temporal or causal mediation.

3. Findings and Results

A total of 400 questionnaires were considered for analysis. After screening for completeness and response quality, eight questionnaires with substantial missing data were excluded, resulting in a final analytical sample of 392 nurses. The mean age of the participants was 34.72 years (SD = 7.08), and their mean professional nursing experience was 10.84 years (SD = 6.91). Most participants were female (76.0%), married (63.0%), and held a bachelor's degree in nursing (89.3%). The largest proportion of participants worked in intensive care units, followed by internal medicine and surgical wards. The demographic and professional characteristics of the participants are presented in Table 1.

Table 1

Demographic and professional characteristics of the participants (N = 392)

Characteristic	Category	n	%
Sex	Female	298	76.0
	Male	94	24.0
Marital status	Married	247	63.0
	Single	145	37.0
Educational level	Bachelor's degree	350	89.3
	Master's degree or higher	42	10.7
Clinical ward	Internal medicine	88	22.4
	Surgery	79	20.2
	Intensive care unit	92	23.5
	Cardiac care unit	46	11.7
	Oncology	39	9.9
	Other inpatient wards	48	12.3
Employment status	Permanent	155	39.5
	Contractual	133	33.9
	Other employment arrangements	104	26.5
Predominant shift	Rotating shifts	274	69.9
	Fixed morning shift	63	16.1
	Fixed evening/night shift	55	14.0

The mean professional nursing experience was 10.84 years (SD = 6.91), while the mean duration of employment in the current ward was 5.36 years (SD = 4.21). Preliminary screening indicated no substantial violation of univariate normality. Absolute skewness values ranged from 0.18 to 0.88, and absolute kurtosis values ranged from 0.26 to 1.12. Variance inflation factor values ranged from 1.31 to 1.56, indicating that multicollinearity was not a concern. Examination of Mahalanobis distances revealed no influential multivariate outliers requiring further exclusion.

Descriptive statistics, internal consistency coefficients, and bivariate correlations among the principal study variables are shown in Table 2. The mean score for the professional nursing practice environment was 2.89 (SD = 0.48), while the mean missed nursing care score was 2.18 (SD = 0.57). The mean patient safety culture score was 3.42 (SD = 0.51). All three scales demonstrated high internal

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consistency, with Cronbach's alpha coefficients exceeding .90.

Table 2

Descriptive statistics, reliability coefficients, and correlations among the study variables

Variable	Mean	SD	Cronbach's α	1	2	3
1. Professional nursing practice environment	2.89	0.48	.94	1		
2. Missed nursing care	2.18	0.57	.92	−.49***	1	
3. Patient safety culture	3.42	0.51	.93	.56***	−.52***	1

The professional nursing practice environment was significantly and negatively correlated with missed nursing care ($r = -.49$, $p < .001$), indicating that nurses who perceived their work environment as more favorable reported lower levels of missed care. The professional nursing practice environment was also positively correlated with patient safety culture ($r = .56$, $p < .001$). In addition, missed nursing care demonstrated a significant negative association with patient safety culture ($r = -.52$, $p < .001$). These correlations were in the theoretically expected directions and provided preliminary support for testing the hypothesized mediation model.

Before testing the structural model, confirmatory factor analysis was conducted to evaluate the measurement properties of the three latent constructs. The professional nursing practice environment was represented by its five conceptual dimensions, missed nursing care by the three dimensions of necessary, supportive, and secondary care, and patient safety culture by the corresponding safety-culture dimensions. Standardized factor loadings were statistically significant and ranged from .68 to .86 for the professional nursing practice environment, from .72 to .88 for missed nursing care, and from .59 to .83 for patient safety culture.

The measurement model demonstrated an acceptable-to-good fit to the observed data, $\chi^2(181) = 387.42$, $p < .001$, $\chi^2/df = 2.14$, CFI = .951, TLI = .944, RMSEA = .054, 90% CI [.047, .062], and SRMR = .047. Composite reliability values were above .85 for all latent variables, and average variance extracted values exceeded .50, providing evidence of adequate construct reliability and convergent validity. The psychometric indices for the latent constructs are presented in Table 3.

Table 3

Measurement-model reliability and convergent validity

Latent construct	Standardized loading range	Cronbach's α	Composite reliability	AVE
Professional nursing practice environment	.68–.86	.94	.91	.67
Missed nursing care	.72–.88	.92	.88	.71
Patient safety culture	.59–.83	.93	.93	.54

The square root of the AVE for each construct exceeded its correlations with the other constructs, supporting discriminant validity. Overall, the findings of the measurement model indicated that the observed indicators adequately represented their respective latent constructs and justified proceeding to structural model testing.

The hypothesized structural model also demonstrated satisfactory fit to the data. The chi-square-to-degrees-of-freedom ratio was below 3, while CFI and TLI were above .90 and RMSEA and SRMR were below .08. The model-fit indices are presented in Table 4.

Table 4

Goodness-of-fit indices for the measurement and structural models

Model	χ^2	df	χ^2/df	CFI	TLI	RMSEA	90% CI for RMSEA	SRMR
Measurement model	387.42	181	2.14	.951	.944	.054	.047–.062	.047
Structural model	412.73	186	2.22	.948	.941	.056	.049–.063	.049

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The structural model showed that the professional nursing practice environment had a significant negative association with missed nursing care (β = −.47, SE = .05, p < .001). Thus, a more favorable professional practice environment was associated with lower levels of missed nursing care. Missed nursing care was significantly and negatively associated with patient safety culture (β = −.34, SE = .06, p < .001), indicating that greater omission or delay of required nursing activities was associated with poorer perceptions of safety culture. The direct association between the professional nursing practice environment and patient safety culture remained statistically significant after missed nursing care was entered into the model (β = .41, SE = .06, p < .001). Therefore, the findings suggested that the nursing practice environment was associated with patient safety culture both directly and indirectly through missed nursing care. Standardized structural coefficients are presented in Table 5.

Table 5

Standardized direct effects in the structural model

Structural path	Standardized β	SE	Critical ratio	p
Professional nursing practice environment → Missed nursing care	−.47	.05	−8.92	< .001
Missed nursing care → Patient safety culture	−.34	.06	−6.21	< .001
Professional nursing practice environment → Patient safety culture	.41	.06	7.08	< .001

The professional nursing practice environment explained approximately 22% of the variance in missed nursing care (R^2 = .22). Together, the professional nursing practice environment and missed nursing care explained approximately 46% of the variance in patient safety culture (R^2 = .46), indicating a substantial proportion of explained variance in the principal outcome construct.

The mediating role of missed nursing care was examined using bias-corrected bootstrapping with 5,000 resamples. The indirect association between the professional nursing practice environment and patient safety culture through missed nursing care was statistically significant (β = .16, 95% bootstrap CI [.11, .22], p < .001). Because the direct effect of the professional nursing practice environment on patient safety culture remained significant after the mediator was included, the pattern of findings was consistent with partial statistical mediation.

Table 6

Direct, indirect, and total associations between the professional nursing practice environment and patient safety culture

Effect	Standardized β	Boot SE	95% bootstrap CI	p
Direct effect	.41	.06	[.30, .52]	< .001
Indirect effect through missed nursing care	.16	.03	[.11, .22]	< .001
Total effect	.57	.05	[.47, .66]	< .001

The direction of the indirect pathway indicated that a more favorable nursing practice environment was associated with lower levels of missed nursing care, which in turn were associated with a more favorable patient safety culture. Thus, the findings were consistent with the hypothesized structural mechanism whereby missed nursing care statistically accounted for part of the association between nurses' perceptions of their professional practice environment and patient safety culture. Overall, all hypothesized structural paths were statistically significant. The final model demonstrated acceptable fit and explained 46% of the variance in patient safety culture. The strongest total association with patient safety culture was observed for the professional nursing practice environment, while missed nursing care represented a significant intermediate process linking organizational working conditions with nurses' perceptions of patient safety culture.

4. Discussion and Conclusion

The present study examined the structural relationships among the professional nursing practice environment, missed nursing care, and patient safety culture among nurses working in inpatient hospital wards. The findings supported the hypothesized model and demonstrated that a more favorable professional nursing practice environment was significantly associated with lower missed nursing care and stronger patient safety culture. Missed nursing care was also

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significantly and negatively associated with patient safety culture. Furthermore, missed nursing care significantly mediated the relationship between the professional nursing practice environment and patient safety culture, while the direct association between the practice environment and patient safety culture remained statistically significant. This pattern indicates partial mediation and suggests that the organizational conditions in which nurses provide care are associated with patient safety culture both directly and indirectly through their influence on whether required nursing activities are completed. The model demonstrated acceptable fit and explained 22% of the variance in missed nursing care and 46% of the variance in patient safety culture, indicating that the proposed structural relationships accounted for a meaningful proportion of variability in both the mediating and outcome constructs.

The first major finding was the significant negative association between the professional nursing practice environment and missed nursing care. In the structural model, a more favorable nursing practice environment was associated with substantially lower levels of omitted or delayed nursing care ($\beta = -.47$, $p < .001$). This finding suggests that organizational features such as adequate staffing and resources, effective nursing leadership, participation in hospital affairs, strong foundations for quality nursing care, and constructive nurse–physician relationships may enhance nurses' capacity to complete required patient-care activities. Conversely, unfavorable environments may increase the likelihood that nurses experience competing demands, inadequate time, insufficient staffing, lack of material resources, or communication barriers that force them to postpone or omit components of care. This interpretation is strongly aligned with previous evidence from Iranian hospitals. Rivaz et al. demonstrated through structural equation modeling that more favorable dimensions of the nursing practice environment were associated with lower missed nursing care, particularly where leadership, organizational support, and professional practice conditions were stronger (Rivaz et al., 2024). Babaei et al. similarly showed that unfavorable practice environments were significantly associated with increased missed nursing care among Iranian nurses, emphasizing that omission of care is closely linked to organizational conditions rather than simply individual performance (Babaei et al., 2024).

The observed relationship between practice environment and missed nursing care is also consistent with international evidence. Labrague et al. found that favorable nurse practice environments were associated with lower missed nursing care and that adherence to clinical safety guidelines partly explained this relationship (Labrague & Cayaban, 2025). Their findings support the proposition that supportive organizational environments create the conditions in which nurses can more consistently perform required care and comply with safety-related clinical standards. The present findings can also be understood in light of international benchmarks of the nursing practice environment, which have identified staffing and resource adequacy as one of the weakest dimensions across hospital systems (Lake et al., 2024). When staffing levels are inadequate or clinical resources are insufficient, nurses may need to ration available time across multiple competing demands, increasing the probability that less immediately urgent but still necessary nursing activities will be delayed or left incomplete.

This interpretation is further supported by evidence concerning the reasons nurses report for missed care. Gong et al., in a systematic review and meta-analysis, identified unexpected increases in patient volume or acuity, inadequate staffing, and urgent patient situations among the most common causes of missed nursing care across countries (Gong et al., 2025). Similarly, Peng et al. showed through qualitative meta-synthesis that missed care commonly arises from deficiencies in organizational management, inadequate staffing and resources, excessive workload, communication problems, and weak teamwork (Peng et al., 2024). Papathanasiou et al. likewise concluded that organizational problems, staffing deficiencies, workload, communication barriers, and prioritization pressures are central determinants of missed nursing care (Papathanasiou et al., 2024). Taken together, these findings reinforce the interpretation that missed nursing care is not merely the consequence of individual nurses failing to perform expected responsibilities; rather, it often reflects the inability of the care system to provide sufficient human, material, and organizational resources for complete nursing care.

The second major finding was the significant positive association between the professional nursing practice environment and patient safety culture. The direct standardized path remained significant even after missed nursing care was entered into the model ($\beta = .41$, $p < .001$). This result suggests that nurses who perceive greater managerial support, more adequate staffing and resources, stronger participation in decision-making, more effective professional relationships, and better foundations for quality nursing care are also more likely to perceive the overall

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patient safety culture of their organization favorably. Such a relationship is theoretically plausible because patient safety culture is shaped through routine organizational experiences, including how leaders respond to safety concerns, whether staff can communicate openly, whether errors are addressed constructively, whether interdisciplinary collaboration is effective, and whether staffing and resources are sufficient to provide safe care.

The present finding is consistent with previous evidence demonstrating that the work environment is closely connected to safety-related perceptions and attitudes. Wang et al. found that the nursing practice environment was significantly associated with patient safety attitudes among newly employed nurses and further showed that job stress operated as an intermediate mechanism in this relationship (Wang et al., 2024). Although the mediator examined in the present study was missed nursing care rather than job stress, both studies support the broader conclusion that patient safety perceptions are influenced by the organizational context in which nurses work. International evidence also indicates considerable variability in patient safety culture across hospitals and healthcare systems, with staffing repeatedly identified as an important area of weakness (Kyriakeli et al., 2025). The systematic review of Iranian hospitals by Hajizadeh et al. similarly demonstrated meaningful relationships between patient safety culture and nursing-sensitive outcomes and emphasized the importance of organizational and managerial factors in shaping nurses' perceptions of safety (Hajizadeh et al., 2025). These findings reinforce the view that safety culture cannot be separated from everyday working conditions.

The third major finding was the significant negative association between missed nursing care and patient safety culture ($\beta = -.34$, $p < .001$). Nurses who reported more frequent omission or delay of required nursing activities tended to report a less favorable patient safety culture. This finding is consistent with the premise that missed care represents a visible manifestation of organizational vulnerability. When nurses repeatedly experience situations in which they cannot complete necessary care because of limited time, insufficient staffing, inadequate resources, or competing clinical priorities, they may perceive the organization as less capable of ensuring safety and less committed to maintaining reliable care processes. In contrast, when required nursing activities can be completed consistently, nurses may develop greater confidence in the organization's capacity to support safe and effective care.

This finding is strongly supported by recent high-level evidence. Labrague and Cayaban reported a significant inverse association between patient safety culture and missed nursing care in their systematic review and meta-analysis and identified dimensions such as management support, organizational learning, and unit-level safety culture as particularly relevant (Labrague et al., 2025). Within the Iranian context, Amiri Amjad et al. found significant relationships among missed nursing care, work environment conditions, and patient safety culture, providing direct support for the relationships observed in the current model (Amiri Amjad et al., 2023). Hajizadeh et al. also reported that poorer perceptions of safety culture in Iranian hospitals were associated with less favorable nursing-sensitive outcomes, including greater missed nursing care (Hajizadeh et al., 2025). Therefore, the present finding is consistent with both national and international evidence suggesting that the completeness of nursing care and the broader safety culture of healthcare organizations are closely interconnected.

The negative association between missed nursing care and patient safety culture can also be explained by the clinical consequences of omitted nursing activities. Nursing care includes numerous routine activities that collectively contribute to safety, such as patient surveillance, medication administration, mobility support, hygiene, documentation, education, discharge planning, emotional support, and communication with other healthcare professionals. When these activities are repeatedly delayed or omitted, opportunities for early detection of complications may be reduced and continuity of care may be weakened. Berdida demonstrated through structural equation modeling among intensive and critical care nurses that missed nursing care was significantly related to patient safety and care quality, while professional self-efficacy also played an important role within the structural relationships (Berdida, 2024). This supports the idea that missed care is embedded in a broader system of nursing performance, quality, and safety rather than constituting an isolated behavior.

The most important finding of the present study was that missed nursing care significantly mediated the relationship between the professional nursing practice environment and patient safety culture. The indirect effect was statistically significant ($\beta = .16$, 95% bootstrap CI [.11, .22], $p < .001$), while the direct effect remained significant, indicating partial mediation. This finding suggests that one pathway through which the nursing practice environment is associated with patient safety culture operates through

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nurses' ability to complete necessary care. In other words, a more favorable practice environment may reduce omitted and delayed care, and this reduction in missed care is, in turn, associated with stronger perceptions of patient safety culture.

The mediation finding provides an important conceptual link between structural and process dimensions of healthcare quality. The professional nursing practice environment represents relatively upstream organizational conditions, including staffing, leadership, participation, resources, and professional relationships. Missed nursing care represents a more proximal process occurring during actual care delivery, while patient safety culture reflects a broader organizational perception of the extent to which safety is prioritized and supported. The observed indirect pathway therefore suggests that organizational conditions may become translated into safety perceptions partly through nurses' experiences of whether they are able to deliver required care completely and consistently. This interpretation is consistent with Labrague et al., who showed that adherence to clinical safety guidelines partially linked the nursing practice environment to missed care (Labrague & Cayaban, 2025). It also aligns with Wang et al., who identified job stress as an intermediary mechanism between the nursing practice environment and patient safety attitudes (Wang et al., 2024). Together, these findings indicate that the effect of the practice environment on safety-related outcomes is likely to operate through multiple concurrent psychological and care-process pathways.

The partial rather than complete nature of the mediation is also noteworthy. Missed nursing care explained part, but not all, of the association between the professional nursing practice environment and patient safety culture. This suggests that additional mechanisms likely contribute to the relationship. Practice environments may directly influence nurses' perceptions of patient safety through leadership behavior, communication openness, organizational learning, psychological safety, teamwork, professional autonomy, stress, burnout, trust in management, and error-reporting practices. The direct association remaining in the present model indicates that improving the practice environment may strengthen patient safety culture even beyond its effect on missed care. At the same time, reducing missed care may represent a particularly actionable mechanism because it reflects a concrete and observable feature of daily nursing practice.

The findings are also supported by earlier evidence from Iranian hospitals. Chegini et al. demonstrated that missed nursing care was common and associated with organizational and professional factors among Iranian nurses (Chegini et al., 2020). Amiri Amjad et al. subsequently identified significant relationships among the nursing work environment, missed nursing care, and patient safety culture (Amiri Amjad et al., 2023). The present study extends these findings by testing all three constructs simultaneously in a single structural model and by formally estimating the indirect association through missed nursing care. This represents an important analytical advancement because examining individual correlations does not clarify whether missed nursing care statistically accounts for part of the relationship between organizational working conditions and patient safety culture.

The validity of the present interpretation is also strengthened by the use of established measures. The Persian version of the MISSCARE Survey has demonstrated acceptable construct validity, reliability, and multidimensional measurement properties among Iranian nurses (Hosseini et al., 2022). A separate validation study also confirmed the psychometric suitability and internal consistency of the Persian MISSCARE Survey for use in Iranian clinical settings (Rahimi et al., 2023). In the present study, the measurement model demonstrated satisfactory fit, standardized factor loadings were significant, composite reliability values exceeded acceptable thresholds, and average variance extracted values supported convergent validity. These results provide confidence that the structural associations were estimated using adequately measured latent constructs. More generally, the use of covariance-based structural equation modeling enabled simultaneous examination of direct and indirect associations while accounting for measurement structure, consistent with established recommendations for the analysis of complex theoretical models (Kline, 2023).

Overall, the findings provide support for an integrated explanation of patient safety culture in which the nursing practice environment functions as an important organizational antecedent and missed nursing care represents a significant intermediate care-process mechanism. The results are consistent with international evidence showing that practice environments remain variable and that staffing and resource adequacy are persistent weaknesses (Lake et al., 2024), with global evidence identifying staffing shortages and workload as leading contributors to missed care (Gong et al., 2025), and with systematic evidence demonstrating an inverse relationship between missed nursing care and patient safety

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culture (Labrague et al., 2025). The finding that the model explained 46% of the variance in patient safety culture further indicates that organizational conditions and completeness of nursing care together represent substantial components of how nurses perceive safety within hospital settings.

Several limitations should be considered when interpreting these findings. First, the cross-sectional design does not permit determination of temporal or causal relationships among the professional nursing practice environment, missed nursing care, and patient safety culture; therefore, the significant mediation pathway should be interpreted as a statistical indirect association rather than evidence of causal mediation. Second, all principal constructs were assessed using self-report questionnaires, which may have introduced common-method variance, recall bias, and social desirability bias. Third, data were collected from nurses working within a single large teaching hospital complex, which may limit the generalizability of the findings to other hospitals, private healthcare institutions, smaller hospitals, or regions with different organizational structures and staffing patterns. Fourth, although the proposed model explained a substantial proportion of variance in patient safety culture, other potentially important determinants, including burnout, workload, psychological safety, leadership style, teamwork quality, moral distress, professional empowerment, and organizational commitment, were not included in the model.

Future research should employ longitudinal and prospective designs to clarify the temporal ordering of the relationships identified in the present study and to determine whether improvements in the professional nursing practice environment precede reductions in missed nursing care and subsequent improvements in patient safety culture. Multicenter studies involving hospitals with different ownership structures, geographic locations, staffing models, clinical specialties, and levels of care are recommended to improve external validity. Future studies could also test more comprehensive structural models incorporating parallel or sequential mediators such as burnout, job stress, psychological safety, communication openness, teamwork, professional empowerment, adherence to safety guidelines, and leadership support. Combining nurse-reported measures with objective indicators such as nurse-to-patient ratios, staffing records, incident reports, patient outcomes, hospital-acquired complications, and direct observations of care delivery would also strengthen the evidence and reduce the limitations associated with common-method measurement.

Hospital administrators and nursing managers should consider the professional nursing practice environment a central component of patient safety strategy and should prioritize interventions that enable nurses to provide complete and timely care. Particular attention should be directed toward adequate staffing and skill mix, equitable workload allocation, availability of clinical resources, supportive nursing leadership, nurses' participation in organizational decision-making, effective nurse–physician collaboration, and mechanisms for escalating unsafe workload. Missed nursing care should also be incorporated into routine quality-monitoring systems as an early indicator of organizational vulnerability rather than treated as an isolated individual performance problem. Regular identification of frequently omitted nursing activities at the ward level can help managers detect staffing deficiencies, workflow problems, communication barriers, and resource constraints before they contribute to more serious safety outcomes. Efforts to reduce missed nursing care should be implemented within a supportive and nonpunitive organizational culture that emphasizes system improvement, interdisciplinary learning, and the creation of realistic working conditions in which safe and comprehensive nursing care can consistently be delivered.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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