

Relation between Nurses' Work Environment And Their Application Of National Safety Requirements in Port Said Hospitals

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ABSTRACT

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Background: Nurses' practice environment has been associated with the quality of patient care and nurses' satisfaction. Patient safety is the constant focus on preventing mistakes and unfavorable consequences for patients related to medical care. **Aim:** The study aimed to investigate the relation between Nurses' work environment and their application of National Safety Requirements in Port Said Hospitals. **Design:** A descriptive correlational research design was employed. **Setting:** The study was conducted at six accredited hospitals in Port Said. **Subjects:** The study involved 353 nurses. **Tools:** The Work Environment Survey and National Safety Requirements Tool. **Results** revealed that (58.4%) of the nurses studied had moderate work environment level, while (42.2%) of them had high level, and only (1.4%) of them had low level. Concerning nurses' compliance with total patient safety standards, (92.9%) of the studied nurses had total partial met compliance with patient safety standards, while only (7.1%) of them had total met compliance. **Conclusion:** There was a highly significant positive correlation between the total environmental safety level and the studied nurses' total compliance with NSR standards. Age, experience years, job title, qualifications, and total NSR compliance were the statistically significant independent positive predictors of total environmental safety among the studied head nurses. **Recommendation:** Based on these findings, it is recommended to explore unit-based differences, examine changes in work environment and NSR compliance over time, and broaden research across different geographic regions and hospital types (public/private) to enhance the generalization of findings.

Keywords: National Safety Requirements, nurses, and work Environment

INTRODUCTION

The quality of healthcare is influenced not only by the expertise and training of medical staff but also by their work environment. Understanding the connection between nurses' work surroundings and the quality of care can lead to improvements in the healthcare system (Malinowska-Lipień, Micek, Gabryś, Kózka, Gajda, Gniadek, ... & Squires, 2021). A key component of safe and effective healthcare is a well-organized and supportive nursing work environment. A supportive, well-resourced nursing environment—characterized by adequate staffing, respectful and transformational leadership, clear communication channels, and access to necessary resources facilitates adherence to safety procedures and improves patient outcomes (de Abreu Pereira, Ribeiro, Fassarella, & Santos, 2024).

The environment for nurses has a direct impact on their ability to follow safety standards and rules required by national health guidelines. A positive work setting, characterized by things like proper staffing, respectful leaders, clear communication, and available resources, has been linked to better patient safety and increased compliance with safety rules (Elpasiony & Abd-Elmoghith, 2023). Nurses in supportive workplaces are often more willing to report errors, use safety measures, and help build a culture of ongoing quality improvement (Ali, Abdul-Aziz, Darwish, Swelem & Sultan, 2022).

Work environments that foster professional commitment and staff well-being are associated with lower rates of adverse events and higher quality indicators; conversely, stressful environments with staffing shortages and weak managerial support increase the likelihood of missed nursing care, errors, and lower compliance with national safety standards (Li et al., 2024; Chiappinotto, Coppe & Palese, 2023).

On the other hand, a negative work environment that includes heavy workloads, staff deficits, and poor leadership can result in missed nursing duties, more mistakes, and lower adherence to safety protocols. Not only do these conditions impact nurse morale, but they can also weaken the use of national safety standards in a clinical setting (Elpasiony & Abd-Elmoghith, 2023). The work environment is a major predictor of missed care, according to Chiappinotto, Coppe, and Palese (2023).

However, the way the workplace influences multinational health corporations is still complex and varied (Al Sabei et al., 2020).

A positive environment gives nurses the opportunity to perform their duties with minimal stress and helps maximize the delivery of safe and high-quality health services. For the welfare of both the nurse and the patient, it is critical to uphold a safe work setting. To create a safe environment, one must understand what causes errors and then use that knowledge to design new systems that reduce those errors (Gea-Caballero et al., 2019).

In the 1990s, the phenomenon of patient safety appeared, creating interest in studying how organizational factors affect patient safety. The findings from these assessments showed that elements within an organization, such as its culture, communication, feedback loops, and leadership approach, affect the company's day-to-day functions. It is essential that an organization provides the safest care possible to patients because patient safety is an ongoing issue in healthcare and a top concern for health organization leaders. Therefore, the focus is placed on delivering safe patient care every day to develop into an organization that prioritizes patient safety (Abdelaliem & Alsenany, 2022).

Patient safety (PS), as stated by the World Health Organization, is focused on avoiding medical mistakes and their negative impacts on patients during healthcare. Unsafe medical procedures can cause injury, death, or disability to patients. The increase in these incidents has resulted in a recognized need to enhance the patient safety culture (PSC) in the global healthcare industry. Patient safety is also viewed as a strategic part of healthcare management (Azyabi, Karwowski & Davahli, 2021).

The World Health Organization (WHO) defined patient safety as the reduction and mitigation of unsafe activities within the healthcare system, often achieved through the implementation of best practices known to yield optimal patient outcomes. Healthcare is a complicated setting where mistakes can lead to injury or death. Usually, the built-in safeguards are effective. Yet, every layer of protection, such as alarms, standard procedures, and skilled health professionals, has potential weaknesses (ALFadhalah et al., 2022).

Patient safety culture (PSC)—the shared values, beliefs, and norms that shape staff behavior about safety—remains a central concept for understanding how organizational context translates into front-line practice (AHRQ definition). Empirical reports during and after the COVID-19 pandemic indicate fluctuations in PSC scores and highlight the pandemic's impact on workforce strain and safety perceptions, reinforcing that organizational context is dynamic and sensitive to system stressors (AHRQ, 2022).

Healthcare leaders at every level are actively looking for useful strategies to improve healthcare safety in their organizations, prompted by worries about patient safety, healthcare costs, and government accountability standards. As a result, accreditation has become an increasingly popular method in recent decades for improving the quality of care and guaranteeing patient safety. Accreditation is explained as a voluntary assessment process that various governmental, non-governmental, and independent agencies use to measure how well a healthcare organization follows the performance standards established by the agency (Al-Dossary, 2022).

A growing body of systematic reviews and meta-analyses (2020–2024) links nurse burnout, staffing levels, and unfavorable work environments to poorer patient safety and lower quality of care, demonstrating consistent associations across countries and care settings. These reviews emphasize the mediating roles of professional commitment and organizational support in the pathway from environment to missed care and patient outcomes (Li et al., 2024; Hendy et al., 2024).

Meeting accreditation standards involves guaranteeing a safe environment, reducing risk for patients and staff, and assisting healthcare providers in seeing their own organization's strengths and areas for improvement. Accreditation standards can offer a dependable platform in the quickly evolving healthcare industry, helping providers to support their system and manage the quality and safety of their services. Because of this, hospital accreditation has become a globally recognized management tool and a key strategy for improving and assessing quality in healthcare (Seada, El Banan & El Banna, 2022).

Accreditation programs and external quality frameworks are widely promoted as system-level interventions to improve safety and standardize practices. Recent studies show that accredited hospitals often report improved patient safety metrics and more mature safety cultures, although evidence is mixed and context-dependent (settings, implementation fidelity, and resource constraints matter). Several recent evaluations recommend cautious interpretation: accreditation can drive structural and process changes but does not always translate automatically into sustained front-line behavioral changes without complementary internal leadership and staff engagement strategies (LIMA et al., 2025).

Accreditation also has a significant role in many different areas. It can help with writing and sharing policies and procedures, creating quality improvement programs, positively affecting infection control and pain management, and fostering a sense of ownership in quality projects. It also improves the organization's public image and raises consumer awareness about quality care. It acts as a strong tool to protect the public by ensuring they have access to safe, high-quality healthcare. To achieve these benefits, careful planning, organizational dedication, and strong government backing are necessary (Seada, El Banan & El Banna, 2022).

For improving treatment quality and avoiding mistakes, it has become more important in recent years for nurses to adhere to standards and reduce practice errors. However, there are still clear problems with the safety and quality of care, which shows that nurses need a better understanding of the various factors that help with adherence to standard nursing practices. Therefore, nurses play a vital role in developing knowledge of institutional procedures, in-service practice excellence, and empowering the personal factors that shape a nurse's dedication to patient safety rules (Vaismoradi, Tella, Logan, Khakurel & Vizcaya-Moreno, 2020).

Significance of the Study

For safety improvement initiatives to be successful, measuring and monitoring safety (MMS) is essential. A significant hurdle to improving safety in healthcare, however, is the shortage of reliable information that would permit organizations, teams, and individual providers to assess their performance and identify where weaknesses and risks exist (Soósová, 2021). The practice environment for nurses has

been linked to the quality of patient care and the satisfaction of nurses. Therefore, a positive work environment is vital for patients, nurses, nurse leaders, and the broader community. A large body of evidence from the literature shows that a professional work setting produces high-quality patient care, which helps attract and keep nurses during a period of high turnover and low retention (Lee et al., 2021).

Egyptian patient safety standards, based on the International Society for Quality in Health Care (ISQua), were established recently. Accreditation and following standards are meant to boost patient safety by ensuring a safe setting, preventing or reducing patient harm, decreasing delays, boosting productivity, and cutting costs. For these reasons, this research aimed to test how well nurses comply with national patient safety standards in accredited hospitals. The goal was to see if staff nurses in these hospitals are aware of and follow the national standards after the hospital received its accreditation certificate, in order to determine if the accredited hospitals are performing seriously or not (Andrawes, Fakhry, & Abd El Azeem, 2019).

Most recent large studies and reviews are from high- and middle-income contexts (U.S., Europe, Brazil, parts of Asia). There is limited contemporary, empirical research from Egyptian governorates (such as Port Said) that links nurse work environment metrics directly to nurses' compliance with national safety requirements.

While accreditation is associated with improvements in some settings, evidence on how accreditation interacts with the nursing work environment to affect front-line adherence to national safety requirements remains sparse—especially in resource-constrained public hospitals. Existing studies recommend examining both structural (accreditation) and cultural (PSC) factors together (Vuohijokiet al., 2025; Mohamed, 2025).

Recent mixed-methods work highlights discrepancies between nurse self-reports and patient perceptions of missed care; few studies combine objective compliance measures, nurse perceptions of environment, and patient-level indicators simultaneously. This triangulation is necessary to validate findings and reveal blind spots in single-source studies (Cohen et al., 2025).

Although links between environment and outcomes are well documented, the mediating mechanisms (e.g., burnout, professional commitment, leadership style) that explain how environment affects adherence to national safety requirements need further testing in contemporary datasets. Recent papers point to professional commitment and burnout as promising mediators' worth testing (Hendy et al., 2024; Li et al., 2024).

Therefore, the researcher aimed to evaluate the features of the nurses' work environment and to see if a strong connection exists between this environment and their use of national safety requirements in Port Said hospitals. To find the answer, this study sought to explore that potential relationship.

AIM OF THE STUDY

The present study investigates the relation between Nurses' work environment and their application of National Safety Requirements in Port Said Hospitals through answering the following **questions**:

1. What are nurses' work environment characteristics in Port Said hospitals?
2. What are the levels of nurses' application of/compliance with national safety requirements in Port Said hospitals?
3. Is there a relation between nurses' work environment and their application of national safety requirements in Port Said hospitals?

Research question:

Is there a relation between the nurses' work environment and their application of national safety requirements in Port Said hospitals?

SUBJECTS AND METHOD

Technical design:

The technical design of this study outlines the research design, setting, subjects, and data collection tools.

Research Design:

A descriptive correlational research design was employed to examine the relationship between Nurses' work environment and their application of National Safety Requirements.

Research Setting:

The study was conducted at several accredited hospitals in Port Said that had received recognition from the General Authority for Healthcare Accreditation and Regulation (GAHAR) based on the 2021 Hospital Accreditation Standards. The hospitals included As-Salam, Al-Hayah, Al-Zohor, El-Nasr, Dar Sehat Al Mar' Ah and 30 June. These hospitals were selected because they represented a range of organizational structures and practices in implementing national safety standards. The diverse settings provided a comprehensive picture of the healthcare environment in Port Said, enabling an assessment of how institutional differences might influence both the work environment and the adherence to safety protocols.

- **As-Salam Hospital:** The **total staff** is 365 nurses with 157 bed **capacity**.
Hospital structure: The hospital consists of three buildings.
- **Al-Hayah Port-Fouad Hospital:** The **total staff** of 348 nurses with 144 beds **capacity**. **Hospital structure:** The hospital consists of three buildings.
- **Al-Zohor Hospital:** The total staff is 170 nurses with 69 beds capacity.
Hospital structure: The hospital consists of one building with five floors.
- **El Nasr Specialized Hospital:** The **total staff** is 208 nurses with 144 bed **capacity**. **Hospital structure:** The hospital comprises a single building distributed over four floors.
- **30 June Hospital:** The **total staff** is 200 nurses with 157 bed **capacity**.
Hospital structure: The hospital consists of a single building distributed over three floors.
- **Dar Sehat Al Mar'ah Hospital:** The **total staff** is 73 nurses with 84 bed **capacity**. **Hospital structure:** The hospital comprises a single building distributed over four floors.

Subjects

The sample size was 353 nurses out of the total study population for this study

comprised nurses working in the selected hospitals of Port Said. The total population was approximately 1,403 nurses. These nurses worked in various departments, including dialysis units, cardiac, surgery, intensive care, and general wards. The population distribution across hospitals was as follows: As-Salam Hospital: 294 nurses (20.95%), Al-Hayah Hospital: 338 nurses (24.09%), Al-Zohour Hospital: 181 nurses (12.9%), El-Nasr Hospital: 250 nurses (17.81%), 30 June Hospital: 200 nurses (14.25%), and Dar Sehat Al Mar'ah Hospital: 140 nurses (9.97%)

Inclusion and Exclusion Criteria

Inclusion Criteria:

- Registered nurses currently employed in the selected hospitals.
- Nurses with a minimum of six months of work experience to ensure familiarity with the work environment and safety protocols.
- Nurses who consented to participate in the study.
- Nurses who worked full-time or part-time with at least 24 hours of weekly clinical duties.
- Nurses from all shifts (morning, evening, and night) to capture the full range of work environment experiences.
- Nurses from various clinical departments to ensure representation across specialties.

Exclusion Criteria:

- Nurses currently on extended leave or those temporarily assigned to non-clinical roles.
- Nurses who did not provide informed consent.
- Nursing interns or students who were not yet fully registered.
- Nurses who had transferred to the current hospital within the past six months, as they might not have sufficient familiarity with the specific work environment.
- Nurses in purely administrative positions with no direct patient care responsibilities.
- Agency or temporary nurses not permanently employed by the hospitals.

Sample Size Calculation

The sample size was 353 nurses out of the total study population that included 1403 nurses at previously mentioned settings at a confidence level 97% and precision rate at 0.05 by using (Thompson,2012).

$$\frac{3.841 \times 1403 \times 0.50(1-0.50)}{(0.05)^2 \times (1403-1) + 3.841 \times 50(1-0.50)} = 353 \text{ nurse}$$

Thus, the total sample size for the study is 353 nurses.

Sample Distribution

Using proportional allocation, the sample size of 353 nurses was distributed across the six hospitals based on their respective nursing populations.

Total Sample Size: 353 nurses distributed after calculation as follows: AL-Salam Hospital: 74 nurses; Al-Hayat Hospital: 85 nurses; Al-Zohour Hospital: 46 nurses; El-Naser Hospital: 63 nurses; 30 June Hospital: 50 nurses, and Dar Sehat Al Mar'ah Hospital: 35 nurses

Sampling Technique

Nurses were selected from all inpatient units of the six hospitals using a simple random sampling technique. This approach ensures that each nurse in the target population has an equal chance of being included in the study, reducing selection bias.

Tools for Data Collection

Data was collected using two primary instruments: the Work Environment Survey (WES) and the National Safety Requirements Tool.

Tool I: The Work Environment Survey (WES).

The Work Environment Survey (WES) was used to evaluate work environment characteristics based on the General Nordic Questionnaire for Psychological and Social Factors at Work (QPSnordic). It consists of two parts:

Part 1:

The researcher developed this section to collect personal demographic information, including age, gender, title, nursing experience, current work experience, and work unit.

Part 2:

The Work Environment Survey (WES) instrument was adapted to the Nordic context to offer a thorough understanding of work environment (Wännström, Peterson, Åsberg, Nygren, & Gustavsson, 2009). The instrument included 54 statements grouped under 18 factors.

Scoring System:

A five-point Likert scale was employed to assess responses to the items, where a rating of 1 represented "strongly disagree" and a rating of 5 indicated "strongly agree."; higher scores correspond to higher degrees of Work Environment Survey. The following cut-off points are used to categorize the overall Work Environment score percentage: It should be Low: $\leq 70\%$, Moderate: $> 70\%$ to $\leq 80\%$ and High: $> 80\%$. Based on the scoring of Patrick & Kareem (2021).

Tool II: National Safety Requirements Tool

This tool was adopted from the **GAHAR Handbook for Hospital Standards (2021)** and developed to assess the application of each NSR standard using a self-assessment tool (SAT). GAHAR adopted this tool, which uses three types of evidence—observation, interviews, and document review—to score each NSR standard. While there were 28 NSRs in total, the researcher chose only 11 general patient safety standards. These included fifty-eight (58) evidences of compliances (EOCs) for each requirement, which were grouped under the eleven selected general patient safety requirements as follows: patient identification, verbal and telephone orders, hand hygiene, catheter and tube misconnections, fall screening and prevention, pressure ulcer prevention, handover communication, critical alarms, recognition and response to clinical deterioration, venous thromboembolism prophylaxis, and critical results.

Scoring System:

Each national patient safety standard was scored using mathematical rules that rely on the sum and percentage of scores for each standard, as detailed below:

- **Met:** The hospital demonstrated 80% or higher compliance with requirements.
- **Partially Met:** The hospital showed less than 80% but more than or equal to 50% compliance.
- **Not Met:** The hospital showed less than 50% compliance with requirements.

II. Operational design:

The operational plan for the study contains the fieldwork, pilot study, validity and reliability checks, and the preparation stage. Every part ensures the survey is properly structured and the results are trustworthy.

Preparatory Phase:

This phase consisted of a broad review of literature and theoretical knowledge about the nurses' work environment and the use of National Safety Requirements. This included reviewing relevant books, research papers, online sources, and looking at periodicals and other scholarly materials. The goal of this phase was to fully grasp the existing knowledge, find gaps in the literature, and create a solid basis for the study's methodology.

Tools' Validity:

The two instruments used in this study were initially translated into Arabic and subsequently translated back into English to ensure accuracy and clarity. To evaluate the validity of the tools, panel composed of five experts in the field of nursing administration, faculty of nursing. They reviewed the translated versions to assess their content, clarity, and relevance. Following the experts' suggestions, required changes were made to make sentences clearer, ensure content was appropriate, and make the tools easier to use for data collection.

Tools' Reliability:

Cronbach's alpha was computed to check the internal consistency and reliability of the tools. For the workplace environment scale, the reliability coefficient was 0.86, and for the national safety requirement, the reliability coefficient was 0.846. These numbers show high internal consistency for both instruments.

Pilot Study

A pilot study was carried out before the primary data collection began, using about 10% of the total sample size (around 30 nurses) from one of the hospitals. The goal was to check the clarity, relevance, and reliability of the research tools. To prevent data contamination, the pilot group was chosen from a hospital unit that was not included in the main study. Participants in this pilot test were requested to fill out both instruments and give their feedback. Following the pilot study's findings, small adjustments were made to both tools before starting the main research, which follows an iterative refinement process.

Fieldwork

After getting official approval from the directors of the six hospitals in the study, fieldwork began. The researcher's first step was meeting with the nursing director at each hospital. The purpose of these meetings was to explain the study's goals and get their cooperation for the data collection phase. A list of nurses was acquired from each hospital, and the sample was selected using a basic random sampling method. To gather the data, the researcher visited the study locations two days each week. The researcher then met with each selected staff nurse as they were available, described the study's purpose and methods, and received their verbal informed consent to join. Instructions were given by the researcher on how to fill out the questionnaires correctly, and all completed forms were collected securely for later analysis. To cause minimal interruption to work duties, nurses could choose to complete the questionnaires on their breaks or after their work shifts ended.

In each hospital, a private area was set up for nurses to fill out the questionnaires. If nurses could not finish the questionnaires during their shift, they were allowed to take them home and bring them back within three days. During this

time, the researcher also observed their practices related to applying national safety requirements. The data collection period lasted for three months, starting in December 2023 and finishing by the end of September 2024. Data was gathered two days a week during morning, mid-day, and night shifts.

III. Administrative Design

From the Dean and Vice Dean of Postgraduate Studies and Research at the Faculty of Nursing, Port Said University, an official letter was acquired. This letter was then delivered to the hospital and nursing directors at the three hospitals to describe the study's aim, ask for their cooperation, and get the required permissions. Following this, after a detailed explanation of the study's goals was given, written approval was obtained from the hospitals.

Ethical Considerations

The study received official approval from the Ethical Committee of the Faculty of Nursing, Port Said University, with the code number NUR (6-8-2025) (43). After the study's purpose and nature were fully explained, informed consent was obtained from all participating nurses. It was made clear to participants that their participation was voluntary and they could leave the study at any time without facing any negative effects. All data collected was kept strictly confidential and anonymous during the entire study.

IV. Statistical Design & Analysis

- The researcher coded, tabulated, and formatted the data to ensure it was ready for computer analysis. The IBM SPSS software package, version 25.0, was then used to analyze the data. The following statistical methods were part of the data analysis and interpretation: To check the reliability of the tools, Cronbach's alpha coefficient was used. To check for the normality of the data, Numbers and percentages were used for qualitative data. To assess the connections between quantitative and ranked variables, the Spearman correlation was used.

RESULT

Table 1: The personal characteristics of the studied nurses revealed a diverse demographic profile. The studied nurses' mean age was \bar{x} S.D 31.8 \pm 5.8, 38.2% of them had ages ranging between 31 to 40 years old, and 24.1% of them worked at El Hayah Bor Fouad hospital. Moreover, 60.9% of them were females and 51.8% of them were technical nurses. As regards their experience, 43.6% of them had more than 5 to 10 years of nursing experience, and 61.2% of them had less than 5 years of experience at the current work unit. Also, 46.2% of the studied nurses worked at ICUs, 43.6% and 10.2% of them worked at inpatient departments and dialysis units, respectively. Concerning employment, 87.3% of them were employed, while 12.7% of them were second. Furthermore, only 15.3% had supervisory positions, and 16.7% of them belonged to a permanent working group or team. As regards working hours per week, the studied nurses mean working hours \bar{x} S.D 42.02 \pm 0.32. Finally, 45% of them reported preferring two shift work.

Figure 1 states that 58.4% of the studied nurses mentioned total moderate work environment safety level, while 42.2% of them explained high work environment safety level and only 1.4% of them reported low level.

Table (2) declares the distribution of total work environment safety domains' levels. The results show that there were total high quality (54.7%), patient-centered (66.9%), respect (63.7%), role expectations (60.9%), social climate (52.1%) and leadership (48.4%) while there were moderate improvement (51.8%), motivation (53.8%), engagement (75.6%), commitment (53.3%), personal development (54.4%), empowerment (54.1%), conflict (86.1%), work load (64.9%), autonomy (58.6%), role conflicts (83.9%), sick leaves (43.9%) and patient safety culture (48.4%).

Figure 3: elicits that 92.9% of the studied nurses had total partially met compliance with patient safety (NSR) standards while only 7.1% of them had total met compliance.

Table 3 shows the distribution of the studied nurses according to their total compliance with patient safety standards. The results show that they had total met compliance regarding NSR 2 (53.3%), NSR4 (42.4%), NSR7 (51%), NSR8 (53.8%)

and NSR 10 (57.2%) while they had partially met compliance regarding NSR1 (66.6%), NSR3 (50.1%), NSR 5 (68.6%), NSR 6 (70.5%), NSR 9 (50.1%) and NSR 11(52.1%).

Table 4 confirms a highly statistically significant positive correlation between the total environmental safety level and their total compliance with NSR standards ($p = 0.01$).

Table (1): Personal characteristics of the studied nurses
(n=353).

Personal Characteristics	N	%
Hospital		
30 June	50	14.2
El hayah Bor Fouad	85	24.1
El Zohor	46	13
Al - Salam	74	21
El Nasr Specialist	63	17.8
Dar Sehat El Maraa	35	9.9
Age \bar{x} S.D 31.8± 5.8		
20-<30	170	48.2
30-<40	136	38.5
40-<50	45	12.7
50-60	2	0.6
Gender		
Male	138	39.1
Female	215	60.9
Job title		
Professional/specialized nurse	170	48.2
Technical nurse	183	51.8
Nursing experience years (\bar{x} S.D 7.41± 4.9)		
<5 years	123	34.6
5-10 years	154	43.6
>10 years	76	21.5
Current work experience years (\bar{x} S.D 4.99± 53.86)		
<5 years	216	61.2
5-10 years	109	30.9
>10 years	28	7.9
Work unit		
ICUs	163	46.2
Inpatient department	154	43.6
Dialysis	36	10.2
Employment status		
Appointed	308	87.3
Seconded	45	12.7
Supervisory position with subordinates		
Yes	54	15.3
No	299	84.7
Belonging to a permanent working group or team		
Yes	59	16.7
No	294	83.3
Working hours/weeks		
\bar{x} S.D 42.02±0.32		
The best types of shifts		
Daytime	106	30
Two shift work	159	45.0
Three shift work	12	3.4
Regular evening shift	24	6.8
Regular night shift	29	8.2
Another schedule	23	6.5

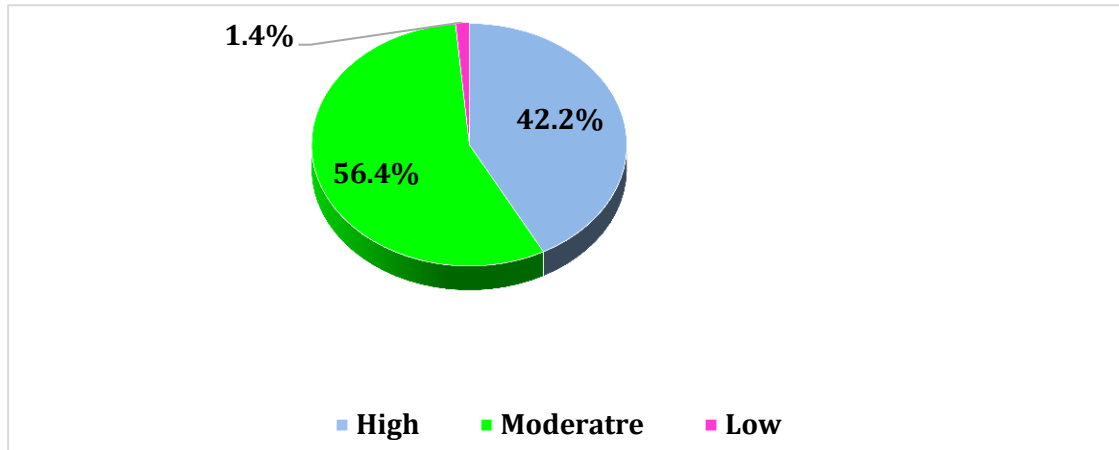


Figure 1: Total work environment safety levels (n=353).

Table (2): Total work environment domains` levels (n=353).

Total domains	High		Moderate		Low	
	N	%	N	%	N	%
Improvement	164	46.5	183	51.8	6	1.7
Quality	193	54.7	148	41.9	12	3.4
Patient-centered	236	66.9	110	31.2	7	2.0
Respect	225	63.7	121	34.3	7	3.0
Motivation	144	40.8	190	53.8	19	5.4
Engagement	70	19.8	267	75.6	16	4.5
Commitment	147	41.6	188	53.3	18	5.1
Personal development	150	42.5	192	54.4	11	3.1
Empowerment	112	31.7	191	54.1	50	14.2
role expectations	215	60.9	124	35.1	14	4.0
Social Climate	184	52.1	149	42.2	20	5.7
Conflict	16	4.5	304	86.1	33	9.3
Work load	111	31.4	229	64.9	13	3.7
Autonomy	117	33.1	207	58.6	29	8.2
Role conflicts	39	11.0	296	83.9	18	5.1
Sick leave	48	13.6	155	43.9	150	42.5
Leadership	171	48.4	167	47.3	15	4.2
Patient Safety Culture	167	47.3	171	48.4	15	4.2

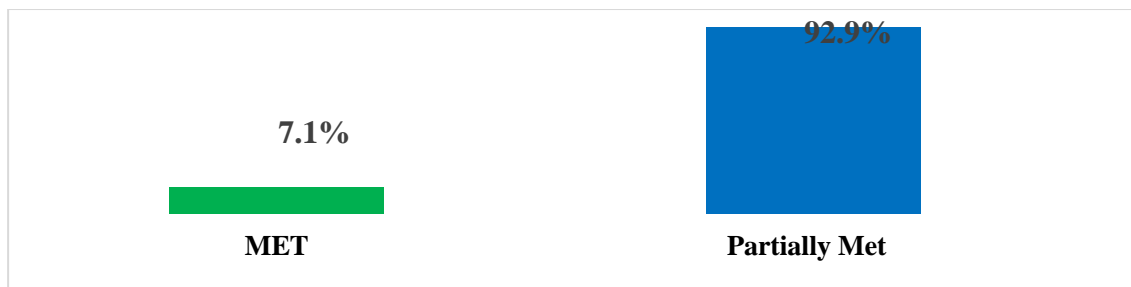


Figure (3): Nurses' compliance with total patient safety standards at NSR (n=353).

Table (3): Nurses' compliance with patient safety standards at NSR (n=353).

	Met		Partially met	
	No	%	No	%
NSR 1	118	33.4	235	66.6
NSR 2	188	53.3	165	46.7
NSR 3	176	49.9	177	50.1
NSR 4	185	52.4	168	47.6
NSR 5	111	31.4	242	68.6
NSR 6	104	29.5	249	70.5
NSR 7	180	51.0	173	49.0
NSR 8	190	53.8	163	46.2
NSR 9	176	49.9	177	50.1
NSR 10	202	57.2	151	42.8
NSR 11	169	47.9	184	52.1
Total NSR	25	7.1	328	92.9

Table (4): Correlation between the studied variables (n=353).

		Total NSR compliance
Total environmental safety	r	.795
	p	.001**

(**) Statistically significant at $p < 0.01$. *r* Pearson correlation

DISCUSSION

The work setting of nurses has a deep effect on the quality of patient care in hospitals. A positive work setting not only improves job satisfaction but also has a direct effect on following safety rules and the general safety culture in healthcare facilities (Elpasiony & Abd-Elmoghith, 2023). This study aimed to examine the link

between the nurses' work environment and their use of National Safety Requirements in Port Said Hospitals.

Concerning work environment safety level, the results of this study showed that over half of the nurses reported moderate work setting level. Less than half reported high level, and just a small fraction reported a low level. This breakdown indicates that while a large number of nurses see their work environment in a positive light, there is still a noticeable group with less positive views. This outcome can be explained by a mix of supportive organizational elements and ongoing systemic problems. For example, nurses might have positive experiences with things like good communication with coworkers and basic support from managers. Yet, problems like high patient-to-nurse ratios, scarce resources, and inconsistent leadership may stop many from seeing their work environment as completely positive, which leads to the dominant moderate score.

Consistent with these results, Bellizzi and Padrini (2021) noted that many nurses had moderate levels of job satisfaction, which was mainly affected by heavy workloads and not enough staff, limiting their ability to see the work environment more positively. In the same way, Hegazy, Ibrahim, Shokry & El Shrief (2022) discovered that low percentages of the nurses they studied reported a good level of their work environment. The highest-rated area was the relationship between doctors and nurses, followed by organizational support, autonomy, and then control over the environment. Similarly, a study by Elpasiony and Abd-Elmoghith (2023) showed that the overall percent score for the nursing work environment was moderate. The highest-scoring was collegial nurse-physician relations, followed by nursing foundations for quality of care, then nurses' involvement in hospital matters, and nurse manager ability, leadership, and support. The lowest-scoring was staffing and resource adequacy.

Regarding nurses' perspectives on various aspects of the work environment, the findings of this study indicated that approximately two-thirds of the nurses surveyed recognized high levels of patient-centered care, respect, and clarity in role expectations. Fewer than half of the participants reported high levels in leadership and patient safety culture. Moderate levels were found in a majority of them for areas like conflict, role conflict, and engagement, and in about two-thirds of them for workload

and autonomy. This pattern suggests that even though nurses appreciate relational and patient-focused aspects, ongoing organizational problems like role confusion and workload issues still impact their total work experience. These results can be explained by continuing staff shortages, a lack of role clarity, and a shortage of empowerment systems, which are frequent problems in Egyptian healthcare.

Supporting the current findings, Elkaffas, Hamouda, Zahran and Obeid (2024) discovered that nurses reported low levels of autonomy and leadership, which was linked to higher burnout. Elpasiony & Abd-Elmoghith (2023) also found that moderate levels of safety culture and engagement often led to more missed nursing care in Port Said. In contrast, Hegazy, Ibrahim, Shokry & El Shrief (2022) stressed that weak leadership and little autonomy led to lower work engagement among nurses. These differences highlight the impact of institutional rules, staff allocation, and leadership approaches on how nurses perceive their work environment in various parts of Egypt.

Furthermore, Sarıköse and Göktepe (2022) found that the overall score for the work environments was favorable on average. Likewise, Santos et al. (2021) showed that the overall mean of the tool used to assess the work environment was at a moderate level. Additionally, Dutra and Guirardello (2021) noted that nursing professionals perceived the work environment as varied, with higher ratings given to nursing foundations for quality care and collegial relationships. In agreement, Labrague, Al Sabei, Al Rawajfah, AbuAlRub, and Burney (2022) stated that the Environment of the Nursing Work Index composite score was rated as highly favorable. All five subscales had high means, with ‘nursing foundations for quality of care’ being among the highest, while ‘staffing and resource adequacy’ had the lowest means. These results follow findings from many Middle Eastern countries, such as the United Arab Emirates, Jordan, and Saudi Arabia (Ambani, Kutney-Lee & Lake, 2020).

These results also supported earlier local research where nurses reported a favorable view of their overall nursing practice environment (Al Sabei et al., 2020). This outcome is not surprising, considering the strong economic and healthcare systems of those countries. In addition, the results from Hussein, Abdeen and Hassan (2021) showed a satisfactory level of quality of the hospital environment among the

respondent nurses. The study reported that most of the nurses had a satisfactory level of hospital ergonomics, physical demands, and work conditions. Regarding the total satisfaction level with the hospital's environment, it was found that more than three-quarters of the respondents were satisfied.

On the other hand, Hussein and Ahmad (2024) noted that the practice environment of the nursing work index was used to assess the nursing working environment in aged care homes. A moderate level of positive practice environment was reported by the study participants. About three-fifths of the participants felt that adequate support services let them spend time with their patients. Notably, more than half of the participants agreed that doctors and nurses have good working relationships in aged care homes. Also, over three-quarters of participants agreed that active staff development programs are crucial in the work environment.

Regarding nurses' compliance with national safety requirements (NSR), the findings of this study revealed that a significant majority of the nurses examined exhibited only partial compliance to patient safety standards. Only a small minority fully complied with the criteria. This result can be explained by several factors, such as a lack of ongoing training, inconsistent use of safety rules, and a shortage of administrative support or feedback systems. It is also possible that while nurses have a basic knowledge of patient safety standards, they run into practical challenges like time limits, staff shortages, or not enough resources, which stop them from fully implementing them in clinical practice.

The findings of this study also showed that nurses had different levels of compliance across various standards. Specifically, about half of the nurses had full compliance with NSR2, NSR4, NSR7, NSR8, and NSR10. In contrast, partial compliance was seen in more than a third of nurses for NSR1, NSR5, and NSR6, and in more than half of them for NSR3, NSR9, and NSR11. These results suggest that while some safety standards are well-integrated into nursing, others may need more attention and improvement.

In support of these findings, Al-Dossary (2022) stated that all the subscales related to patient safety were rated as better or good. The participants' views about the work area were seen as average, while the approach of supervisors/managers and

communication were rated as good. However, the number of reported events was found to be higher, which is a point of concern. Moreover, a study conducted by Hegazy, Ibrahim, Shokry, and El Shrief (2022) found that nurses' compliance to patient safety standards was negatively impacted by insufficient staffing and training, resulting in an increased likelihood of errors. Similarly, Elkaffas, Hamouda, Zahran & Obeid (2024) in Tanta discovered that nurses' adherence to safety protocols was not consistent, often because of unclear guidelines and not enough supervision. These findings highlight the need for standard rules and ongoing education to improve compliance in different healthcare settings.

Also, a study by Mohammed, Elsayed, and Hamed (2022) showed that nearly half of the participants had a high commitment level, about one-third had a medium level, and just over ten percent had a low-level score. This result might be because most of the participants worked in critical departments that require more focus on patient safety or because most of them had more than six years of experience. Aligning with these results, a study by Ali and Saad (2022) reported that the nurses' total compliance with international patient safety goals before an intervention was moderate. The compliance with individual goals ranged from high to low, with the highest compliance for medication safety and the lowest for infection control.

Likewise, Ghallab, EL Molla and Elewa (2024) found that total compliance with national patient safety goals was moderate before an intervention, often due to factors like workload and resource shortages. In contrast, Attia, Ahmed & Safan (2021) saw higher mean compliance rates for international patient safety goals in private hospitals, while there was a low compliance score in the non-accredited hospital they studied. They attributed this to better enforcement of safety rules and regular competency checks. These differences show the impact of institutional policies and resources on how well nurses follow safety standards.

Additionally, Hegazy, Ibrahim, Shokry, and El Shrief (2022) emphasized the significance of a supportive work environment in enhancing adherence to safety regulations. Their research demonstrated that nurses are more inclined to comply with safety standards when they perceive their work environment as supportive. This underscores the necessity for healthcare organizations to foster a positive workplace culture to enhance patient safety.

Additionally, the results from Elkaffas, Hamouda, Zahran and Obeid (2024) noted that at Tanta University Main Hospital, the highest ranking was for equipment and tools, followed by task limitations. At Itay Elbaroud Hospital, the highest ranking was task limitations, followed by equipment and tools. The lowest ranking dimensions at both hospitals were work environment limitations and organizational limitations. In a similar vein, Ali, Abdul-Aziz, Darwish, Swelem and Sultan (2022) and Hussein, Abdeen and Hassan (2021) reported a poor and negative safety level among healthcare workers, including nurses. In addition, the results from Hussein, Abdeen & Hassan (2021) showed that two-fifths of the respondent nurses were satisfied with their compliance with safety precautions. On the contrary, Al Nadabi, Faisal & Mohammed (2020) reported high to moderate levels of safety climate in Arab countries.

Regarding the connection between work environment total safety level and the studied nurses' total compliance with national safety requirements, this study found a highly significant positive correlation. This result suggests that nurses who see their work environment more positively are more likely to show higher adherence to patient safety standards. A supportive, well-organized, and resourceful work environment probably empowers nurses to comply better with safety rules by encouraging job satisfaction, motivation, and a culture of safety.

The strong positive link between how nurses perceive their work environment and their compliance with NSR standards can be explained by several factors. A positive work environment usually offers enough resources, effective leadership, and clear communication, all of which help nurses to strictly follow safety rules. When nurses feel supported and valued, their job satisfaction and motivation go up, which leads to more attention to patient safety. Also, a healthy work environment encourages teamwork and collaboration, which are key for consistent compliance with safety rules. In contrast, stressful work conditions, a heavy workload, and a lack of support from managers can weaken nurses' ability to follow safety standards. This highlights how important it is to build a supportive organizational culture to improve compliance.

For example, in a scoping review by McCauley, Kirwan and Matthews (2021), factors that influence missed nursing care (like workplace, staff organization,

resources, and personal factors) and missed infection prevention care are equal to not complying with hospital infection prevention rules, and therefore ignoring safety guidelines.

Furthermore, Hastuti, Chasani and Ardani (2021) stressed that poor work environments with high workloads, a lack of resources, and low managerial support led to lower compliance with safety requirements. These consistent results emphasize the key role of a positive work environment in promoting patient safety and suggest that healthcare institutions should make environmental improvements a priority to boost compliance with national safety standards.

Furthermore, Moustafa and Gouda (2023) indicated that both the nursing work environment and the culture of patient safety influence instances of missed nursing care. Similarly, Labrague et al. (2022) discovered that the nursing work environment is connected both directly and indirectly to the quality of care evaluated by nurses, adverse patient events, and job satisfaction, with interprofessional collaboration serving as a mediating factor.

A study by Lake et al. (2017) found that enhancements in the hospital work environment and improved staffing significantly decreased instances of missed care. Research indicates that better nursing work conditions, achieved through increased staffing and resources, along with enhanced leadership and support from nurse managers, are associated with greater professional commitment. Additionally, the work environment accounts for 33% of the variation in nurses' professional commitment.

CONCLUSION

Based on the results of the current study, it can be concluded that:

More than half of the nurses in the study reported a moderate total work environment safety level. Less than half of them reported high level, and only a few mentioned low levels. The findings also showed that about two-thirds of nurses reported high levels in several work environment areas, like patient-centered, respect, role expectations, and social climate. However, for more than half of them, moderate

levels were reported in motivation, improvement, engagement, commitment, personal development, empowerment, and autonomy. Regarding compliance with patient safety (NSR) standards, most of the nurses studied showed total partial met compliance, while a small number showed total met compliance.

Additionally, the findings revealed a highly statistically significant positive correlation between the total environmental safety level and the studied nurses' total compliance with NSR.

RECOMMENDATIONS

Several recommendations can be made in light of the study's findings, including the following:

Recommendations for Hospital Administration:

- Implement Policy to Promote Safety Culture: Establish hospital-wide safety policies that encourage a non-punitive culture.
- Ensure Fair Workload Distribution.
- Enhance Supervisory Support.
- Monitor and Act on Compliance Trends.
- Standardize Compliance Procedures.
- Facilitate Access to Resources.

Recommendations for Nurse Education:

- Integrate NSR into Nursing Curriculum: Nursing schools and hospital education departments should embed national safety requirements into theoretical and clinical courses, emphasizing practical application in real-world scenarios.
- Continuous In-service Training: Organize regular, mandatory refresher training focused on low-compliance NSRs (e.g., NSR1, NSR5, NSR6) to close knowledge-practice gaps.
- Simulation-Based Learning: Use realistic simulations to reinforce safety procedures and boost nurses' confidence, particularly for new graduates or those with low compliance performance.

Recommendations for research:

- **Conduct Longitudinal Studies:** Future research should examine changes in work environment and NSR compliance over time to identify long-term interventions' effectiveness.
- **Explore Unit-Based Differences:** Investigate why some units or departments show higher or lower safety compliance to guide targeted improvements.

Limitations of the Study

- The cross-sectional design limits the ability to determine causal relationships between nurses' work environment and compliance with national safety requirements.
- The study was conducted only in six accredited hospitals in Port Said, which restricts the generalizability of findings to other non-accredited, private, or governmental hospitals in different regions.
- Data collection relied mainly on self-administered questionnaires, which may have been influenced by recall bias or social desirability bias.
- The study examined only eleven selected patient safety standards, leaving out other national standards that may also be relevant.
- Potentially influential contextual factors (e.g., nurse–patient ratios, workload intensity, and hospital policy differences) were not directly measured.

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العلاقة بين بيئة عمل الممرضين وتطبيقهم لمتطلبات السلامة القومية بمستشفيات بورسعيد

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الخلاصة

الخلفية: تُعد بيئة ممارسة التمريض من العوامل المرتبطة بجودة الرعاية المقدمة للمرضى ورضا الممرضين عن عملهم. وتُعد سلامة المرضى محوراً دائماً يُركز على الوقاية من الأخطاء والتقليل من النتائج السلبية المرتبطة بالرعاية الصحية. **الهدف:** هدفت الدراسة إلى استقصاء العلاقة بين بيئة عمل الممرضين وتطبيقهم لمتطلبات السلامة القومية في بعض المستشفيات المعتمدة بمدينة بورسعيد. **التصميم:** استخدمت الدراسة تصميمًا بحثيًا وصفيًا ارتباطيًا. **المكان:** تم تنفيذ الدراسة في ستة مستشفيات معتمدة بمحافظة بورسعيد. **العينة:** شملت الدراسة 353 ممرض. **أدوات الدراسة:** تم استخدام استبيان بيئة العمل وأداة متطلبات السلامة القومية. **النتائج:** أظهرت النتائج أن 58.4% من الممرضين المشاركين كان لديهم تصورات متوسطة حول بيئة عملهم، بينما 42.2% كان لديهم تصورات عالية، و فقط 1.4% كان لديهم تصورات منخفضة. وبالنسبة للامتثال لمعايير السلامة القومية، فقد تبين أن 92.9% من الممرضين أظهروا امتثالاً جزئياً لمعايير السلامة، في حين أن 7.1% فقط أظهروا امتثالاً كاملاً. **الاستنتاج:** كشفت النتائج عن وجود علاقة ارتباطية موجبة ذات دلالة إحصائية عالية بين التصور الكلي لبيئة العمل من قبل الممرضين وامتثالهم لمعايير السلامة القومية. كما تبين أن العمر، سنوات الخبرة، المسمى الوظيفي، المؤهلات العلمية، والامتثال الكلي لمعايير السلامة القومية كانت جميعها من المتنبئات الإيجابية المستقلة ذات الدلالة الإحصائية للتصور الكلي لبيئة السلامة لدى رؤساء التمريض المشاركين في الدراسة. **التوصيات:** في ضوء هذه النتائج، توصي الدراسة بضرورة استكشاف الفروقات على مستوى الوحدات، وفحص التغيرات في بيئة العمل والامتثال لمتطلبات السلامة القومية بمرور الوقت، بالإضافة إلى توسيع نطاق البحث ليشمل مناطق جغرافية ومستشفيات متنوعة (حكومية/خاصة) لتعزيز إمكانية تعميم النتائج.

الكلمات المرشدة: متطلبات السلامة القومية، الممرضين، بيئة العمل.