

Attitude and Perception of Nurses Regarding Patient Safety in Critical Care Units

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Abstract:

Background: Critical care providers caring for patients. Preventing harm or errors during nursing care of patients has led to a safety culture transformation in the intensive care setting. **Aim of the study:** To assess attitude and perception of nurses regarding patient safety in critical care units. **Research design:** A descriptive & correlational research design was used in this study. **Setting:** This study was conducted in EL Eman General Hospital and Assiut General Hospital. **Sample:** The study subjects were included a purposive sampling of available nurses who work in the previous mentioned setting and who give direct care to critically ill patients. **Tools:** **Tool one:** Nurses' Personal characteristics; **Tool two:** Critical Care Nurse's attitude assessment regarding patient safety. **Tool three:** Critical Care Nurse's attitude assessment regarding patient safety. **Results:** The results found that the majority of nurses had positive attitude toward safety in ICU with Mean±SD (105.65 ± 13.82). More than half of nurse has had good perception regarding patient safety culture in hospital with Mean±SD (105.65 ± 13.82). **Conclusion:** The majority of critical care nurses were positive attitude regarding patient's safety. Additionally, nurses had good perception regarding patient's safety. **Recommendations:** Performing scientific research concentrated on safety practices for prevention of errors and patients harm during nursing care providing at Egypt and preparing training program for nurses.

Keywords: Attitude, Critical Care Nurses, Critical Care Units, Patient Safety & Perception.

Introduction:

A key component of high-quality care is patient safety (PS), which is the prevention of mistakes and negative consequences for patients. According to 2024 research by the Institute for Health Care Improvement (IHI), medical errors are the third most common cause of death in the US, and nurses' mistakes pose a risk to patient safety. The likelihood of unfavorable events is significantly higher in developing nations than in industrialized ones. (Ayyad et al., 2024)

The most fundamental rule of ethics for determining what is good or poor in manufacturing is the safety value. For businesses, it's a collection of systems that should contain the essential security concept, security policy, mission, vision, and objectives, among other things. (Liston et al., 2023). The foundation of patient safety culture is safety value, which is the collective belief of medical staff regarding the relevance and importance of patient safety issues. (Ullman & Davidson, 2021).

Establishing a patient safety culture within the organization is essential to achieving patient safety goals, which include identifying patients accurately, improving effective communications, improving high alert medications by implementing five right medications, reducing infections linked to healthcare, reducing patient harm from falls, and reducing the

negative effects of such errors on patients. The beliefs, attitudes, and customs that team members, departments, or organizations share and that either directly or indirectly impact patient safety constitute the foundation of patient safety culture. (Aydemir et al., 2023)

Critical care providers caring for patients. The critical care setting's safety culture has changed as a result of efforts to prevent patient injury. Early research on adverse occurrences emphasized the importance of organizational structures and human variables. According to the "Building a Safer Health System" report from the National Academy of Medicine, previously the Institute of Medicine (IOM), medical errors cause between 44,000 and 98,000 fatalities annually. Patient safety became the primary focus of this report, which completely changed the American healthcare system. The way that medical errors are portrayed in medical television programs and the news media has affected how the general public views patient safety. (Kakemam et al., 2024).

Intensive care is an area where safe practice is quite important. Errors in intensive care units (ICUs) around the world have been documented and are frequently linked to equipment failure, medication-related occurrences, indwelling lines, and airway-specific issues. Patients who need more intensive care or who suffer organ failure are more likely to be

exposed to a major event. Errors are "acts of commission or omission leading to an undesirable outcome or significant potential for such an outcome," according to the Agency for Healthcare Research and Quality (AHRQ). (Arteaga et al., 2022)

Nurses play a vital role due to their direct involvement in patient care, their capacity to identify dangers, and their advocacy for patients, they play a significant role in improving patient safety in primary healthcare settings. As a result, nurses should possess the skills and mindset needed to enhance the standard of care and safe procedures. Regular risk assessment surveys in primary health centers and evaluations of PS culture among healthcare professionals might help increase nurses' awareness and understanding of PS culture. (Lousada et al., 2020)

Significance of the study:

According to multiple studies, the rate of safety and adverse events was 7.2% in a tertiary hospital in the Republic of Korea and 8.3% in the emergency department of a US academic medical institution. According to a report published by the Institute of Medicine (IOM) at China, negligence causes injuries to 18 out of every 100 patients seen in hospital emergency rooms. Risk factors for emergency department include an unmanageable workload, a big and uncertain patient population, and the engagement of multiple caregivers from various specialties. (Zhang, et al., 2023).

In Egypt, A study done by 293 (57%) from nurses had bad knowledge and negative attitudes toward patients safety at Helwan hospital university (Abdelaliem, 2022)

Aim of the Study:

The study aim is to assess Attitude and Perception of Nurses Regarding Patient Safety in Intensive Care Units

Research question:

- What is the attitude of critical care nurses' regarding patients' safety?
- What is the perception of critical care nurses regarding patients' safety?

Subjects and Method:

Research design:

Descriptive & correlational research design was used in this study.

Setting:

This study was collected from Ministry of Health and Population Hospitals at Assiut. EL Eman General Hospital that include: Cardio-Thoracic ICU (10), Internal and Toxic ICU(10), General ICU(10), Neuro-Strok ICU(10). Assiut General Hospital that include: Cardio-Thoracic ICU (10), Internal CU(10), General

ICU(10). The Chest Hospital that include: Chest ICU (20). Assuit Tropical Hospital that include: Tropical ICU(20)

Sampling:

A Purposive sample at least 100 critical care nurses from Ministry of health Hospitals for this study during period of three months.

Inclusion criteria:

- Critical care nurses present in intensive care units.
- Critical care nurses who have good communication.
- Nurses who give direct patients care in intensive care units.

Exclusion criteria:

- Critical care nurses who have refused to participation in this study to avoid inaccurate results.
- Nurses with any conflict of interest with the researcher.

Tools of the study

Three tools were developed by the researcher after related reviewing literature (Mohammed et al., 2023) within the study for data collection.

Tool one: - Nurses' Personal characteristics:

This tool was used to collect personal data of the studied nurses, which include nurse code, age group, gender, marital status, educational level, years of experience, staff position.

Tool two: Critical Care Nurse's attitude assessment regarding patient safety: This tool was used to assess the attitude of the ICU nurses toward patient safety and the short version of the Safety Attitudes Questionnaire adopted from (Mohammed et al., 2023) was used including the following parts:

Part (1): Job satisfaction questionnaire: This part was used to assess the job satisfaction of ICU nurses and it includes 5 items.

Part (2): Safety Climate questionnaire: This part was assessed the workplace environment and it includes 7 items.

Part (3): Teamwork climate questionnaire: This part was assessing the relationship between the healthcare team and each other and it includes 6 items.

Part (4): Stress recognition questionnaire: This part asks questions about the nurse's perception of stress in the workplace and it includes 4 items.

Part (5): Safety Perception of management questionnaire: This part asks questions about the nurse's perception of management in the hospital and it includes 4 items.

Part (6): Working condition questionnaire: This part asks questions about working conditions and it includes 4 items.

Scoring system: for the Safety Attitudes Questionnaire are a likert- type scale, ranging from 5

for strongly agree, 4 slightly agree, 3 neutral, 2 slightly disagree, to 1 for strongly disagree. The overall domain score was calculated by summing all items in each domain then divided by the number of items.

Scoring system divided into three levels

- Positive (> 60)
- Negative (< 60)

Tool three: Critical Care Nurses Perception regarding patient safety: This tool was used to assess the perception of the ICU nurses toward patient safety and the Hospital Survey on Patient Safety Culture (SOPS v.2) adopted from (Wu et al., 2022). was used to include the following:

Part (1): Unit/Work Area questionnaire

This section assesses ICU nurse's agreement or disagreement with statements about their unit/work area. The statements cover topics such as teamwork, workload, patient safety, staff support, and learning from mistakes.

Part (2): Supervisor, Manager, or Clinical Leader questionnaire

In this section, nurses are asked to rate their supervisor, manager, or clinical leader. The statements focus on their consideration of staff suggestions, their attitude towards working faster during busy times, and their responsiveness to patient safety concerns.

Part (3): Communication questionnaire

In this section, nurses are asked to indicate how often certain communication-related events occur in their unit/work area. These events include being informed about errors, discussing error prevention, being informed about changes based on event reports, speaking up about patient care concerns, and the openness of those with more authority to patient safety concerns.

Part (4): Reporting Patient Safety Events questionnaire

The reporting of patient safety events is covered in this section. Nurses are asked to score how often they report errors that are discovered and fixed before they affect the patient, as well as errors that affect the patient but do not cause harm. You are also asked how many patient safety incidents you personally reported throughout the last 12 months.

Part (5): Patient Safety Rating questionnaire

In this section, nurses are asked to rate their unit/work area on patient safety using a scale from poor to excellent.

Part (6): Safety hospital questionnaire

This section assesses nurses' agreement or disagreement with statements about their hospital. The statements cover topics such as hospital management's prioritization of patient safety, provision of resources for patient safety,

responsiveness to adverse events, and information exchange during patient transfers and shift changes.

Scoring system: for the Hospital Survey on Patient Safety Culture are a likert-type response options ranging from one (strongly disagree or never) to five (strongly agree or always).

Scoring system divided into three levels

- Poor (< 60)
- Good (60 -75)
- Very good (> 75)

Methods

Technique for data collection: the study was conducted through the following phases:

Preparatory phase:

- An official permission to carry out the study was obtained from the Ministry and Population Hospitals at Assiut responsible authorities in the intensive care units after explaining the aim and nature of the study.
- The study tools were designed after extensive literature review.

pilot study:

A pilot study was conducted ten percent of nurses worked in the selected setting to examine the applicability, feasibility, efficiency and clarity of the developed tools.

Content validity and Reliability:

Face validity of the study was done by jury of seven experts who are specialists in the field of critical care nursing from Assiut University, and necessary modifications were done.

Reliability of the study tool: The reliability of the test was calculated by using correlation coefficient and it was estimated by Alpha Cronbach's test for this study. Toole one = 0.89, tool two = 0.92 and tool three = 0.90.

Ethical consideration:

Research proposal was approved from the Ethical Committee at 25-3-2024 in the Faculty of Nursing, Assiut University. There is no risk for study subject during application of the research. A written informed consent was obtained from nursing staff participating in this study, after explaining the nature and purpose of the study. Confidentiality and anonymity will be assured. Study nurses were having the right to participate, refuse and or withdraw from the study without any rational at any time. Study nurses' privacy was considered during collection of data.

Phase (II): Data collection:

Following an explanation of the study's purpose, rights, and roles to each nurse participant, the researcher used in-person interviews to go over the inclusion requirements for all of the nurses who worked in the study intensive care units.

- Nurses who were interested in taking part in this study and who satisfied the study inclusion requirements were enrolled.
- After translating the surveys into Arabic, the researcher gave them to the participants in sealed envelopes.
- Instructions were provided on how to complete the questionnaires. Data was collected within six months.
- The researcher was assessed personal data of nurses by using tool 1 (part I).
- Every nurse was interviewed to know their attitudes regarding the patient's safety by using tool 1 (part II).

- The researcher was assessed the nurses' practice observational checklist regarding perception of nurses regarding the patient's safety during their shifts (tool 2).

- To avoid missing data, the researchers was instructed all participants to answer all questions'

Statistical Design:

The Statistical Package for Social Sciences (SPSS) version 27 was used to code, index, tabulate, and analyze the gathered data. To determine whether two qualitative factors were related, data was displayed in tables and figures using numbers, percentages, means, standard deviation, and chi-square. A P-value of less than 0.05 was a statistically significant.

Results:

Table (1): Percentage and frequency of socio-demographic characteristics among the studied nurses, No = (100)

	No	%
Age		
20 -30	99	99.0
31-40	1	1.0
41 – 50	0	0.0
51-60	0	0.0
More than 60	0	0.0
Gender		
Male	30	30.0
Female	70	70.0
Marital status		
Single	57	57.0
Married	43	43.0
Divorced	0	0.0
Widow	0	0.0
Educational level		
Diploma	9	9.0
Technical nurse	46	46.0
Bachelor's degree	44	44.0
Master	1	1.0
Ph.D.	0	0.0
Years of experience in Profession		
Less than 5 years	61	61.0
5 years to < 10 years	25	25.0
10 years to < 15 years	7	7.0
15 years and more	7	7.0
Years of experience in ICU		
Less than 5 years	72	72.0
5 years to < 10 years	17	17.0
10 years to < 15 years	7	7.0
15 years and more	4	4.0

Table (2): Percentage and frequency of job satisfaction regarding Critical Care Nurse's attitude to assessment of patient safety, No = (100)

Job Satisfaction	strongly agree		slightly agree		Neutral		slightly disagree		strongly disagree	
	No	%	No	%	No	%	No	%	No	%
1. I like my job	32	32.0	46	46.0	16	16.0	0	0.0	6	6.0
2. Working here is like being part of a large family	28	28.0	31	31.0	20	20.0	15	15.0	6	6.0
3. This is a good place to work	15	15.0	36	36.0	27	27.0	19	19.0	3	3.0
4. I am proud to work in this clinical area	10	10.0	40	40.0	22	22.0	20	20.0	8	8.0
5. Morale in this clinical area is high.	10	10.0	33	33.0	23	23.0	22	22.0	12	12.0

Table (3): Percentage and frequency of safety regarding Critical Care Nurse's attitude to assessment of patient safety, No = (100)

Job Satisfaction	strongly agree		slightly agree		Neutral		slightly disagree		strongly disagree	
	No	%	No	%	No	%	No	%	No	%
1. I would feel safe being treated here as a patient.	17	17.0	41	41.0	22	22.0	17	17.0	3	3.0
2. Medical errors are handled appropriately in this clinical area	19	19.0	36	36.0	26	26.0	17	17.0	2	2.0
3. I know the proper channels to direct questions regarding patient safety in this clinical area.	18	18.0	53	53.0	17	17.0	9	9.0	3	3.0
4. I receive appropriate feedback about my performance	15	15.0	50	50.0	17	17.0	16	16.0	2	2.0
5. In this clinical area. it is difficult to discuss errors	12	12.0	28	28.0	29	29.0	23	23.0	8	8.0
6. I am encouraged by my colleagues to report any patient safety concerns I may have	19	19.0	40	40.0	17	17.0	22	22.0	2	2.0
7. The culture in this clinical area makes it easy to learn from the errors of others	28	28.0	38	38.0	9	9.0	23	23.0	2	2.0

Table (4): Percentage and frequency of teamwork climate regarding critical care nurse's attitude to assessment of patient safety, No = (100)

Teamwork climate	strongly agree		slightly agree		Neutral		slightly disagree		strongly disagree	
	No	%	No	%	No	%	No	%	No	%
1. Nurse input is well received in this clinical area	39	39.0	41	41.0	12	12.0	2	2.0	6	6.0
2. In this clinical area it is difficult to speak up	16	16.0	22	22.0	28	28.0	29	29.0	5	5.0
3. Disagreements in this clinical area are resolved appropriately	3	3.0	28	28.0	26	26.0	34	34.0	9	9.0
4. I have the support I need from other personnel to care for patients	25	25.0	36	36.0	20	20.0	14	14.0	5	5.0
5. It is easy for personnel here to ask questions when there is something	29	29.0	39	39.0	18	18.0	14	14.0	0	0.0
6. The physicians and nurses here work together as a well-coordinated team	39	39.0	31	31.0	15	15.0	12	12.0	3	3.0

Table (5): Percentage and frequency of stress recognition regarding critical care nurse's attitude to assessment of patient safety, No = (100)

Stress recognition	strongly agree		slightly agree		Neutral		slightly disagree		strongly disagree	
	No	%	No	%	No	%	No	%	No	%
1. When my workload becomes excessive. my performance is impaired	34	34.0	29	29.0	16	16.0	14	14.0	7	7.0
2. I am less effective at work when fatigued	31	31.0	24	24.0	15	15.0	20	20.0	10	10.0
3. I am more likely to make errors in tense or hostile situations	19	19.0	19	19.0	18	18.0	34	34.0	10	10.0
4. Fatigue impairs my performance during emergency situations	25	25.0	12	12.0	14	14.0	36	36.0	13	13.0

Table (6): Percentage and frequency of total safety attitudes questionnaire score. No = (100).

Safety attitudes questionnaire	Max score	No	%
Positive	> 60	85	85.0
Negative	< 60	15	15.0
Mean±SD (range)	155	105.65 ± 13.82 (68- 137)	

Table (7): Relation between sociodemographic for nurses and total score levels of patient's safety attitude, No = (100)

Variable	Safety attitude questionnaire				P.value
	Negative		Positive		
	No	%	No	%	
Sex					.359
Male	3	10.0	27	90.0	
Female	12	15.0	58	85.0	
Age groups					.673
20 -30	15	15.2	84	84.8	
31-40	0	0.0	1	100.0	
41 – 50	0	0.0	0	0.0	
51-60	0	0.0	0	0.0	
More than 60	0	0.0	0	0.0	
Marital status					
Single	13	22.8	44	77.2	
Married	2	4.7	41	95.3	
Divorced	0	0.0	0	0.0	
Widow	0	0.0	0	0.0	
Educational level					.018*
Diploma	0	0.0	9	100.0	
Technical nurse	10	21.7	36	78.3	
Bachelor’s degree	4	9.1	40	90.9	
Master	1	100.0	0	0.0	
PhD	0	0.0	0	0.0	
Years of experience					.302
Less than 5 years	11	18.0	50	82.0	
5 years to < 10 years	2	8.0	23	92.0	
10 years to < 15 years	0	0.0	7	100.0	
15 years and more	2	28.6	5	71.4	

Chi square test for qualitative data between the two groups or more

*Significant level at P value < 0.05,

**Significant level at P value < 0.01.

Table (8): Percentage and frequency Critical Care Nurses Perception regarding patient safety score. No= (100).

Critical Care Nurses Perception regarding patient safety	Max score	No	%
Very good	>75	5	5.0
Good	60-75	62	62.0
Poor	<60	33	33.0
Mean±SD (range)	165	105.65 ± 13.82 (68- 137)	

Table (9): Relations between sociodemographic date and Critical Care Nurses Perception regarding patient safety

Variable	Critical Care Nurses Perception regarding patient safety						P.v
	Poor		Good		very good		
	No	%	No	%	No	%	
Sex							.028*
Male	4	13.3	15	50.0	11	36.7	
Female	1	1.4	47	67.1	22	31.4	
Age groups							.359
20 -30	5	5.1	62	62.6	32	32.3	
31-40	0	0.0	0	0.0	1	100.0	
41 – 50	0	0.0	0	0.0	0	0.0	
51-60	0	0.0	0	0.0	0	0.0	
More than 60	0	0.0	0	0.0	0	0.0	
Marital status							.300
Single	4	7.0	32	56.1	21	36.8	
Married	1	2.3	30	69.8	12	27.9	
Divorced	0	0.0	0	0.0	0	0.0	
Widow	0	0.0	0	0.0	0	0.0	
Educational level							.527
Diploma	0	0.0	6	66.7	3	33.3	
Technical nurse	1	2.2	32	69.6	13	28.3	
Bachelor’s degree	4	9.1	23	52.3	17	38.6	
Master	0	0.0	1	100.0	0	0.0	
PhD	0	0.0	0	0.0	0	0.0	
Years of experience							.617
Less than 5 years	3	4.9	41	67.2	17	27.9	
5 years to < 10 years	1	4.0	13	52.0	11	44.0	
10 years to < 15 years	0	0.0	5	71.4	2	28.6	
15 years and more	1	14.3	3	42.9	3	42.9	

Chi square test for qualitative data between the two groups or more

*Significant level at P value < 0.05,

**Significant level at P value < 0.01.

Table (10): Correlation between total score of Safety Attitudes Questionnaire and total score of Nurses Perception regarding patient safety

Safety Attitudes Questionnaire	Nurses Perception regarding patient safety						P.v	R
	Poor		Good		Very good			
	N	%	N	%	N	%		
Negative	3	20.0	11	73.3	1	6.7	.002**	.316**
Positive	2	2.4	51	60.0	32	37.6		

Chi square test for qualitative data between the two groups or more

*Significant level at P value < 0.05,

**Significant level at P value < 0.01. Pearson's correlation

Table (1): This table Illustrates that 99.0% of studied sample their age ranged from 20 -30 years. The majority of studies sample were female with percentage 70.0%. more than half of nurses were Single with percentage 57.0%. regarding educational

level less than half of sample were technical nurse 46.0 %. nurses' years of experience in profession Less than 5 years with percentage 61.0 %, at last more than two third of studies population sample experience in ICU were less than 5 years with

percentage 72.0%. Regarding ICU numbers of studies sample was general ICU with percentage 31% followed by chest ICU at percentage 18%

Table (2): Shows nurses response of job satisfaction regarding Critical Care Nurse's attitude to assessment of patient safety that 46% of the nurses were slightly agree about live her job followed by 32% of nurses strongly agree regarding love of her job. 31% were slightly agree that working here is like being part of a large family. about statement that this is a good place to work were 36% slightly agree about this statement. nurses' response for fourth statement I am proud to work in this clinical area 40% were slightly agree and nurses were slightly agreeing at percentage 33% on Morale in this clinical area is high.

Table (3): This table shows nurses response of Safety Climate regarding Critical Care Nurse's attitude to assessment of patient safety that 41% of the nurses were slightly agree that patients feel safe when treat patients. more than one third of the nurses were agree that the error s handle appropriately with percentage 36%. 53% of the nurse's response were slightly agree about understanding of channel regarding question of patient safety. half of nurses agree that they receive appropriate feedback on performance at percentage 50%. 29% were neutral with difficult discussion of error in clinical area. less than half of nurses were agree that they encourage collage to report safety concerns with percentage 40%. more than one third of nurses agree that they can learn from errors in clinical area in percentage 38%.

Table (4): This table shows that less than half of nurses agree that input well received in clinical area with percentage 41.0%. one third is disagree about patient care problems difficult to discussed in ICU with percentage 29.0%. More than one third of nurses disagree that the working area disagrees about best solutions and the best of patient care problems with percentage 34.0%. 36% of nurses show that they received appropriate support in patient care. Less than half of nurse's report that they it is easy to ask question if they not understand anything about patient care with percentage 39.0%. 39% of nurses strongly agree that they coordinated with physician in care.

Table (5): This table about stress recognition and report that one third of the nurses strongly agree that the work overload affect their performance in care and result in impaired of it with percentage 34%. one third of nurse's report that the fatigue strongly affect their performance with percentage 31%. Nurse was disagreeing that was not make error in hostile situation and their performance not affected in emergency by fatigue with percentage 34% and 36%.

Table (6): Shows that the distribution of total safety questionnaire score. the majority of nurses had

positive attitude toward safety in ICU with percentage 85% and mean \pm SD 105.65 \pm 13.82.

Table (7): Shows relation between sociodemographic date and safety attitude questionnaire. it was found that there was relation between safety attitude questionnaire and marital status, educational level with p.value 0.012, .018 respectively.

Table (8): Shows relations between sociodemographic date and Critical Care Nurses Perception regarding patient safety. It was found that there was relation between safety attitude questionnaire and sex with p.value = 0 .028.

Table (9): This table demonstrates that the distribution of total nurses perception regarding patient safety score. More than half of nurse has had good perception regarding patient safety culture in hospital in percentage 65% with mean \pm SD 105.65 \pm 13.82.

Table (10): Previous table illustrates there was relation between total score of Safety Attitudes Questionnaire and total score of nurses' perception regarding patient safety with p.value 0.002** and weak positive correlation .316.

Discussion:

Nurses' attitudes toward stress, working circumstances, and patient safety management are referred to as their safety attitude. Patient safety interventions are encouraged by positive views about patient safety. Finding out how nurses feel about patient safety reveals information about their beliefs and actions, as well as how they prevent medical errors and maintain patient safety. (He et al., 2020). Nurses' perceptions on many aspects of patient safety culture in intensive care units, as well as how these opinions vary depending on a number of descriptive sociodemographic factors. A thorough systematic assessment of this kind is necessary to assess and enhance patient safety culture in medical facilities. (Sultan et al., 2022)

Finding of the current study illustrated the sociodemographic nurse's data. Regarding age, it was observed that the majority of studied sample their age ranged from 20 -30 years. This results disagreement with Campos et al., 2023 & Ayyad et al., 2024 whom reported that mean age of more than thirty-seven years. However, Aydemir et al., 2023 who observed that the mean age was less than forty years. Similar findings were confirmed by Albagawy (2024), who reported that the age range of the nurses was 22–30 years old. A variable sample size and environment could be the cause of these outcomes. Another point of view supported with Sangsrijan et al., 2024 who reported that the nurse's age ranged from 24 and 34 years old. This results agreement with Abdelaliam & Alsenany, 2022 whom found that the

age group of 20 - 30 with a mean less than thirty years. These results may be attributed to the most nurses in ICU should young age to tolerated effort, stress and work overloud.

Concerning the gender, it was documented that the majority of studies sample were female. This results agreement with **Campos et al., 2023** who reported that the majority of nurse's gender was female. On the same line **Ayyad et al., 2024** who found that the majority of nurse's gender was female. Additionally, **Albagawy, 2024** who documented that the nurse's gender was female. These results may be related to the majority of students admitted to study nursing being female in the secondary school of nursing.

As regard marital status, it was observed that more than half of nurses were Single. This results contrast with **Sangsrijan et al., 2024** who found that the most of nurse were single. However, this results disagreement with **Ayyad et al., 2024** who found that the majority of nurses were married. Additionally, **Aydemir et al., 2023** who found that the most of nurses were married. Another point of view supported with **Albagawy, 2024** who reported that nearly fifty percent from nurses were married. These results may be attributed to different sample size and setting.

Concerning educational level, it was found that less than half of nurse were technical nurse. This results disagreement with **Gamal et al., 2022** who reported that the majority of nurse's level of education was a diploma in nursing. This results disagreement with **Ayyad et al., 2024** who found that more than fifty hundred percent had a diploma, and more than thirty percent had a bachelor's degree. Additionally, **Aydemir et al., 2023** who documented that the majority from nurses were staff nurses. (**Aydemir et al., 2023**).

Regarding nurses' years of experience in profession, it was observed that the most of nurse less than 5 years with percentage. This results disagreement with **Gamal et al., 2022** who reported that the most were ranged from 10 years and above years of experience in their current job. However, **Sangsrijan et al., 2024** who found that fifty percent had 1 to 5 years of experience working as professional nurses in their current word. Another point of view supported with **Abdelaliem & Alsenany, 2022** whom documented that the majority from nurses had experience < 10 years.

Concerning type of ICU, it was found that nearly thirty percent from studies sample was general ICU and nearly eighty percent from chest ICU. This results agreement with **Sangsrijan et al., 2024** who observed that the most nurses worked in the general medical ward. Also, **Abdelaliem & Alsenany, 2022** who found that

the highest percentage of nurses were working in Medical Units, while the lowest percentage of nurses were working in Recovery Units.

Finding the current study regarding total score of nurse's attitude toward patients' safety. It was found that the majority of nurses had positive attitude toward patient's safety in ICU. This results disagreement with **Gamal et al., 2022** who reported that less than fifty percent from nurses have a positive attitude, while the most nurses have a negative attitude towards patient safety. Another point of view, **Albagawi, 2024** who documented that the nurses hold negative attitudes towards various aspects of patient safety, including error and patient safety, personal influence over safety, safety of the healthcare system, and personal attitudes towards patient safety. However, **Sangsrijan et al., 2024** who found that the most a positive level of patient's safety attitude with mean score of more than four.

This result may be related to nurses must continue their education and training to stay current on best practices and promote healthcare safety. Hospitals and healthcare organizations should offer frequent training and professional growth programs to improve nursing skills. Also, related to different funding of health care setting in outside country from Egypt health care setting.

These findings are congruent with **Mohammed et al., 2023** who observed that the most of nurses had positive attitudes toward patient safety. Another **Abdelaliem et al., 2022** who found that nurses had a good attitude toward patient safety culture, which may have an influence on long-term patient safety practices in the study settings. Nurses' overall assessments of patient safety culture may be significantly impacted by the necessity of suitable interventions to enhance and maintain quality improvement strategies, such as staff-to-patient safety culture orientation and the development of an efficient incident reporting system. Different settings and samples may have contributed to these results.

Another research conducted by **Fu et al., 2022** who reported that the total score of patient safety attitude was more than hundred and three. These results may be related to different sample and setting. These finding of the current study incongruent with **Yin et al., 2023** who found that the mean & standard deviation of score of safety attitudes towards patients was nearly four. The scores for each dimension, from positive to negative.

The current study demonstrated that the distribution of total nurses' perception regarding patient safety score. The most of nurse has had good perception and patient safety culture in hospital in percentage with mean & standard deviation more than hundred. This results agreement with **Campos et al., 2023** who

observed that the most of nurses had good perception regarding patient's safety in relation not only to their unit, but to the hospital as a whole, it is essential that there is cooperation and good communication within units as well. Since it is common for patients, during their hospitalization period.

This results agreement with **Ayyad et al., 2024** who found that less than fifty percent from nurses had good perception with mean score was more than nine. This results disagreement with **Gamal et al., 2022** who reported that the majority from nurses at the Specialist Hospital have a good level of perception towards patient safety. On the same line, **Mohammed et al., 2023** who found that less than half of the students exhibited good perception toward patient safety practice. Nurse's practice of patient safety was highly influenced by their year of study, the length of their practical attachment, and their understanding of patient safety.

The researcher view for this result may be related to the country outside Egypt had a budget for training courses regarding patients safety. Another research study supported these results which conducted by **Abdelaliem et al., 2022** who demonstrated that good perceptions of patient's safety and enhance clinical care process and patient safety outcome, including harm and adverse events reduction. However, **Won et al., 2024** who documented that the mean scores for nurse's perception regarding patients' safety in ICU.

As regard, Relations between demographic data and critical care nurses' perception regarding patient safety. It was found that there was relation between safety attitude questionnaire and sex. This results disagreement with **Gamal et al., 2022** who reported that the relationship between perception with demographic profiles like age, level of education, working experience, unit, or department showed no relationship where the p-value of all the variables >0.05 . The relationship level of perception with age. These results may be related to the increase nurses' age, increase level of education and work experience lead to improve knowledge and attitude toward safety measures at ICU.

The current study demonstrated that relation between sociodemographic data and safety attitude questionnaire. it was found that there was relation between safety attitude questionnaire and marital status, educational level. This results agreement with **Won et al., 2024** who documented that the relationship attitude towards patient safety with age.

Findings of the current study illustrated that there was relation between total score of nurse's attitudes regarding patient's safety and total score of nurse's perception regarding patient safety with p.value (.002) and weak positive correlation. This results disagreement with **Sangsrijan et al., 2024** who found

that had a moderate and significant negative correlation between total score of nurse's patient safety attitude and, total score level of nurse's patient safety perception. These results may be related to different setting and sample

Conclusion:

The majority of critical care nurses were positive attitude regarding patient's safety. Additionally, nurses had good perception regarding patient's safety. there was relation between total score of nurse's attitudes regarding patient's safety and total score of nurse's perception regarding patient safety with p.value (.002) and weak positive correlation $r = .316$.

Recommendations:

- Developing a training program for nurses and conducting scientific research focused on safety procedures to avoid mistakes and patient injury while providing nursing care in Egypt.
- Developing educational materials to educate intensive care unit nurses on potential patient safety procedures.
- Creating and distributing a pamphlet regarding patient safety in the intensive care unit. For generalization,
- Reapply this study using a sizable sample size collected from various regions of Egypt.

References:

- Ayyad, A., Baker, N., Oweidat, I., Al-Mugheed, K., Alsenany, S., & Abdelaliem, S. (2024):** Knowledge, attitudes, and practices toward Patient Safety among nurses in health centers. *BMC nursing*, 23(1), 171. <https://doi.org/10.1186/s12912-024-01831-1>
- Aydemir, A., & Koç, Z. (2023):** Patient safety culture and attitudes among emergency care unit nurses in Türkiye. *Eastern Mediterranean Health Journal*, 29(3), 195-204.
- Abdelaliem, S., & Alsenany, S. (2022):** Factors affecting patient safety culture from nurses' perspectives for sustainable. nursing practice. *In Healthcare* (Vol. 10, No. 10, p. 1889).
- Albagawi, B. (2024):** The Attitudes of Emergency Department Nurses towards Patient Safety in Alqassim Region, Saudi Arabia: A Questionnaire-based Cross-sectional Study. *Journal of Clinical & Diagnostic Research*, 18(4).
- Arteaga, G., Bacu, L., & Franco, P. (2022):** Patient safety in the critical care setting: common risks and review of evidence-based mitigation strategies. *In Contemporary Topics in Patient Safety-Volume 2*. IntechOpen. DOI: <http://dx.doi.org/10.5772/intechopen.108005>.

- Ayyad, A., Baker, N., Oweidat, I., Al-Mugheed, K., Alsenany, S., & Abdelalim, S. (2024):** Knowledge, attitudes, and practices toward Patient Safety among nurses in health centers. *BMC nursing*, 23(1), 171.
- Aydemir, A., & Koç, Z. (2023):** Patient safety culture and attitudes among emergency care unit nurses in Türkiye. *Eastern Mediterranean Health Journal*, 29(3), 195-204.
- Campos, L., Assis, Y., & Carneiro-Oliveira, M. (2023):** Safety culture: Intensive Care Unit nurses' perceptions. *Acta Paulista de Enfermagem*, 36. Available at: <https://doi.org/10.37689/acta-ape/2023AO0085332>
- Kakemam, E., Albelbeisi, A., Rouzbahani, M., Gharakhani, M., Zahedi, H., & Taheri, R. (2024):** Nurses' perceptions of patient safety competency: A cross-sectional study of relationships with occurrence and reporting of adverse events. *Plos one*, 19(1). Available at: <https://doi.org/10.1371/journal.pone.0297185>.
- Fu, M., Wang, T., Hu, S., Zhang, X., Wang, F., Pan, Y., & Wu, X. (2022):** Patient safety value, safety attitude and safety competency among emergency nurses in China: A structural equation model analysis. *Journal of Nursing Management*, 30(8), 4452-4460.
- He, H., Yu, P., Li, L., Xiao, X., Long, Y., (2020).** Patient safety culture and obstacles to adverse event reporting in nursing homes. *Journal of Nursing Management*, 28(7), 1536–1544. <https://doi.org/10.1111/jonm.13098>
- Jamal, N., Ahmad, A., & Kunjukunju, A. (2022):** Knowledge and attitude towards patient safety among registered nurses of a private hospital in Selangor Malaysia. *Malahayati International Journal of Nursing and Health Science*, 5(2), 155-165.
- Liston, E., O'Connor, E., & Ward, M. (2023):** Exploring Safety Culture in the ICU of a Large Acute Teaching Hospital through Triangulating Different Data Sources. In *Healthcare* (Vol. 11, No. 23, p. 3095). MDPI.
- Lousada, L. da Silva Dutra, F., & da Silva, B., (2020):** Patient safety culture in primary and home care services. *BMC Family Practice*, 21(1), 188.
- Mohammed, T., Woldearegay, E., Kedir, S., Ahmed, K., Getnet, M., & Gudina, E. (2023):** Patient safety knowledge, attitude and practice among undergraduate health science students in South West Ethiopia. *Frontiers in Public Health*, 10, 1064896.
- Ullman, A., & Davidson, P. (2021):** Patient safety: The value of the nurse. *Lancet* (London, England), 397(10288), 1861–1863. Available at: [https://doi.org/10.1016/S0140-6736\(21\)00981-8](https://doi.org/10.1016/S0140-6736(21)00981-8)
- Sahota, S. (2020):** Using problem-based learning to improve patient safety in the emergency department. *Emergency Nurse: The Journal of the RCN Accident and Emergency Nursing Association*, 28, 37–42. <https://doi.org/10.7748/en.2020.e1958>.
- Sangsrijan, S., Akkadechanunt, T., Chitpakdee, B., & Abhicharttibutra, K. (2024):** Predictors of Nursing Performance for Patient Safety among Nurses in Regional Hospitals: A Cross-sectional Study. *Pacific Rim International Journal of Nursing Research*, 28(2).
- Won, M., Hwang, I., & Shin, S. (2024):** Influence of patient safety perception and attitude on inpatients' willingness to participate in patient safety: An observation study. *Medicine*, 103(29), e39033.
- Yin (2023):** A Cross-Sectional Descriptive Study on the Attitudes Towards Patient Safety and Influencing Factors of Nurses in Infectious Diseases Wards. *Journal of Multidisciplinary Health care Journal of Multidisciplinary Healthcare* 2023;16 731–740.
- Zhang, Y., Jin, L., & Zhai, X. (2021):** Emergency hospitalizations for adverse drug events in China: Clinical pharmacists' approach to assessment and categorization. *Pharmacoepidemiology and Drug Safety*, 30(5), 636–643. <https://doi.org/10.1002/pds.5215>

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