Missed Nursing Care: Relationship with Nurses' Perceptions of Professional Practice Environment during Hajj Season

Faisal A. Alasmari[1], Ebtisam A. Ebrahim[2], Hawazin Y. Alhawasawi[3], Hussam Z. Abujaab[4], Mohamed P. Shahid[5], Naif A. Alduaiji[6], Alaa S. Sheikh[7], Mazen Z. Abo Jaab[8], Marwan S. Hawsawei[9], Dania A. Fatani[10], Amani M. Tukruni[11]

[1]Nursing Research and Evidence-Based Practice Department, King Abdullah Medical City, Makkah, KSA.
e-mail: Alasmari.F@kamc.med.sa
[2]Nursing Research and Evidence-Based Practice Department, King Abdullah Medical City, Makkah, KSA.
e-mail: Elhihi.E@kamc.med.sa
[3]Nursing Quality and Patient Safety Department, KAMC, Makkah, KSA.
e-mail: Alhawsaw.H@kamc.med.sa
[4]Director of violation administration in Makkah region.
e-mail: hussam.abujaab@hotmail.com
[5]Nursing Training Specialist, Nursing Service Administration, King Abdullah Medical City, Makkah.
e-mail: shahidparedath@gmail.com
[6]Operating Room Service Administration. OR&PACU -DLC-DCU. King Abdullah Medical City, Makkah, KSA.
e-mail: Alduaiji.N@kamc.med.sa
[7]Emergency Department, King Abdullah Medical City, Makkah, KSA.
e-mail: Shaikah.A@kamc.med.sa
[8]Nursing Executive administration, King Abdullah Medical City, Makkah, KSA.
e-mail: Mazen545@hotmail.com
[9]Nursing Executive administration, King Abdullah Medical City, Makkah, KSA.
e-mail: Abdalsalamhawsei.M@kamc.med.sa
[10]Nursing training and staff development department, king Abdullah Medical City, Makkah, KSA.
e-mail: Fatani.D@kamc.med.sa
[11]Nursing Executive administration, King Abdullah Medical City, Makkah, KSA.
e-mail: Tukruni.A@kamc.med.sa

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ABSTRACT

Context: An important factor that significantly affects missed nursing care is the nursing work environment. Additionally, it significantly impacts the recruitment and retention of healthcare professionals and indirectly affects the standard of nursing care.

Aim: To identify nurses' perception of the professional practice environment, identify types and reasons for missed nursing care, and find the relationship between nurses' perceptions of the professional practice environment and missed nursing care during the Hajj season.

Methods: A descriptive correlational design was carried out at seven hospitals in Makkah region. A convenience sample of 463 registered nurse who has at least one year of nursing experience and working in inpatient units was included in this study. Data was collected through an online questionnaire. It included patients' demographic data, the revised professional practice environment scale, and missed nursing care assessment questionnaire.

Results: The result of this study reveal that the mean scores of the professional practice environment and its subscales were 3.56±0.46, indicating a favorable environment. Furthermore, it was found that the overall missed nursing care among the studied nurses was 1.56±0.65, which indicates low missed nursing care. The highest reason for missed nursing care was the inadequate staff (2.85±1.12), supplies/equipment not functioning properly when needed (2.74±1.07), and not being available when needed (2.70±1.10). The professional practice environment statistically significantly negatively correlated with missed nursing care (r=-0.32, p=0.000).

***Conclusion*:** Missed nursing care in hospitals can be reduced by improving the professional practice environment. The study recommends that the hospital and nursing administrators consider keeping good practice environments for nurses to prevent missed care activities and potentially enhance patient outcomes in nursing units.

Keywords: Missed nursing care, perception, professional practice environment, Hajj season

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1. Introduction

Nurses must value work environments with some degree of influence over patient care to practice nursing effectively and maintain commitment and satisfaction *(Alsaqri, 2014).* The ability and competency of nurses to deliver high-quality nursing care can be increased or decreased by the workplace environment in hospitals. Research in various health systems and cultural contexts has demonstrated that the work environment significantly impacts the standard of nursing care provided to patients during hospitalization *(Sloane et al., 2018).*

[1]*Correspondence author: Faisal Abdu Alasmari*

The organizational elements of the workplace that support or restrict professional nursing practices are referred to as the nursing work environment. The work environment for nurses has drawn attention recently due to its links to the culture of patient safety *(Norman & Sjetne, 2017).* The work environment can be divided into many categories, such as nurse participation, helpful managers, staffing, a patient-centered environment, autonomy, a philosophy emphasizing quality of care, collaborative connections with peers and physicians, decentralization, and busyness (*White et al., 2019; Lake et al., 2020).*

One of the determinants of missing nursing care is the nurses' professional practice environment *(Lake et al., 2020).* Missed nursing care is a widespread healthcare phenomenon negatively correlated with nurse-related outcomes like nurse retention and job satisfaction, patient safety culture, and nursing care quality *(Jones et al., 2019).*

Missed nursing care directly affects internal nurse decision-making in the context of nursing care priorities. The term "missing nursing care" is American in origin. It was originally applied in Kalisch's qualitative research study in 2006 *(Kalisch, 2006).* Missed nursing care is defined as "any nursing activity necessary for the patient that is not performed or is significantly delayed in the process of delivering care" in the conceptual framework introduced in 2009 *(Kalisch et al., 2009).* Later, the definition of missed nursing care in the literature was expanded to include "an error due to carelessness in the care process *(Kalisch et al., 2012).*

Conceptual frameworks of missed nursing care have been researched across many clinical settings, healthcare systems, and cultures. Contributing elements are defined and comprehended. Important factors related to the practice or the nursing work environment have been established in conceptual frameworks for missed nursing care and some measurements of this concept. These variables include staffing and skill mix, interdisciplinary collaboration, autonomy and responsibility, nursing management, institutional organization and support, the sufficiency of resources, and communication and teamwork *(Bail & Grealish, 2016; Zhao et al., 2020).*

Missed nursing care is common in hospitals and has been linked to several negative patient outcomes, including an increase in the incidence of infections, falls, pneumonia, medication errors, increased length of stay, delayed discharge, increased pain, discomfort, and readmission *(Hessels et al., 2019; Kim et al., 2018).* The nursing work environment is an important factor that significantly affects missed nursing care. Additionally, it significantly impacts both the recruitment and retention of healthcare professionals and indirectly affects the standard of nursing care *(Zhao et al., 2020).* Missed care correlates with workplace characteristics such as inadequate staffing, time, staff communication, peer or manager assistance, and a working system *(White et al., 2019).*

Patient ambulation, oral care, consoling or conversing with patients, creating or revising care plans, and educating patients and families are frequently missed tasks that must be performed to ensure patient safety and improve patient outcomes *(Kutney-Lee et al., 2016).*

2. Significance of the study

The professional practice environment is linked to different nurse outcomes, such as unmet patient care needs, job satisfaction, burnout, intention to leave, and missed nursing care *(Dorigan et al., 2017; Roche et al., 2016).* The professional practice environment is a factor that can have a significant impact on missed nursing care. At the same time, it is a factor of great significance in the recruitment and retention of healthcare professionals. Aspects of the professional practice environment (directly and indirectly) influence the quality of nursing care *(Zhao et al., 2020).*

Many hospitalizations occur during the Hajj season when Muslims from all over the world go to the holy city of Makkah to conduct the Hajj ceremonies. It puts high pressure on hospitals and other healthcare providers, including nursing, which may have a detrimental impact on the professional practice environment and lead to missed nursing care. Globally, many studies have been conducted on missed nursing care, with no studies yet exploring work environments and missed nursing care in Saudi Arabia, particularly during the Hajj season.

3. Aim of the study

Therefore, this study aimed to:

- Identify nurses' perception of the professional practice environment
- Identify types and reasons for missed nursing care
- Find the relationship between nurses' perceptions of the professional practice environment and missed nursing care.

3.1. Research question

- What is the missed nursing care during Hajj Season?
- What is the relationship between missed nursing care and nurses' perceptions of the professional practice environment during the Hajj Season?

4. Subjects & Methods

4.1. Research Design

A descriptive correlational design was employed to conduct this study. Descriptive correlational studies describe the variables and the relationships that occur naturally between and among them *(Adams & McGuire, 2022).*

4.2. Study setting

This study was carried out at seven hospitals in the Makkah region. King Abdulaziz hospital, King Abdullah medical city, Ajyad hospital, Alnoor hospital, King Faisal hospital, Mina emergency hospital, and Heraa hospital were included in this study. All hospitals are primary hospitals, with King Abdullah Medical City being the only tertiary hospital and Mina emergency hospital a temporary hospital running only during hajj season.

4.3. Subjects

A convenience sample of 463 registered nurse who has at least one year of nursing experience and working in inpatient units was included in this study.

4.4. Tools of data collection

Data was collected through an online questionnaire. It included three sections as follows:

4.4.1. Revised Professional Practice Environment Scale.

This scale consisted of two sections.

Section I: Nurses' demographic data

The researcher developed this section based on relevant literature *(Moisoglou et al., 2020; Zeleníková et al., 2020).* It includes demographic data such as age, gender, years of experience, education, job position, and working hospital.

Section II: Revised Professional Practice Environment Scale.

This section describes the professional practice environment. It was adopted from *Erickson et al. (2009)* and contained a 39-item scale. The scale has eight subscales. There are five statements related to leadership and autonomy in clinical practice and five statements related to practice control. Moreover, patient communication has three statements; teamwork has four statements; handling disagreements has nine statements; staff relationships have two items; internal work motivation has eight statements; and cultural sensitivity has three.

Scoring system

On a five-point Likert-type scale, nurses were asked to rate their level of agreement, with 1 being significant disagreement and 5 representing strong agreement.

The mean scores of the study variables and subscales were divided by the number of items of each variable and subscale to assess the study variables. Based on the 5 Likert scale, the researcher considers less than three as an unfavorable environment and three and more than three as a favorable environment.

4.4.2. Missed Nursing Care questionnaire

This section was adopted by *Kalisch and Williams (2009).* It includes two parts; part A measures missed nursing care that includes 24 items related to missed nursing care activities such as ambulation three times per day or as ordered, turning the patient every 2 hours, and feeding the patient when the food is still warm.

Part B was constructed to identify the reasons for missed nursing care, which consists of 17 items related to the reasons for routinely missed nursing care, such as inadequate staff, urgent patient situations, and tension or communication breakdowns with the medical staff.

Scoring system

Answers were recorded to determine the overall score. The mean scores of the study variables and subscales were divided by the number of items of each variable and subscale to obtain a mean score for the study variables. The higher scores indicate higher levels of missed care or a stronger reason for missed nursing care activities. Based on 5 Likert scale, the researcher considers less than three as low missed nursing care and three and more than three as high

4.5. Procedures

The reliability was tested for the questionnaires (revised professional practice environment Scale and missed nursing care questionnaire) using Cronbach's coefficient alpha, and the results were acceptable r=0.95, 0.86 respectively.

Ethical approval was obtained from King Abdelaziz Medical City Institutional Review Board (KAMC IRB), registered at the National BioMedical Ethics Committee, King Abdulaziz City for Science and Technology, with approval number 22-938, dated 16/6/2022. Prior to the distribution of the survey, the nurse's autonomy which means freedom to determine one's actions, was respected by the researcher by ensuring that participants understood the information provided and that the participants received enough information about the study. Moreover, participants were informed that participation in the study was optional and that withdrawal from the study was possible at any time. In addition, privacy and confidentiality were protected by ensuring the participant's anonymity.

Following official approval from the KAMC IRB, scheduled meetings with the nurse managers and nurses in each hospital were held to discuss the purpose of the study and the procedure for data collection. Data were gathered using an anonymous online questionnaire method. All nurses in all units received an e-mail explaining the study's objectives, a link to the online survey, thorough instructions on completing it, confidentiality guidelines, and the lead investigator's contact information. The study's voluntary and anonymous nature was highlighted in the e-mail, along with a description of how the findings would be shared. The e-mail included the researcher's contact information in case anyone wanted to ask questions or request further information about the study. No explicit consent was requested. Potential participants were advised that returning the questionnaire was an agreement for participation.

4.6. Data analysis

The collected data were organized, tabulated, and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 25, SPSS Inc. Chicago, IL, USA). The categorical variables were represented as frequency and percentage. Continuous variables were represented as mean and standard deviation. An Independent t-test was used to test the difference between two means of continuous variables. ANOVA was used to test the difference between more than two means of continuous variables. Pearson correlation coefficient test was conducted to test the association between two continuous variables. Statistically significant was considered at p-value < 0.05 &0.01.

5. Results

Table 1 shows that more than half of the studied nurses (68.2%) were aged more than 30 years, and the majority were females (81.6 %). Slightly less than half studied nurses (47.7%) had 6-10 experience years. Most of the studied nurses had bachelor's degrees (88.3%), whereas high diploma degrees (7.6%) and master's degrees (4.1%) of the

studied nurses. Nurses position shows that 79.9% was staff nurses, charge nurse (18.1%), and technician (1.9%). The highest percentages of nurses who participated were from King Abdullah hospital (34.6%), king Faisal hospital (23.1), and Alnoor hospital (21.4%).

Table 2 shows that the mean scores of the professional practice environment and its subscales indicate a favorable environment. The highest mean scores of professional practice environment subscales were obtained for internal work motivation (3.92±0.70), followed by staff relationships (3.89±0.81), leadership and autonomy in clinical practice (3.78±0.76), and cultural sensitivity (3.78±0.76).

Table 3 illustrates that the overall missed nursing care among the studied nurses was 1.56±0.65, which indicates low missed nursing care. The highest mean scores of missed nursing care were for ambulation of patients three times per day or as ordered (1.92±1.05), followed by patient teaching about illness, tests, and diagnostic studies (1.70±0.90), and attending interdisciplinary care conferences whenever held (1.69±0.89). In contrast, the lowest mean scores of missed nursing care were for hand washing (1.37±0.77), followed by patient assessments performed each shift (1.39±0.76), and skin/wound care (1.41±0.75).

Table 4 shows that the highest reason for missed nursing care was obtained for an inadequate staff (2.85±1.12), then supplies/ equipment not functioning properly when needed (2.74±1.07), and not available when needed (2.70±1.10). Whereas the lowest reason for missed nursing care was obtained for the caregiver off the unit or unavailable (2.18±1.09), then the nursing assistant did not communicate that care was not provided (2.23±1.07) and inadequate hand-off from the previous shift or sending unit (2.27±1.04).

Table 5 shows statistically significant differences in professional practice environment scores concerning hospitals of the studied nurses. It was observed that these statistically significant differences were between the following hospital: King Abdulaziz hospital and Alnoor hospital, King Abdulaziz hospital and king Faisal hospital, King Abdullah Medical City and Alnoor hospital, king Abdullah Medical City, and king Faisal hospital. The table also shows that regardless of age, gender, years of experience, education, and position, the nurses' group had the same perception of the professional practice environment at $p > 0.05$.

Table 6 shows statistically significant differences in missed nursing care scores concerning age, gender, year of experience, and hospitals of the studied nurses. It was also observed that statistically significant differences related to age were between those aged ≤25 years and other groups. They had the higher mean score of missed care. Males had a significantly higher mean score of missed care compared to females. The statistically significant differences related to experiences were between those with 0-5 experience years and those with 6-10 experience years. The higher mean score was found for the group of 16-20 years. The statistically significant differences related to hospitals were between Mina emergency hospital and other hospitals except for Ajyad hospital and Heraa hospital. The higher mean missed care score was in Mina Hospital nurses.

Table 7 shows that the professional practice environment statistically significantly correlated negatively with missed nursing care except for the teamwork subscale.

Table (1): Frequency and percentage distribution of studied nurses' demographic characteristics (n=463).

Demographic characteristics	N	%
Age years		
≤25	16	3.5
26-30	131	28.3
31-35	209	45.1
36-40	84	18.1
>40	23	5.0
Gender		
Male	85	18.4
Female	378	81.6
Experience years		
0-5 years	96	20.7
6-10 years	221	47.7
11-15 years	121	26.1
16-20 years	21	4.5
>20 years	4	0.9
Educational qualifications		
High diploma degree	35	7.6
Bachelor degree	409	88.3
Master degree	19	4.1
Position		
Staff Nurse	370	79.9
Charge nurse	84	18.1
Technician nurse	9	1.9
Hospital		
King Abdullah Medical City	160	34.6
King Abdelaziz Hospital	53	11.4
Ajyad Hospital	13	2.8
Alnoor Hospital	99	21.4
King Faisal Hospital	107	23.1
Mina Emergency Hospital	20	4.3
Heraa Hospital	11	2.4

Table (2): Nurses' perception of the professional practice environment.

Professional practice environment	Min-Max	Mean±SD
Leadership and autonomy in clinical practice	1.00-5.00	3.78±0.76
Control over practice	1.00-5.00	3.45±0.81
Communication about patients	1.33-5.00	3.38±0.58
Teamwork	1.00-5.00	3.04±0.76
Handling disagreements	2.11-5.00	3.33±0.38
Staff relationships	1.00-5.00	3.89±0.81
Internal work motivation	1.00-5.00	3.92±0.70
Cultural sensitivity	1.00-5.00	3.77±0.69
Overall professional practice environment	1.72-4.64	3.56±0.46

Table (3): Descriptive statistics of missed nursing care reported by the studied nurses.

Missed nursing care	Min-Max	Mean±SD
Ambulation three times per day or as ordered	1.00-5.00	1.92±1.05
Turning patient every 2 hours	1.00-5.00	1.66±0.87
Feeding patient when the food is still warm	1.00-5.00	1.64±0.87
Setting up meals for a patient who feeds themselves	1.00-5.00	1.59±0.86
Medications administered within 30 minutes before or after the scheduled time	1.00-5.00	1.59±0.84
Vital signs assessed as ordered	1.00-5.00	1.45±0.81
Monitoring intake/output	1.00-5.00	1.52±0.83
Full documentation of all necessary data	1.00-5.00	1.52±0.81
Patient teaching about illness, tests, and diagnostic studies	1.00-5.00	1.70±0.90
Emotional support to patient and family	1.00-5.00	1.64±0.91
Patient bathing/skincare	1.00-5.00	1.59±0.89
Mouth care	1.00-5.00	1.64±0.91
Hand washing	1.00-5.00	1.37±0.77
Patient discharge planning and teaching	1.00-5.00	1.45±0.8
Bedside glucose monitoring as ordered	1.00-5.00	1.41±0.79
Patient assessments performed each shift	1.00-5.00	1.39±0.76
Focused reassessments according to patient condition	1.00-5.00	1.46±0.81
IV/central line site care and assessments according to hospital policy	1.00-5.00	1.44±0.81
Response to call light is initiated within 5 minutes	1.00-5.00	1.58±0.80
PRN medication requests were acted on within 15 minutes	1.00-5.00	1.52±0.82
Assess the effectiveness of medications	1.00-5.00	1.64±0.96
Attend interdisciplinary care conferences whenever held	1.00-5.00	1.69±0.89
Assist with toileting needs within 5 minutes of request	1.00-5.00	1.57±0.79
Skin/Wound care	1.00-5.00	1.41±0.75
Overall missed nursing care	1.00-4.79	1.56±0.65

Table (4): Descriptive statistics of missed nursing care reasons reported by the studied nurses.

Reasons for missed nursing care	Min-Max	Mean±SD
Labor resources		
Inadequate number of staff	1.00-4.00	2.85±1.12
Urgent patient situations (e.g., a patient's condition worsening)	1.00-4.00	2.40±1.14
Unexpected rise in patient volume or acuity in the unit	1.00-4.00	2.63±1.09
The inadequate number of assistive or clerical personnel (e.g., nursing assistants, techs, unit secretaries)	1.00-4.00	2.63±1.10
Heavy admission and discharge activity	1.00-4.00	2.47±1.08
Unbalanced patient assignments	1.00-4.00	2.61±1.05
Communication/teamwork		
The inadequate hand-off from the previous shift or sending unit	1.00-4.00	2.27±1.04
Other departments did not provide the care needed (e.g., physical therapy did not ambulate)	1.00-4.00	2.35±1.02
Lack of backup support from team members	1.00-4.00	2.37±1.05
Tension or communication breakdowns with other ancillary/support departments.	1.00-4.00	2.33±1.03
Tension or communication breakdowns within the nursing team	1.00-4.00	2.32±1.07
Tension or communication breakdowns with the medical staff	1.00-4.00	2.28±1.04
The nursing assistant did not communicate that care was not provided	1.00-4.00	2.23±1.07
Caregiver off the unit or unavailable	1.00-4.00	2.18±1.09
Material resources		
Medications were not available when needed	1.00-4.00	2.52±1.07
Supplies/ equipment not available when needed	1.00-4.00	2.70±1.10
Supplies/ equipment not functioning properly when needed	1.00-4.00	2.74±1.07

Table (5): Differences in professional work environment perception by characteristics of the studied nurses.

Demographic characteristics	Professional work environment		
	Mean±SD	t/f test	p
Age years			
≤25	3.44±0.63		
26-30	3.51±0.53		
31-35	3.57±0.43	1.32	0.26
36-40	3.61±0.39		
>40	3.68±0.36		
Gender			
Male	3.60±0.43	0.80	0.43
Female	3.55±0.46		
Experience years			
0-5 years	3.56±0.45		
6-10 years	3.56±0.47		
11-15 years	3.53±0.45	1.26	0.28
16-20 years	3.73±0.37		
>20 years	3.86±0.39		
Educational qualifications			
High diploma degree	3.55±0.38		
Bachelor degree	3.56±0.47	0.41	0.66
Master degree	3.66±0.39		
Position			
Staff Nurse	3.57±0.47		
Charge nurse	3.54±0.43	0.29	0.75
Technician	3.49±0.51		
Hospital			
King abdulaziz hospital	3.66±0.41 a,b*		
King Abdullah medical city	3.70±0.35 c,d		
Ajyad hospital	3.73±0.47		
Alnoor hospital	3.45±0.60 a,c		
King Faisal hospital	3.45±0.35 b,d	4.51	0.000
Mina emergency hospital	3.55±0.60		
Heraa hospital	3.46±0.42		

**a,b,c,d: statistically significant difference between groups with the same letter.*

6. Discussion

The professional practice environment in the scientific literature is also known as the work environment, working conditions, and job characteristics. The professional practice environment of nurses is one of the predictors of missed nursing care. The work conditions can be grouped into different concepts such as nurse participation, supportive managers, staffing, patient-centered climate, autonomy, philosophy focusing on the quality of care, collaborative relationships with physicians, and collaborative relationships with peers, so the aim of this study is it To identify nurses' perception of the professional practice environment, identify types and reasons for missed nursing care, and find the relationship between nurses' perceptions of the professional practice environment and missed nursing care during the Hajj season.

The current study's findings indicated that nurses' perception of the professional practice environment indicates a favorable environment. This finding may be due to the collaborative relationships between nurses and support from the leaders. Also, data were collected during the hajj season; during this period, all people became emotionally affected and more cooperative and helpful. These findings disagreed with the research of *Moisoglou et al. (2020)*, which found that the nurses under study believed their work environment was unfavorable. *Ibrahim and Abohabieb (2020)*; *Al Moosa et al. (2020)* addressed that the studied nurses had a moderate perception of their work environment. Additionally, *Almuhsen et al. (2017)* reported that the perception of the studied nursing staff towards three dimensions of the work environment (nurse participation in hospital affairs, nurse manager leadership, support of nurses, staffing, and resource adequacy) was at a moderate level.

The present study shows that the internal work motivation subscale of the professional practice environment had the highest ratings, followed by staff connections, leadership and clinical practice autonomy, and cultural sensitivity. This finding may be related to leaders motivating the nurses always and the effect of motivation that allows nurses to change behavior, develop competencies, be creative, set goals, grow interests, make plans, and develop talents. In agreement, *Zelenková et al. (2020)* found that staff relationships, control over practice, and communication with patients received the highest ratings on the professional practice environment scale.

Table (6): Differences in missed nursing care by characteristics of the studied nurses.

Demographic characteristics	Missed nursing care		
	Mean±SD	t/f test	p
Age years			
≤25 years	2.18±1.01a,b,c,d		
26-30 years	1.60±0.73 a		
31-35 years	1.47±0.55b	5.09	0.001
36-40 years	1.59±0.63c		
>40 years	1.58±0.52d		
Gender			
Male	1.76±0.69	3.16	0.002
Female	1.51±0.63		
Experience years			
0-5 years	1.70±0.75a		
6-10 years	1.48±0.60a		
11-15 years	1.56±0.65	2.59	0.04
16-20 years	1.74±0.51		
>20 years	1.40±0.44		
Educational qualifications			
High diploma degree	1.44±0.49		
Bachelor degree	1.56±0.66	1.81	0.16
Master degree	1.79±0.64		
Position			
Staff Nurse	1.53±0.64	2.61	0.08
Charge nurse	1.68±0.61		
Technician nurse	1.82±1.00		
Hospital			
King abdulaziz hospital	1.54±0.59a		
King Abdullah medical city	1.41±0.61b		
Ajyad hospital	1.54±0.55		
Alnoor hospital	1.64±0.71c	3.89	0.001
King Faisal hospital	1.47±0.56 d		
Mina emergency hospital	2.13±0.98a,b,c,d		
Heraa hospital	1.64±0.78		

*a,b,c,d: statistically significant difference between groups with the same letter / *p<0.05/** highly sig p<0.01*

Table (7): Relationship between professional practice environment and missed nursing care among the studied nurses.

Professional practice environment	Missed nursing care	
	r	p
Leadership and autonomy in clinical practice	-0.25	0.000
Control over practice	-0.22	0.000
Communication about patients	-0.22	0.001
Teamwork	-0.08	0.090
Handling disagreements	-0.18	0.000
Staff relationships	-0.23	0.000
Internal work motivation	-0.35	0.000
Cultural sensitivity	-0.22	0.000
Overall professional practice environment	-0.32	0.000

Regarding missed nursing care among the studied nurses, it was indicated that the highest missed nursing care was for ambulation of patients three times per day or as ordered, followed by patient teaching about illness, tests, and diagnostic studies, and attending interdisciplinary care conferences whenever held. This result may be due to that nurses' perception of these types of missed care as not crucial tasks and taking more time, particularly during an emergency. In addition, the staff shortage, which is demonstrated as the reason for missed care during this study, could be why these nursing tasks are being missed.

Moreover, data collection during the hajj season, characterized by a high admission rate and increased workload, could be another explanation for these findings. Other studies supported these findings, concluding that the highest missed nursing care was ambulating patients three times daily or as ordered *(Gabr & El-Shaer, 2020; Mandal et al., 2020).* Also, the study by *Saqer and AbuAlRub (2018)* stated that the most frequently perceived missed nursing care is ambulating patients, feeding patients on time, and conducting oral care, accompanied by patient turning and discharge planning. The current findings disagreed with *Park et al. (2018),* who mentioned that the most frequently missed nursing care was comforting and talking with patients.

The findings of this study reveal that inadequate staff was cited as the main cause of missing nursing care, followed by not working or unavailability of supplies and equipment when needed. In the same context, the study of *Ibrahim and Abohabieb (2020)* mentioned that inadequate staff was the most reason for missed care. The shortage of staff seems to be consistently reported as the main cause of missed nursing care; this is supporting evidence from one country to another to rise an alarm to healthcare leaders to start recruiting more nurses to support hospitals; this will help to ensure that the care delivered with the highest quality.

No statistically significant differences were found between nurses' perceptions of the professional practice environment and their characteristics. These findings indicate that regardless of the nurses' characteristics, they perceive the professional work environment similarly. These findings are supported by the study of *Ibrahim and Abohabieb (2020),* who addressed that nurses' perception of their work environment was not correlated with their characteristics. It also agreed with *Al Moosa et al. (2020),* who reported that nurses' perception of their work environment was not correlated with age, gender, or marital status but correlated with educational levels and experience years. These results are conversely related to the study of *Almuhsen et al. (2017),* which indicates that staff nurses' work environment had a significant relationship with their education and experience.

The result of this study indicated that there were statistically significant differences in missed nursing care scores concerning age, gender, experience, and hospitals of the studied nurses. The study reveals that the younger nurses had a higher mean score of missed nursing care, reflecting the nurses' inadequate experience that might aggravate during overload season such as Hajj season. The study findings also reveal a statistically significant relationship between missed nursing care and the hospital, as Mina emergency hospital had a higher mean score of missed nursing care than another hospital. This finding may reflect the nature of emergency nursing that gives priory to first aid, triage, and life support issues when dealing with their patients.

These results are congruent with the study of *Ibrahim and Abohabieb (2020),* who reported a significant relationship between missed nursing care and nurses' age, gender, marital status, educational level, and experience years. It disagreed with *Blackman et al. (2018),* who revealed that the clinical experience and age of the nurses was a factor that negatively impacted missed care. Also, professional qualification was one factor in identifying missed care elements. These findings disagreed with *Alasmari et al. (2021),* who stated that there was no statistically significant difference within the missed nursing care score related to nurses' characteristics. Also, it conversely matched with the study of *Dutra et al. (2019)* concluded that there were no significant correlations between missed care and nurses' age and experience. It was reported that missing nursing care was unrelated to nurses' age, gender, marital status, education, and experience.

The current study demonstrates that the professional practice environment correlated negatively with missed nursing care. This finding may be because the improvements to the work environment contribute to a healthy workforce, and the enhancement, effectiveness, and motivation of that workforce, as a result, will reduce missed nursing care. This result is in line with *Smith et al. (2020); Campbell et al. (2020),* who illustrated negative associations between missed nursing care and a composite score of the Practice Environment Scale of the Nursing Work Index (PES-NWI). *Zúñiga et al. (2015)* illustrated a significant relationship between the nursing work environment and missed nursing care, confirmed in nursing homes. *Gurková et al. (2021)* stated associations between domains of nurse work environment and missed nursing care activities.

Moreover, studies performed in neonatal intensive care units in the United States found that the prevalence and frequency of missed care decreased significantly in hospitals with improved work environments or nurse staffing *(Lake et al., 2018; Lake et al., 2017).* In contrast, a study by *Bartoníčková et al. (2021)* revealed nonsignificant associations between the nurse work environment and missed nursing care. *Hessels et al. (2015)* addressed that the nursing practice environment was related to the amount of missed nursing care.

7. Conclusion

The current study findings indicated that nurses' perception of the professional practice environment indicates a favorable environment. The highest missed nursing care was for ambulation of patients three times per day or as ordered, followed by patient teaching about illness, tests, and diagnostic studies, and attending interdisciplinary care conferences whenever held. Moreover, the professional practice environment correlated negatively with missed nursing care.

8. Recommendations

Hospital and nursing administrators should consider keeping good practice environments for nurses to prevent missed care activities and potentially enhance patient outcomes in nursing units. According to our findings, it would be crucial to improve resource adequacy and nurse-physician relationships to decrease missed care. Nursing organizations should develop strategies for enhancing staffing and resources, manager leadership, and organizational culture to address the issue of missed nursing care. Additionally, a program should be created to enhance the leadership skills of nurse supervisors. Finally, enhanced work systems, proactive and open communication among nursing staff, and increased staff understanding of the kind and cause of missing nursing care should be implemented to guarantee a patient safety culture within the units.

9. References

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