

## Patient Safety Culture and Work Environment as Co-Factors Affecting Nurses' Attitudes Toward Incident Reporting



<sup>1</sup>Marwa Mohamed Almashad,<sup>2</sup>Ghalia Elmoghazy Elkasaby,<sup>3</sup>Ahlam Mahmoud El-Shaer,<sup>4</sup>Samir Mohamed Sally,<sup>5</sup>Awatef Hassan Kassem

<sup>1</sup>Head nurse of hemodialysis department- Day Case Surgery Hospital, Ras Elbar

<sup>2</sup>Quality Manager –Urology & Nephrology Center –Mansoura University,<sup>3</sup> Professor of Nursing Administration, Mansoura University, <sup>4</sup>Professor of Nephrology- Urology & Nephrology Center –Mansoura University,<sup>5</sup> Professor of Nursing Administration, Mansoura University

### 1- ABSTRACT

**Background:** Nurses have a vital role in safeguarding patients, minimizing the likelihood of errors, and improving patient outcomes. **Aim:** this study aimed to Investigate patient safety culture, work environment, and their effect on nurses' attitudes toward incident reporting. **Method:** A descriptive, correlational study was undertaken using a convenient sample of staff nurses at Urology and Nephrology Centre affiliated with Mansoura University. The sample size was 196. Data was obtained with the Patient Safety Culture Assessment Instrument, the Work Environment Scale, and the Attitudes towards Event Reporting Scale. **Results:** The study confirmed that a majority of staff nurses possess a high level of perception regarding patient safety culture. Additionally, more than half of them highly perceive their work environment, and more than two-thirds of staff nurses have a high level of positive attitude towards incident reporting. Consequently, highly statistically significant positive correlations were observed between patient safety culture and work environment with attitude towards incident reporting. **Conclusion:** The study found that staff nurses at Urology and Nephrology Centre had a strong patient safety culture, regarded their work environment positively, and had a highly positive attitude to report incidents. **Recommendations:** The study recommended integrating a patient safety culture into the hospital policy by allowing all hospital staff to participate in decision-making, creating a blame-free environment, implementing training programs on the significance of incident reporting for improving healthcare quality and patient safety, and teaching managers how to effectively utilize their problem-solving styles.

**Keywords:** Attitudes toward Incident Reporting, Patient Safety Culture, Work Environment.

### 2- Introduction:

In the medical field, incidents are a leading cause of death. Globally, an estimated 1 in 300 individuals suffer harm during medical treatment, while 1 in 10 patients in wealthy countries experience harm while hospitalized. These injuries can be attributed to various health errors or adverse incidents. Medical mistakes can lead to extended hospital stays, increased legal expenses, healthcare-associated infections, loss of income, disability, and additional healthcare costs. However, improving patient safety in all its forms can help prevent medical errors (Biresaw et al., 2020).

The objective of patient safety is to ensure the safety and health of patients. Ensuring patient safety has become an essential priority for healthcare facilities globally since it is crucial for maintaining the quality of care. The concept of a "culture of safety," which prioritizes patient safety and the prevention of medical errors, is constantly evolving. The patient safety culture results from attitudes, beliefs, skills, and actions that motivate management of workplace safety. Therefore, a comprehensive framework that encourages an

organized approach to avoiding and minimizing patient harm is known as patient safety culture (Organization, 2016).

Patient safety culture is derived from the collective ideas, attitudes, and conventions of groups, departments, or organizations that affect patient safety either directly or indirectly. This aims to define the essential and non-essential information for a healthcare organization and direct behaviors connected to patient safety (Cakmakci, Akah, 2011).

The work environment in healthcare facilities significantly influences patient safety and the quality of care provided. The organizational environment in healthcare establishments establishes the standard and safety of medical treatment. Additionally, the nursing staff plays a crucial role in promoting a secure and conducive atmosphere for patients. The nursing team's substantial contribution to the health environment may be attributed to their closeness to patients, which allows them to acquire knowledge concerning it (Cho et al., 2015).

Nurses' work environment and circumstances substantially influence patient safety and culture (**Chiang et al., 2017**). Because of the high workloads and low job satisfaction affect the quality of care and facilities that nurses provide, their presence in the workplace puts patients' safety at risk (**Duffield et al., 2011**).

Workplace organizational features that support or impede the practice of professional nursing are collectively referred to as the work environment. Studying work, vocations, and organizations in sociology provides the basis for understanding the concept of the work environment. The organization incorporates elements that promote professional nursing practice, including the active participation of nurses in hospital matters, the fundamental principles of excellent care, adequate staffing and resources, collaborative relationships between nurses and physicians, competent nurse managers, and support for nurse leadership (**Lee, 2018**).

Nurses' jobs have a significant influence on their working environment. Stressful work settings adversely affect nurses and patients, which might manifest in increased infection rates or patient mortality. Research has shown that a positive work environment positively impacts nurses' job satisfaction, reduces work-related stress and exhaustion, and leads to the delivery of higher-quality nursing care. According to **Kirwan, Matthews, and Scott (2013)**, nurses who see their job more favorably are more likely to report occurrences.

The frequency of incident reporting is strongly influenced by various factors related to the workplace environment and internal regulations. These factors include incident reporting procedures, systematic feedback processes for emergency response, prompt colleague support, and features of reporting systems such as e-reporting and anonymous reporting (**Gallagher & Kupas, 2012**).

A medical adverse event is an unforeseen occurrence resulting in real or potential injury to a person or property. It may be reported either orally or in written form. Individuals' attitudes about incident reporting are known as their attitudes towards it. Implementing incident reporting is one effective method for developing a program that prioritizes patient safety. This process is the first stage in improving patient safety and delivering top-notch healthcare. Healthcare facilities are responsible for reporting events (**Archer et al., 2017**).

Documenting occurrences and events reduces the likelihood of damage and future risks. Reporting occurrences in the medical industry has several benefits, including enhancing patient safety and improving the quality of service. Healthcare organizations consistently evaluate and improve their clinical procedures and other patient-related activities to promote patient safety and the quality of medical care. Consequently, the act of reporting incidents and events reduces the likelihood of them happening again and helps to identify areas that need improvement in terms of quality. Healthcare providers may mitigate the escalation of potentially hazardous circumstances by ensuring the convenient availability of data for analysis, exchange, and capture (**Kodate & Dodds, 2015**).

Employee engagement may be improved by adopting a system incentivizing personnel to discover and report patient safety hazards during healthcare incidents, such as near misses and excellent catches. In healthcare, incident reporting has many benefits that positively impact stakeholders by improving your organization's reputation. Improving the speed of incident response and reducing accident rates positively impact an organization's image, a benefit that is sometimes undervalued (**WHO, 2021**).

### 2.1. Significance of Study

The problem of patient safety is a significant concern within public health. Approximately 5% to 10% of healthcare system expenses are attributed to hazardous events and patient injuries. In addition, the increasing number of incidents presents a danger to healthcare expenses, the quality of service, and patient safety (**Hosseini et al., 2017**). Moreover, it is imperative to have a more comprehensive comprehension of the causes of the incident and the challenges associated with reporting it.

Incident reporting highlights the need to focus on safety and the work environment of nurses. An empirical investigation into the perceived safety culture within an organization, as well as the impact of the nurses' work environment on their likelihood of making errors and their willingness to report those errors, would provide nursing leaders with valuable data for prioritizing interventions aimed at enhancing patient safety (**AHRQ, 2016**).

### 2.2. Aim of the Study

The study aimed to assess patient safety culture and work environment as co-factors affecting nurses' attitudes toward incident reporting

at the Urology and Nephrology Center affiliated with Mansoura University.

### 2.3. Research Questions

Q1: What is the patient safety culture among nurses at UNC, Mansoura University?

Q2: What are the attributes of the work environment at UNC, Mansoura University?

Q3: What are the attitudes toward incident reporting among nurses at UNC, Mansoura University?

Q4: Do patient safety culture and work environment affect nurses' attitudes toward incident reporting?

## 3. Method

### 3.1. Study Design

The study used a quantitative, descriptive approach.

### 3.2. Study Setting:

The research was conducted at the Mansoura University Urology and Nephrology Centre. The center has three buildings, Building H, Building F, and the Outpatient building on Gehan Street, which provide a diverse range of specialized health services in the Delta region. The facility is equipped with state-of-the-art international technology and instrumentation and has a total bed capacity 237.

### 3.3. Study Subjects

The participants in this research were all staff nurses who were available throughout the data-collecting period, had a minimum of one year of experience, and willingly agreed to participate. The pilot study included 196 individuals and 20 nurses, covering all parts of the hospital, including the operating room, critical care units, inpatient departments, and outpatient facilities. This was conducted in the planned setting.

### 3.4. Tools of Data Collection

The data was collected by three tools:

#### Tool 1: Patient Safety Culture Scale

It was created by the **US Agency for Healthcare Research and Quality in 2016** and is used to evaluate nurses' perceptions of patient safety culture.

The tool comprises three parts:

**Part one:** The individual characteristics of the nursing staff consisted of their gender, age, marital status, education, and experience by years.

**Part Two:** This instrument has 5 subscales, totaling 42 items, distributed as follows: 18 items for the perception of patient safety culture within the work area/unit, 4 items for supervisor/manager

evaluation, 6 items for the perception of communication on patient safety, 3 items for frequency of reporting, and 11 items for hospital assessment.

The responses will be assessed using a 5-point Likert-type scale, ranging from "strongly agree" to "strongly disagree".

Positive responses were categorized as either "agree" or "strongly agree," while negative responses were categorized as either "disagree" or "strongly disagree." Additionally, responses indicating a high frequency, such as "most of the time" and "always," were considered positive, while responses indicating a low frequency, such as "never" and "rarely," were considered negative. Responses indicating a moderate frequency, such as "sometimes," were considered neutral. The Hospital Survey on Patient Safety Culture, Version 2, 2019, used these categorizations.

**Part three** consists of two distinct questions inquiring about:

- 1) The number of incidences recorded in the last 12 months varied from no response to 1-2 times, 3-5 times, or 6-10 times.
- 2) The patient safety rating may be categorized as failing, poor, acceptable, good, or exceptional.

- Scoring System based on a statistically

**cut-off point, categorized as follows:**

Poor ( $\leq 40\%$ )

Average ( $>40\%-60\%$ )

Good ( $> 60\%$ )

**(Hospital Survey on Patient Safety Culture, Version 2, 2019).**

#### Tool (11): Nurse' Work Environment Scale (NWES)

The NWES, a scale developed by **Lake (2002)**, is used to assess the work environment of nurses. It consists of a 31-item questionnaire divided into 5 subscales. The following are the categories of scale: Nurse Participation in Hospital Affairs (9 items), Nursing Foundations for Quality Care (10 items), Nurse Manager Leadership, Capacity and Support (5 items), Sufficient Staffing and Resources (4 items), and Collegial Nurse-Physician Relationship (3 items). Every response will be evaluated using a five-point Likert-type scale, ranging from "strongly agree" to "strongly disagree".

The Scoring System is based on a statistical **cut-off point, categorized as follows:**

Poor ( $<50\%$ )

Average (50%-75%)

Good (>75%)

**Tool (111): Attitudes Toward Incident Reporting Scale:**

This tool was developed by (Nichols, 1995) and aimed to assess the attitude of nurses toward incident reporting; it consists of 15 items and every response will be evaluated using a five-point Likert-type scale, ranging from "strongly agree" to "strongly disagree." The Scoring System is based on a statistical **cut-off point, categorized as follows:**

Negative ( $\leq 60\%$ )

Positive ( $>60\%$ )

**3.5. Tools Validity**

The study tools were assessed for validity by a panel of five experts from the Faculty of Nursing at Mansoura University. The experts reviewed the tools for clarity, relevance, applicability, comprehensiveness, understanding, and ease of implementation. Based on their feedback, adjustments were made to the tools. The modifications pertained to refined grammatical language and rephrasing certain sentences per the jury committee's instructions.

**3.6. Tools Reliability**

A reliability test was conducted on the study tools, specifically patient safety culture, nurse work environment, and attitudes towards the incident; Cranach's Alpha for tools (1), (2), and (3) were 0.94, 0.94, and 0.91, respectively.

**3.7. Pilot Study**

A pilot study was conducted on a subset of the study sample, consisting of 10% (20) of the staff nurses, to assess the questions' clarity and feasibility and determine the time required to complete them. Staff nurses in the pilot study were excluded from the overall sample to assess the tools' clarity, feasibility, and applicability. Necessary modifications were made based on their feedback.

**3.8. Ethical consideration:**

The research ethics committee of the faculty of nursing at Mansoura University was in the process of obtaining official approval. The study was conducted with official authorization obtained from the hospital's responsible administrator, and participation was voluntary. Data confidentiality and subject anonymity were ensured by encoding all the data. The confidentiality of the study sample was ensured. The data collected was kept confidential. The results were utilized as a

component of the essential research for future publication and education purposes.

**3.9. Field work**

During both morning and afternoon work hours, the researcher administered questionnaires and conducted interviews with study participants to collect data. The purpose of the study and the process for filling out the instrument were made clear by the researcher. Give yourself 20 minutes to do the questionnaires. The number of staff nurses' daily questionnaire sheets collected grew from seven to eight. Twice a week, the researcher went to the hospital. The four-month data gathering procedure started in early August 2021 and ended at the end of November 2021.

**3.10. Statistical Analysis**

After the data was gathered, SPSS software (Statistical Package for the Social Sciences, version 22) was used for revision, tabulation, coding, and statistical analysis. The mean and standard deviation, which are descriptive statistics, were used to analyze the quantitative variable. The percentages and frequencies of the qualitative variables were examined using descriptive statistics. To compare the two groups and determine if there were any noteworthy differences, the Chi-square test ( $X^2$ ) was also used. The means of two sets of parametric data with independent samples were compared using the T-test. The means of parametric data from more than two groups were compared using the F-value of the ANOVA test. For each variable, the Pearson correlation coefficient was calculated. Based on the p-value, the significance threshold was established; a value of less than 0.05 was deemed statistically significant, and a value of less than or equal to 0.001 was deemed highly significant (Agregti, 2018).

**4. Results**

**Table 1** reveals that 38.8% were in the 20–30 years category of age, the majority were married (75.0%), and the majority were female (93.9%). Of them, 38.8% had a nursing diploma and were employed as staff nurses. Lastly, among staff nurses, 62.8% had more than ten years of experience.

**Table 2** showed that a high percent (81.6%) of staff nurses had a positive perception for their Supervisor/Manager followed by (77%) for Communication domain and (70.9%) for Frequency of reporting, while the lowest percent (52.6%) for their hospital.

**Table 3** represents good level of staff nurse's perception for most patient safety culture

domains (communication, their supervisor/manager & work area/unit) with percent (90.8, 89.8, 88.3 respectively). While low percent of good level of staff nurse's perception were 46.4 for their hospital domain.

**Table 4** showed that Nursing foundations for quality of care had high mean score ( $38.85 \pm 4.27$ ) of staff nurse's perception and Collegial nurse-physician relations had low mean score ( $12.63 \pm 2.26$ ) among studied staff nurses. overall work environment had mean score of  $118.52 \pm 12.46$ .

**Table 5** and **Figure1** showed that (96.9%) of studied sample had positive attitude toward incident reporting and (3.1%) had negative attitude toward incident reporting.

According to **Table 6**, there was a significant relationship between Levels of patient safety culture and Levels of attitudes toward incident reporting of the studied nurses at ( $p < 0.01$ ), (66.7%) of negative attitudes toward incident reporting had average levels of patient safety culture, while (94.2%) of positive attitudes toward incident reporting had good Levels of patient safety culture.

According to **Table 7**, there was a significant relationship between Levels of work environment perception and Levels of attitudes toward incident reporting of the studied nurses, (37.4%) of positive attitudes toward incident reporting had average Levels of work environment perception, also (62.6%) of positive attitudes toward incident reporting had good levels of work environment perception.

**Table 8** shows all patient safety culture dimensions and work environment domains with attitudes towards incident reporting have statistically significant relationships ( $p \leq 0.01$ ), with the exception of the hospital domain and staffing and resource sufficiency.

**Figure 2** shows that attitudes towards incident reporting as perceived by nurses and patient safety culture had a statistically significant beneficial correlation.

**Figure 3** shows that attitudes towards incident reporting as perceived by nurses and the work environment had a statistically significant positive correlation.

**Figure 4** shows that the work environment perceived by nurses and patient safety culture had a statistically significant positive correlation.

**Table (1).** The Sociodemographic Characteristics of the Studied Nurses at UNC at Mansoura University Hospitals (n=196).

Characteristics	n	%
Age years:		
20-30	76	38.8
31-40	64	32.7
> 40	56	28.6
Mean $\pm$ SD	35.86 $\pm$ 10.33	
Gender		
Male	12	6.1
Female	184	93.9
Marital status		
Single	37	18.9
Married	147	75.0
Divorced	6	3.1
Widowed	6	3.1
Level of education		
Diploma	76	38.8
Technical	75	38.3
Bachelor	45	23.0
Experience years:		
Less than 1 yr	2	1.0
1-5 yrs	39	19.9
6-10 yrs	32	16.3
More than 10 yrs	123	62.8
Mean $\pm$ SD	16.05 $\pm$ 11.15	

**Table (2).** Nurses' Perception of Patient Safety Culture Domains at UNC, Mansoura University Hospitals (n=196).

Patient safety culture domains	Negative		Neutral		Positive	
	n	%	n	%	n	%
Work area / unit	37	18.9	41	20.9	118	60.2
Supervisor / Manager	11	5.6	25	12.8	160	81.6
Communication	14	7.1	31	15.8	151	77.0
Frequency of reporting	25	12.8	32	16.3	139	70.9
Hospital	66	33.7	27	13.8	103	52.6
Overall patient safety culture	31	15.8	31	15.8	134	68.4

**Table (3).** Levels of nurses' perception of patient safety culture at UNC at Mansoura University hospitals (N=196).

Patient safety culture Domains	Levels of patient safety culture	Score	n	%
A. Work area/unit	Poor ( $\leq 40\%$ )	18-36	0	0.0
	Average ( $>40\%-60\%$ )	37-54	23	11.7
	Good ( $> 60\%$ )	55-90	173	88.3
B. Supervisor/manager	Poor ( $\leq 40\%$ )	4-8	0	0.0
	Average ( $>40\%-60\%$ )	9-12	20	10.2
	Good ( $> 60\%$ )	13-20	176	89.8
C. Communication	Poor ( $\leq 40\%$ )	6-12	0	0.0
	Average ( $>40\%-60\%$ )	13-18	18	9.2
	Good ( $> 60\%$ )	19-30	178	90.8
D. Frequency of reporting	Poor ( $\leq 40\%$ )	3-6	0	0.0
	Average ( $>40\%-60\%$ )	7-9	50	25.5
	Good ( $> 60\%$ )	10-15	146	74.5
E. Hospital	Poor ( $\leq 40\%$ )	11-22	12	6.1
	Average ( $>40\%-60\%$ )	23-33	93	47.4
	Good ( $> 60\%$ )	34-55	91	46.4

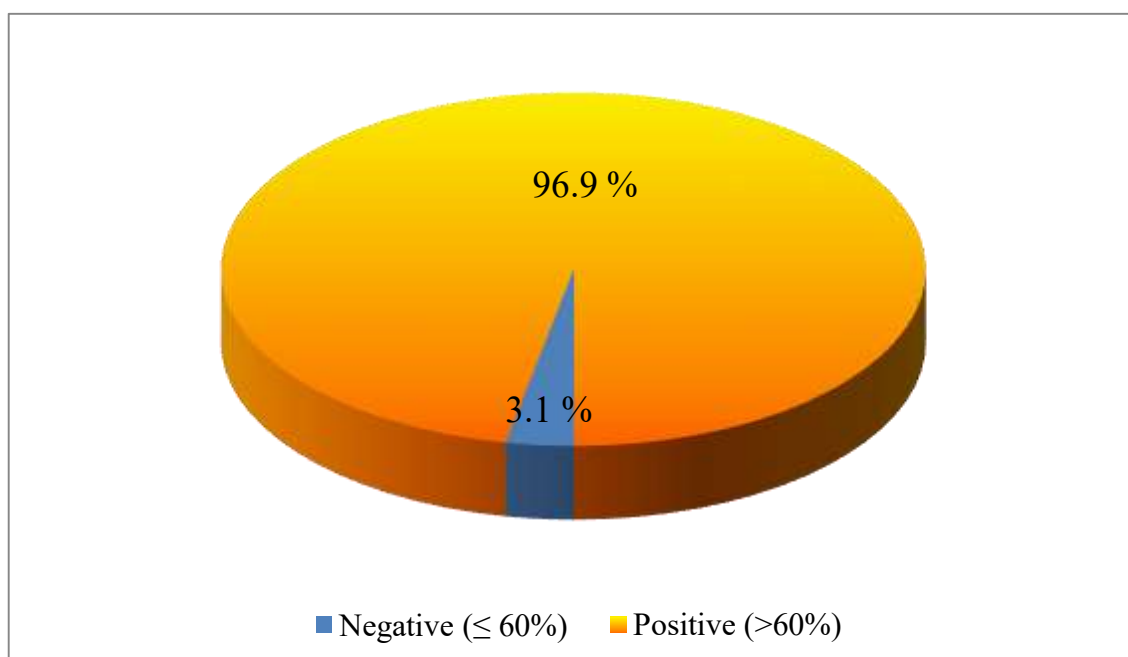
Note: Cutoff point based on scoring system

**Table (4).** Mean Scores of Nurses' Perception of Nursing Work Environment at UNC at Mansoura University Hospitals (n=196).

Work environment subscales	No of items	Min - Max	Mean $\pm$ SD
Staffing and resource adequacy	4	4.0-19.0	13.15 $\pm$ 2.07
Collegial nurse-physician relations	3	3.0-15.0	12.63 $\pm$ 2.26
Nurse manager ability, leadership, and support of nurses	5	13.0-25.0	18.91 $\pm$ 2.66
Nursing foundations for quality of care	10	28.0-50.0	38.85 $\pm$ 4.27
Nurse participation in hospital affairs	9	20.0-45.0	34.97 $\pm$ 4.63
Overall work environment	31	81.0-153.0	118.52 $\pm$ 12.46

**Table (5).** Levels of Nurses' Attitudes Toward Incident Reporting at UNC at Mansoura University Hospitals (n=196).

Levels of attitude	Score	n	%
▪ Negative ( $\leq 60\%$ )	15-45	6	3.1
▪ Positive ( $>60\%$ )	46-75	190	96.9



**Figure (1).** Levels of Nurses' Attitude Toward Incident Reporting

**Table (6).** Relationship Between Patient Safety Culture Levels and Attitudes Levels Toward Incident Reporting of the Studied Nurses at UNC, Mansoura University Hospitals (n=196).

Levels of attitudes toward incident reporting	Levels of patient safety culture				$\chi^2 / p\text{-value}$
	Average		Good		
	n	%	n	%	
Negative	4	66.7	2	33.3	30.50 /0.000**
Positive	11	5.8	179	94.2	

\*\* Highly statistically significant ( $p < 0.01$ )

**Table (7).** Relationship Between Nurses' Perception Levels Regarding Their Work Environment and Attitudes Toward Incident Reporting at UNC at Mansoura University Hospitals (n=196).

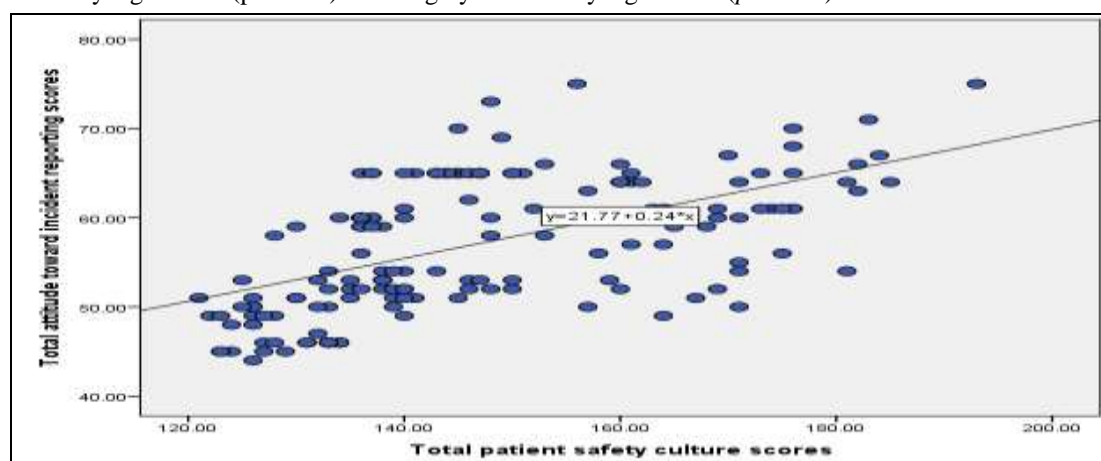
Incident Reporting at ERCA at Mansoura University Hospitals (n=196).					
Levels of attitudes toward incident reporting	Levels of work environment perception				$\chi^2$ / p-value
	Average		Good		
	n	%	n	%	
Negative	6	100.0	0	0.0	9.57 / 0.002**
Positive	71	37.4	119	62.6	

\*\* Highly statistically significant ( $p < 0.01$ )

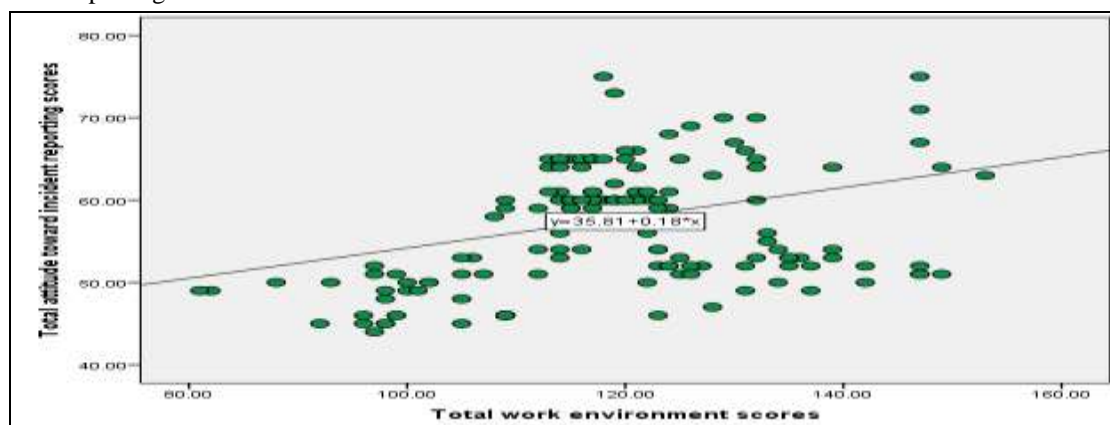
**Table (8).** Correlation of Nurses' Perception of Patient Safety Culture, Work Environment and Their Attitudes Toward Incident Reporting at UNC at Mansoura University Hospitals (n=196).

Patient Safety Culture Domains	Attitudes toward incident reporting	
	r	p
1. Work area / unit	0.77	0.000**
2. Supervisor / Manager	0.54	0.000**
3. Communication	0.54	0.000**
4. Frequency of reporting	0.28	0.000**
5-Hospital	0.09	0.17
Overall patient safety culture	0.57	0.000**
Work environment domains		
1. Staffing and resource adequacy	0.13	0.07
2. Collegial nurse-physician relations	0.61	0.000**
3. Nurse manager ability, leadership, and support of nurses	0.14	0.04*
4. Nursing foundations for quality of care	0.20	0.005**
5. Nurse participation in hospital affairs	0.38	0.000**
Overall nursing practice environment	0.33	0.000**

\* Statistically significant ( $p < 0.05$ ) / \*\* Highly statistically significant ( $p < 0.01$ )

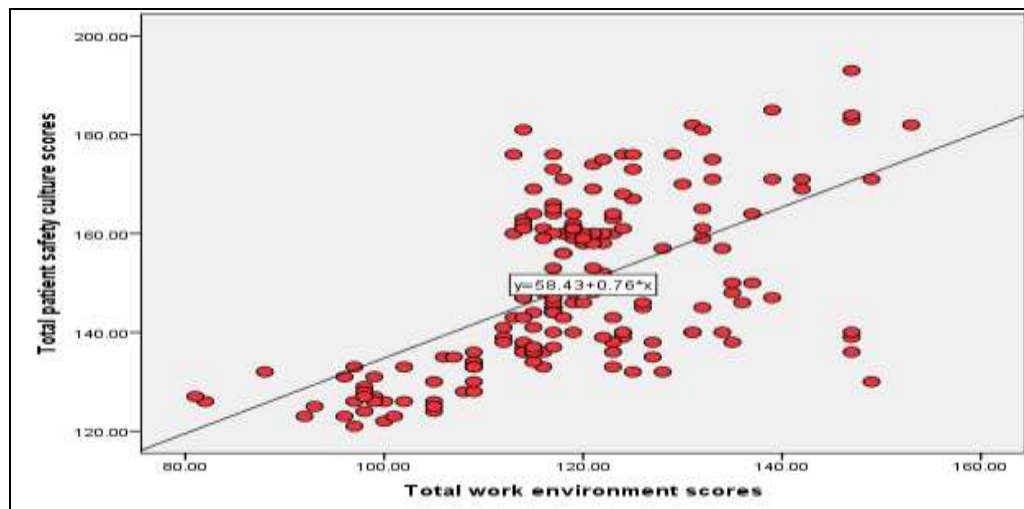


**Figure (2).** Correlation Between Nurses' Perception of Patient Safety Culture, and Their Attitude Toward Incident Reporting



**Figure (3).** Correlation Between Nurses' Perception of Work Environment and Their Attitude Toward Incident Reporting





**Figure (4).** Correlation Between Nurses' Perception of Patient Safety Culture, and Work Environment.

## 5- Discussion

Keeping patients safe is essential to providing high-quality healthcare. An organization may get a thorough grasp of managers' and staff's attitudes and beliefs about patient safety via a safety culture evaluation. Moreover, the objective is to improve performance rather than assess people.

This research examined how the work environment and patient safety culture at the Urology and Nephrology Centre, Mansoura University, affected nurses' perceptions about reporting incidents. Because of their continual education and training in safety measures, the research indicated that nurses had a positive attitude towards patient safety culture. Through the staff development department, this included instruction in infection control practices, cardio-pulmonary resuscitation, and effective communication. Furthermore, nurses were assisted in coordinating, cooperating, and teaming up with one another inside and across hospitals.

The results showed that the Communication domain was the second domain with the highest average percentage, after the Supervisor/Manager domain. This may be explained by the hospital's robust patient safety culture, which was mostly created by the hospital's executives and is a sign of efficient organization. By encouraging high integration and bringing values and beliefs into alignment, a strong organizational culture strengthens group cohesion. This makes it possible to handle external modifications and internal integration issues in an efficient manner. Supervisors and nurse managers provide support to their staff by letting them voice concerns about patient safety, encouraging them to provide solutions, and including them in decision-making processes related to safety. Prioritizing patient

safety is done, and based on reported incidents, feedback is given on modifications that have been put into place. Adherence to established patient safety protocols is also recognized. Building strong relationships among nurses, encouraging good communication between nurses and their supervisors, fostering teamwork among nurses within hospital units, and supporting ongoing learning and development through participation in training programs are all important components of effective communication in the nursing profession.

Nurses' assessments of their organizations' and units' capacity to provide safe patient care have an impact on the patient safety decisions made by nurse leaders. This may be related to staff nurses' efficient exchange of patient information between shifts or while moving patients between hospital units, as well as teams' cooperation within and across hospital departments. As a result, it was thought to be a power source.

The results were in line with research conducted by **Ali et al. (2022)**, to evaluate the patient safety culture of the personnel at the University Hospital for Gynecology and Obstetrics in Alexandria, Egypt. According to the survey, the domain with the highest average percentage was the Supervisor/Manager domain, followed by the Communication domain. This may be explained by the management's encouragement of the employees and the efficient communication that takes place throughout the organizational structure. The existence of the organization depends on nurses adopting humanistic-encouraging attitudes and associate standards, which are motivated by these causes. Additionally, this research was supported by **Abd Elaliem and Alsenany (2022)** who investigated the factors influencing patient safety

culture from nurses' perspectives for sustainable nursing practice. The study conducted by **Ha et al. (2022)** on Nurses' perceptions of patient safety culture in a public hospital in Vietnam supports this finding. In their literature review, **Lee and Quinn (2020)** found that aspects of safety culture, including feedback and communication, frequency of event reporting, teamwork within units, and managers' support for patient safety, were strongly associated with patient safety outcomes in East Asia. **Ammouri, Tailakh, Muliira, Geethakrishnan, and Al Kindi (2015)** corroborated the findings of this study regarding the patient safety culture among nurses in Oman.

This finding contradicted the study conducted by **Ayisa, Getahun, and Yesuf (2021)** on Patient Safety Culture and Associated Factors Among healthcare providers at the University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia. The element exhibiting the most elevated mean percentage of affirmative feedback was collaboration within the unit. Feedback and communication about the error had the highest potential for improvement and the lowest average percentage of positive responses.

**Hadad, Abd Elrhmaan, Ahmad, and Ali (2021)** conducted a study at Minia General Hospital to assess staff nurses' perceptions of patient safety culture. Their findings indicate that staff nurses have a low score in perceiving high responses from supervisor/manager expectations and actions in promoting patient safety.

According to the present research, the majority of staff nurses had a positive view of the patient safety culture, probably as a result of the provision of safe patient care and the decrease in patient complaints in their work units. No serious errors have happened or been documented, thanks to the efficient system that the hospital administration maintains. The results are consistent with those published by **Wu et al. (2022)** and **Alsabri et al. (2022)**, who noted that the healthcare organizations in issue showed a more noteworthy general view of patient safety culture. The findings of **Araujo et al. (2022)** and **Olsen and Leonardsen (2021)**, on the other hand, contradicted this result. They reported that the general perception of patient safety had a moderate percentage and identified it as an area requiring improvement due to hospital management, which gives patient safety issues some degree of priority. Moreover, it was at odds with the results of research by **Hadad, Abd Elrhmaan, Ahmad, and Ali (2021)** on staff nurses' opinions of Minia

General Hospital's patient safety culture, which showed an average level of perception.

Regarding the nurse work environment, most staff nurses agreed and strongly agreed with nursing foundations for quality of care and collegial nurse-physician relations as essential elements of a favorable nursing work environment, ranking them as the highest.

This may indicate that nurses and physicians at the Urology and Nephrology Center collaborated with mutual respect and trust and collaborated to benefit their patients. Most registered nurses have technical and bachelor's degrees in nursing and have the experience to communicate effectively with other healthcare providers.

Moreover, nurses working for a long time with other healthcare providers enhanced their social relations, which is reflected in their harmony and cooperation. This may also be attributed to effective patient care strategy, planning, and suitable quality assurance processes. Furthermore, this result may be because nurses who work in university hospitals are responsible for teaching nursing students and ensuring a good practice environment. So, they are more likely to be more familiar with 'nursing foundations' chiefly in establishing nursing diagnoses, maintaining up-to-date nursing care plans, and being able to implement nursing care focused on nursing theories. This finding corresponded with a study conducted in Egypt by **(Ibrahim et al., 2019)**, who examined the effect of professional NWE and psychological empowerment on nurses' readiness for change and discovered that the collegial relationship between nurses and doctors was the highest perceived domain among all domains of NWE followed by the nursing foundation for quality of care.

Another similar study conducted in Saudi Arabia (**Ambani, 2017**) analyzed the nursing work environment and job outcomes in Saudi Arabia. It revealed that collegial nurse-physician relations and the foundations for quality of care were the highest-ranked subscales in public and teaching hospitals. The results from the public hospital showed that the collegial nurse-physician relations subscale was the most significant, followed by foundations for quality of care. At the same time, the ranking was inverted in the teaching hospital.

Moreover, it was parallel to a study conducted by **(Cengiz et al., 2021)** about perioperative nurses' perceptions of their nursing work environments. It detected that the study sample had the most perceived collegial nurse-physician relationship.

On the contrary, this finding disagreed with (**Kim & Fairchild, 2009**), who examined the NWE and nurse-perceived quality of geriatric care in hospitals and revealed that the collegial nurse-physician relationship was found to be the highest domain that nurses disagreed with. In addition, it was mismatched with a study conducted by (**Gasparino et al., 2020**), who assessed the validation of the practice environment scale among nursing technicians and aides and found that the nurses and doctor relationship needed solutions to improve communication and collaboration between them, as it was the lowest domain to be perceived by technicians and aides. The current study revealed that most staff nurses disagreed and strongly disagreed with nurse managers' ability, leadership, and support of nurses as characteristics of the nurse work environment. In addition, they ranked as the lowest. This may be due to less opportunity for the staff nurses to share in hospital decision-making, policy decisions, nursing committees, inadequate opportunities for advancement for staff nurses, and dissatisfaction regarding management's responsiveness to nurse concerns. Also, nurse managers may not be evident and accessible to their staff when they need their consultation on daily problems and when they need to provide them with immediate feedback, positive reinforcement, and recognition.

This finding was identical to a study conducted by (**Gasparino et al., 2019**), who tested the evaluation of the professional work environment of nursing in health institutions and revealed that the participation of nurses in hospital affairs obtained the most unfavorable evaluation in the participants' perception. Furthermore, this was conformable with a study performed by (**Cengiz et al., 2021**) about perioperative nurses' perceptions of their nursing work environments, which detected that the level of involvement of nurses in hospital policy decisions was the most undesirable characteristic of NWE.

Again, this result was parallel to a study carried out by Brown (2016) about the relationship between nurses' perception of the practice environment and patients' satisfaction, which established that nurse manager ability, leadership, and support of nurses as a subscale of NWE are less perceived than the other three subscales.

In contrast, a study by **Mouro, Tashjian, Bachir, Al-Ruzzeih, and Hess (2013)** contradicted this finding. The study compared nurses' perceptions of governance in hospitals striving for excellence in the Middle East and found that nurses at magnet-eligible hospitals believed that decision-making is

shared between nursing administration and staff nurses. Nurses in these facilities expressed satisfaction with their involvement in every facet of the nursing profession. Furthermore, there was a dissenting opinion regarding the study conducted by (**Dordunoo et al., 2021**), which examined the influence of the work environment and resilience on burnout among clinical nurses. The study found that the nurses' perception of their work environment was primarily influenced by their nurse managers' competence, leadership, and support.

Regarding nurses' attitudes towards incident reporting

The current study revealed that most of the sample population exhibited favorable attitudes toward incident reporting. They acknowledged the importance of reporting all incidents to enhance patient safety by implementing necessary changes based on the reported incidents. This can be attributed to the presence of a robust patient safety culture that prioritizes the provision of secure healthcare services. An influential patient safety culture will influence initiatives aimed at promoting patient safety. The cultivation of genuineness and the capacity to articulate what transpired are highly advantageous in ensuring patient safety. Colleagues trust each other to document incidents and create a blame-free environment. They provide feedback on changes made as a result of reported errors. This can be attributed to the robust organizational support that ensures the well-being of their nurses by providing a secure and suitable work environment, assisting them in addressing their concerns, and facilitating decision-making. Therefore, nurses approach their job with dedication, intense emotion, and a strong sense of keenness and superiority.

This study corroborated the findings of **Oweidat, Al-Mugheed, Alsenany, Abdelallem, and Alzoubi (2023)** regarding the awareness of reporting practices and barriers to incident reporting among nurses in Jordan. The study revealed that nurses exhibited high awareness regarding incident reporting. The findings were consistent with Chen et al. (2017), who discovered that nurses positively perceived incident reporting practices. **Zhao, Shi, and Zhao (2022)** conducted a cross-sectional survey in tertiary hospitals in China to evaluate nurses' intentions, awareness, and barriers to reporting adverse events. Their findings align with the results of this study.

The findings align with **Abu Al Rub et al. (2015)** results, who indicated that most of the surveyed nurses were aware of an incident reporting system

in their healthcare institutions. Furthermore, it aligns with the findings of **Farzi, Irajpour, Saghaei, and Ravaghi (2017)**, who examined the causes of medication errors in intensive care units from the viewpoint of healthcare professionals. Their study revealed that approximately two-thirds of staff nurses had previously completed an incident report. Nevertheless, the present study's findings partially align with **Agegnehu et al., (2017)** research, which examined incident reporting behaviors and related factors among healthcare professionals in public hospitals in Addis Ababa, Ethiopia. **Agegnehu et al., (2017)** discovered that most healthcare professionals surveyed had previously completed an incident report. This study aligns with **Al Ratrouf's (2023)** research on the Patient Safety Incident Reporting System perception among healthcare workers in Palestinian Government Hospitals.

A separate investigation conducted by **Ebrahim and Ismail (2021)** examined the inclination of nurses to report near-miss incidents and their perception of the safety culture among patients at Beni Suef University Hospital and Beni-Suef Chest Hospital. The findings of this study indicate a moderately favorable attitude toward incident reporting. **Braithwaite, Westbrook, and Travaglia (2008)** conducted a study on "Attitudes toward the Large-Scale Implementation of an Incident Reporting System." I concur with this study's findings, which indicate that the studied nurses did not exhibit positive attitudes toward incident reporting.

**Evans et al. (2006)** conducted a study on attitudes and barriers to hospital incident reporting. The study revealed that most nurses were aware of an incident reporting system in their hospital. Nurses were more likely than doctors to possess the knowledge and skills required to access, complete, and effectively utilize a report. Staff were more inclined to report incidents that were frequently reported, commonly observed, and typically associated with immediate consequences, such as patient falls and medication errors that necessitate corrective measures.

The study conducted by **Kusumawati et al. (2019)** in Indonesia examined the relationship between patient safety culture and nurses' attitudes towards incident reporting. The findings revealed that the nurses involved in the study exhibited a favorable attitude towards incident reporting. In contrast to **Engeda's (2016)** study on "Incident Reporting Behaviors and Associated Factors among Nurses Working in Gondar University Comprehensive Specialized Hospital, Northwest Ethiopia," the

findings revealed that nurses exhibited a significantly low positive attitude towards incident reporting. **Pramesona et al. (2023)** conducted a qualitative study on the factors contributing to the low reporting of patient safety incidents among Indonesian nurses. However, their findings contradicted our results.

In contrast to our study, **Rashed and Hamdan (2019)** found that Physicians and Nurses in Palestinian hospitals have differing perceptions and attitudes towards incident reporting. However, both studies agree that Clinicians acknowledge the significance of reporting incidents. Our research found inadequate reporting methods and a punishing culture are the primary barriers. It is important to enhance reporting, refine comments on mistakes that have been reported, streamline processes, provide precise guidelines on what and to whom to report, refrain from placing blame.

Furthermore, healthcare organizations must carefully consider the viewpoints of clinicians when designing reporting systems. According to **Lee (2017)**, nurses in South Korean hospitals had a generally negative attitude towards incident reporting when it came to reporting medication administration errors.

#### **Concerning the correlation among study variables as perceived by staff nurses**

Considering nurses' attitudes towards incident reporting, the study found a substantial and statistically significant positive association between the nurse work environment and patient safety culture. Developing a culture of patient safety encourages nurses to perform better by upholding principles that advance patient safety. Error reporting and the degree of patient safety culture are positively and strongly correlated. The patient safety culture is critical in influencing nurses' perspectives on incident reporting. Thus, encouraging a culture of patient safety may improve nurses' attitudes toward incident reporting. Strong leadership commitment to patient safety, better staffing levels for nurses, thorough training on incident reporting systems, regular communication of incident analysis results, protection of confidentiality and appreciation for nurses reporting incidents, and encouragement of a supportive environment among nurses are all necessary to improve the culture of patient safety and cultivate positive attitudes among nurses towards incident reporting.

This result is consistent with studies by **Yoo and Kim (2017)** that looked at attitudes towards

incident reporting about the work environment for nurses and patient safety culture. The research verified a robust positive association among attitudes about incident reporting, nurse work environment, and patient safety culture. The association between Indonesian nurses' attitudes towards incident reporting and patient safety culture was also investigated by **Kusumawati (2019)**. The data verified a strong and substantial association between these two variables.

Furthermore, research on the attitudes of physicians and nurses towards patient safety in the emergency rooms of two Saudi Arabian hospitals was carried out by **Alzahrani, Jones, and Abdel-Latif (2018)**. There is a positive correlation between the work environment and patient safety culture and attitudes around reporting incidents.

**Ebrahim and Ismail's (2021)** study examined the connection between nurses' perceptions of patient safety culture and their readiness to report near-misses. These two parameters showed a strong positive linear correlation.

A study on patient safety culture by **Kaya & Sidika et al. (2023)** found a positive relationship between incident reporting, patient safety grade, and the results of patient safety culture. According to a study by **Faridah, Setyowati, Lestari, and Hariyati (2021)**, which explored the relation between the work environment and patient safety in a general hospital in Indonesia, there is, however, a negative relationship between patient safety culture scores and the incidence of errors.

**Kwon et al. (2017)** investigated the impact of nurses' willingness to disclose near misses on their perceptions of patient safety culture in general hospitals using descriptive cross-sectional research performed in South Korea. Being willing to disclose near misses was significantly positively correlated with the perception of a patient safety culture, according to the research analysis. Nurses showed a moderate level of willingness to report near misses, according to a recent cross-sectional descriptive study by **Yang and Liu (2021)** titled "The effect of patient safety culture on nurses' near miss reporting intention: the moderating role of perceived severity of near misses".

Furthermore, **Kim et al.'s (2018)** study found that there aren't many documented near-misses, and that this has to be improved. According to research by **Rutledge et al. (2018)** titled "Barriers to medication error reporting among hospital nurses," healthcare professionals often take a passive approach when it comes to reporting medication

errors. According to **Chen et al. (2018)**, nurses had a significant inclination to report health-related occurrences. This difference may vary depending on the type of event, the workplace culture, the rules and regulations, and the professional environment.

These findings are consistent with the research done by **Verbakel et al., (2015)**, which investigated how patient safety culture changes affected general practice incident reporting. The research showed that attitudes towards incident reporting and patient safety culture were positively correlated.

Furthermore, **Patmawati et al., (2022)**, in their assessment of nurses' attitudes and communication regarding incident reporting in the context of patient safety culture at Ende Regional General Hospital, corroborated the findings of this study.

No studies contradict this study's findings. This indicates that the patient safety culture and nurse work environment significantly impact nurses' attitudes toward incident reporting.

## 6. Conclusion

According to the study's findings, the staff nurses at the Urology and Nephrology Centre in the hospitals affiliated with Mansoura University demonstrated a positive attitude towards reporting incidents, a strong awareness of patient safety culture, and a positive perception of their work environment. The work environment for nurses and the culture around patient safety have an influence on the attitudes of nurses about incident reporting.

## 7. Recommendations

In light of the results, it is recommended that decision-makers, hospital management, and nurse executives execute a thorough system intervention that tackles several facets of patient safety culture. To improve patient safety and foster a culture of non-blame, engagement in this intervention should come from all organizational levels.

For the Hospital Administrator

- Involving cultivating leadership skills that support open communication, a culture free from blame, cooperative cooperation, and continuous organizational learning.

- Focus on learning and continuous improvement, support from hospital management, explicit expectations from supervisors and managers, efficient feedback and communication regarding errors, teamwork, and seamless handoffs and transitions within the hospital are just a few of the critical factors that the study identified as having a significant impact on patient safety culture.

- Establishing a transparent system for communication and feedback regarding errors is crucial to preventing their recurrence and mitigating negative consequences for patients, nurses, and healthcare organizations.

- To create a safe and secure work environment, nurse managers must continuously oversee and evaluate the various elements of patient safety culture among nurses.

For Head Nurses

- To prevent the omission of nursing care and enhance patient safety, nurse managers must maintain an adequate work environment with adequate staffing, resources, and teamwork.

- Incorporate patient safety education and incident reporting into staff training to increase nurses' awareness of the significance of reporting incidents, which will significantly improve.

Implication for Further Research

- Subsequent research on patient safety reporting systems might benefit the academic community significantly.

□Further investigations might improve the relevance of this study in practice.

- The present study and its conclusions are considered a basic academic contribution that kick starts the development and progress of this specific field of study. Furthermore, it stresses the relevance of reporting systems and their shortcomings.

## 8. References

- Abualrub, R. F., Al-Akour, N. A., Alatari, N. H. (2015).** Perceptions of reporting practices and barriers to reporting incidents among registered nurses and physicians in accredited and non-accredited Jordanian hospitals.
- Agegnehu, W., Alemu, A., Ololo, S., & Melese, D. (2019).** Incident reporting behaviors and associated factors among health care professionals working in public hospitals in Addis Ababa, Ethiopia
- Agresti, A. (2018).** An Introduction to Categorical Data Analysis. John Wiley & Sons, 3rdEdition
- Ahmed Mohamed Ebrahim, S., & Ali Mohamed Ismail, S. (2021).** Nurses' Willingness to Report Near-Miss and Their Perception of Patients' Safety Culture. *Egyptian Journal of Health Care*.

**AHRQ Hospital Survey on Patient Safety Culture: User's Guide. (2016).** Agency for Healthcare Research and Quality. Language. Inter-professional Learning Coordinator. Canberra: A.C.T. Health, Rockville, MD (2016), 1-7.

**Alsabri M., Boudi Z., Lauque D., Dias R.D., Whelan J.S., Östlundh L., & Bellou A. (2022)** Impact of teamwork and communication training interventions on safety culture and patient safety in emergency departments.

**Alzahrani N, Jones R, & Abdel-Latif, M. E. (2018).** Attitudes of doctors and nurses toward patient safety within emergency departments of two Saudi Arabian hospitals.

**Ambani, Z. A. (2017).** The nursing practice environment and job outcomes in Saudi Hospitals.

**Anastasia Sari Kusumawati, Hanny Handiyani, Shanti Farida Rachmi. (2019).** Patient safety culture and nurses' attitude on incident reporting in Indonesia, *Enfermería Clínica*, 29, Supplement 2, 2019, 47-52, ISSN 1130-8621,

**Araújo, G.L.; Amorim, F.F.; de Miranda, R.C.P.S.; Amorim, F.F.P.; Santana, L.A.; Göttems, L.B.D. (2022).** Patient safety culture in primary health care: Medical office survey on patient safety culture in a Brazilian family health strategy setting.

**Archer, S., Hull, L., Soukup, T., Mayer, E., Athanasiou, T., Sevdalis, N., & Darzi, A. (2017).** Development of a theoretical framework of factors affecting patient safety incident reporting: a theoretical review of the literature. *BMJ open*, 7(12), e017155.

**Biresaw, H., Asfaw, N., & Zewdu, F. (2020).** Knowledge and attitude of nurses towards patient safety and its associated factors. *International Journal of Africa Nursing Sciences*, 13, 100229.

**Braithwaite, j., Westbrook, m., & Travaglia, j. (2008).** Attitudes toward the large-scale implementation of an incident reporting system. *International Journal for Quality in Health Care*, 20(3), 184–191.

**Brown, S. (2016).** The relationship between the nurses' perception of the practice environment and patients' satisfaction. Gardner-Webb University.

**Cakmakcı M, Akalın HE. (2011).** Patient safety in Turkey. In: Cakmakcı M, Akalın HE eds.

- Patient security: Turkey and the world. Ankara: Füsün Sayek Turkish Medical Association Reports/Books,11–26 (in Turkish)
- Cengiz, A., Yoder, L. H., & Danesh, V. (2021).** Perioperative nurses' perceptions of their nursing practice environments.
- Chen LC, Wang LH, Redley B, Hsieh YH, Chu TL, & Han CY. (2017).** A study on the reporting intention of medical incidents: a nursing perspective.
- Chen, L. C., Wang, L. H., Redley, B., Hsieh, Y. H., Chu, T. L., Han, C. Y. (2018)** A Study on the Reporting Intention of Medical Incidents: A Nursing Perspective. *Clin Nurs Res.* 2018
- Chiang, H.-Y., Hsiao, Y.-C., Lin, S.-Y., & Lee, H.-F. (2011).** Incident reporting culture: scale development with validation and reliability and assessment of hospital nurses in Taiwan. *International Journal for Quality in Health Care*, 23(4), 429-436
- Dordunoo, D., An, M., Chu, M. S., Yeun, E. J., Hwang, Y. Y., Kim, M., & Lee, Y. (2021).** The impact of practice environment and resilience on burnout among clinical nurses in a tertiary hospital setting. *International Journal of Environmental Research and Public Health*, 18(5), 2500.
- Duffield C, Diers D, O'Brien-Pallas L, Aisbett C, Roche M, & King M. (2011).** Nursing staffing, nursing workload, the work environment and patient outcomes. *Appl Nurs Res.*, 24(4), 244–55.
- Engeda E. (2016).** Incident Reporting Behaviours and Associated Factors among Nurses Working in Gondar University Comprehensive Specialized Hospital, Northwest Ethiopia.
- Evans, S. M., Berry, J. G., Smith, B. J., Esterman, A., Selim, P., O'Shaughnessy, J., & DeWit, M. (2006).** Attitudes and barriers to incident reporting: a collaborative hospital study.
- F Hosseini, M Kazemi, & A Akbari . (2017).** The Role of General Health in the Occurrence of Nursing Errors, among the Nurses in Rafsanjan University of Medical Sciences.
- Farzi, S., Irajpour, A., Saghaei, M., Ravaghi, H. (2017).** Causes of Medication Errors in Intensive Care Units from the Perspective of Healthcare Professionals.
- Gallagher, J. M., & Kupas, D. F. (2012).** Experience with an anonymous web-based state EMS safety incident reporting system. *Prehospital emergency care*, 16(1), 36-42.
- Gasparino, R. C., Ferreira, T. D. M., Carvalho, K. M. A. D., Rodrigues, E. S. A., Tondo, J. C. A., & Silva, V. A.** Evaluation of the professional practice environment of nursing in health institutions.
- Gasparino, R. C., Martins, M. C. P., Alves, D. F. D. S., & Ferreira, T. D. M. (2020).** Validation of the practice environment scale among nursing technicians and aides.
- Hospital Survey on Patient Safety Culture, Version 2. (2019).**
- Ibrahim, S. E., Elsayed, S. H., & Metwally, F. G. (2019).** Effect of professional nursing practice environment and psychological empowerment on nurses' readiness for change. *Zagazig Nursing Journal*, 15(2), 168-188.
- Kaya, S., Banaz Goncuoglu, M., Mete, B., Asilkan, Z., Mete, A. H., Akturan, S., Tuncer, N., Yukselir Alasirt, F., Toka, O., Gunes, T., Gumus, R. (2023).** Patient Safety Culture: Effects on Errors, Incident Reporting, and Patient Safety Grade. *J Patient Saf*, 19(7), 439-446.
- Kim, H., Capezuti, E., Boltz, M., & Fairchild, S. (2009).** The nursing practice environment and nurse-perceived quality of geriatric care in hospitals. *Western Journal of Nursing Research*, 31(4), 480-495.
- Kusumawati, A. S. (2019).** "Patient safety culture and nurses' attitude on incident reporting in Indonesia. *Enfermeria Clinica* 29, 47-52.
- Lee, E. (2017).** Reporting of medication administration errors by nurses in South Korean hospitals.
- Lee, E. J. (2018).** Effects of emotional intelligence and convergent nurses' work environment on nursing performance among clinical nurses as career-beginners. *Journal of Digital Convergence*, 16(5), 351-359.
- Marcia Kirwan, Anne Matthews, P. & Anne Scott. (2013).** The impact of the work environment of nurses on patient safety outcomes: A multi-level modelling approach. *International Journal of Nursing Studies*,50(2), 253-263,

- Mouro, G., Tashjian, H., Bachir, R., Al-Ruzzeih, M., & Hess, R. (2013). Comparing nurses' perceptions of governance related to hospitals' journeys to excellence status in the Middle East.
- N. Kodate, A. & Dodds. (2015). Factors affecting willingness to report patient safety incidents in hospitals. King's Patient Safety and Service Quality Research Centre and National Institute for Health Research
- N.J. Verbakel, M. Langelaan, T.J. Verheij, C. Wagner, D.L. & Zwart. (2015). Effects of patient safety culture interventions on incident reporting in general practice: a cluster randomised trial. *Br J Gen Pract*, 65 (2015), pp. 319-329
- Olsen, E. & Leonardsen, A.C.L. (2021). Use of the Hospital Survey of Patient Safety Culture in Norwegian Hospitals: A Systematic Review.
- Organization, W. H. (2016). Consultative meeting planning for the global patient safety challenge: medication safety, 19-20 April 2016, WHO Headquarters Geneva, Switzerland: meeting report: World Health Organization.
- Oweidat I, Al-Mugheed K, Alsenany SA, Abdelaliem SMF, Alzoubi MM. (2023). Awareness of reporting practices and barriers to incident reporting among nurses.
- Patmawati, T. A., Woge, Y., Doondori, A. K., Cahyani, S. L., & Amir, H. (2022). Nurses attitude and communication on reporting incidents on patients safety culture in Ende Regional General Hospital
- Pramesona, B. A., Sukohar, A., Taneepanichskul, S., & Rasyid, M. F. A. (2023). A qualitative study of the reasons for low patient safety incident reporting among Indonesian nurses.
- Rashed, A. & Hamdan, M. (2019). Physicians' and Nurses' Perceptions of and Attitudes Toward Incident Reporting in Palestinian Hospitals.
- Rutledge, D. N., Retrosi, T., Ostrowski, G. (2018). Barriers to medication error reporting among hospital nurses. *J Clin Nurs*. 2018 May;27(9-10):1941-1949
- S.-H. Cho, Y.-S. Kim, K.N. Yeon, S.-J. You, I.D. Lee. (2015). Effects of increasing nurse staffing on missed nursing care.
- Salam Al Ratrou. (2023). Perception of Patient Safety Incident Reporting System among Healthcare Workers in Palestinian Government Hospital.
- Wu H.H., Lee Y.C., Huang C.H., & Li L. (2022). Healthcare professional's perception of patient safety assessed by the hospital survey on patient safety culture in Taiwan: A systematic review.
- Yoo, M. S., & Kim, K. J. (2017). Exploring the influence of nurse work environment and patient safety culture on attitudes toward incident reporting. *JONA: The Journal of Nursing Administration*, 47(9), 434-440.
- Zhao, X., Shi, C., & Zhao, L. (2022). Nurses' Intentions, Awareness and Barriers in Reporting Adverse Events: A Cross-Sectional Survey in Tertiary Hospitals in China. *Risk Manag Health Policy*.