Nurses` Knowledge and Practice Regarding Patients` Safety Goals in Intensive Care Units

Ghada Gamal Ahmed*, Furat Hussein Mahmoud**, Shimaa Attia Ali***

Clinical instructor at Al-Azhar Institute *, Assist. Prof. of Medical Surgical **, lecturer of Medical Surgical nursing ***

Faculty of Nursing – Helwan University

Abstract: **Patient safety is a key component of hospital performance and improving ICU staff nurses' performance remains an ideal that every organization strives to achieve this goal. Health care has become more efficient and also become more complex, with greater application of new technologies and therapies, which needs adopting with the international patient safety goals to improve the patient safety environment to simulate international competition and to increase the competitive advantages of the healthcare organizations at the national and international grades Aim: This study was aimed to assess Nurses′ knowledge and practice regarding the patients′ safety goals in intensive care units. Design: A descriptive exploratory design was utilized to achieve the aim of this study. Setting: The study was conducted in the ICUs at El Menofia university hospital. Sample: a convenient sample consisted of 75 nurses from both sex working in the previous settings. Tools: two tools were used for data collection, 1st Tool: Self -administered interview questionnaire, consisted of two parts, Part I: Demographic Characteristics of nurses, such as: (age, sex, educational level… etc). Part II: Nurses` knowledge questionnaire of (patient identification, effective communication, medication safety…..etc).2nd Tool ：An observational check list to evaluate nurses` practice. Results : there was highly significant positive correlation between nurses' knowledge and their total practice towards patient safety goals in the intensive care units at (P= < 0.05) ,there was highly statistically significant correlation between total nurses' practice towards patient safety goals in the intensive care units and their characteristics as qualification and attendance of training course at (P= < 0.01), also, there was statistically significant correlation with their age and years of experience at (P= < 0.05). Conclusion: The current study shows that more than half of the nurses under study had poor level of total knowledge and about two thirds of nurses had incompetent level of practical skills regarding patient safety goals in the intensive care units. Recommendations: Initial education and continuous learning programs should be planned to improve healthcare providers and integrate patient safety topics into the educational curricula.**

Keywords: **Patient safety, Goals, intensive care units.**

1. INTRODUCTION

Nowadays patient safety is a healthcare issue in the healthcare organizations that includes the reducing and preventing medical fault that often leads to harmful health consequences. Health care has become more efficient and also become more complex, with greater application of new technologies and therapies, which needs adopting with the international patient safety goals to improve the patient safety environment to simulate international competition and to increase the competitive advantages of the healthcare organizations at the national and international grades *(Abdullah, et al., 2020)*.

Patient safety did not garner national attention until the late 1990's, upon the publication of the Institute of Medicine (IOM) report, "To Err is Human." This report estimated that nearly 44,000–98,000 patients die from preventable errors in American hospitals each year, a statistic that galvanized patient safety into the public eye and sparked activity among various healthcare stakeholders at both national and institutional levels *(Fracica, 2021)*.

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 9, Issue 1, pp: (115-126), Month: January - April 2022, Available at: **www.noveltyjournals.com**

Many patient safety practices, such as use of simulators, bar coding, computerized physician order entry, and crew resource management, have been considered as possible strategies to avoid patient safety errors and improve health care processes. Care providers should formulate guidelines that determine enterprise safety and health management system performance. To encourage compliance with safety protocols, it is important that administrators include all managers and employees in appropriate decision-making processes and perform regular organizational performance reviews *(Shin, et al., 2021)*.

Globally, about 4 in 10 patients are harmed in primary and outpatient health care. More than 80% of harm is preventable. The most detrimental errors are associated with diagnosis, prescription and therefore the use of medicines. Investments in reducing patient harm can cause significant financial savings, and more importantly better patient outcomes *(Afroza, 2020)*.

International patient safety goals is a set of requirements that are crucial for the foundation of a patient safety approach at hospital level *(WHO, 2016)*.These goals highlight problematic areas in health care, describe evidence-bases, and expert-based consensus solutions. It is essential that everyone is familiar with and able to incorporate into daily practice *(Larasati, Dhamanti, 2021)*.

Those patient safety goals are discussed as the following: Goal one: Improve the accuracy of patient identification, Goal two: Improve the effectiveness of communication among caregivers, Goal three: Improve the safety using of medications. Goal Four: Ensure correct-site, correct-patient, and correct - procedure surgery, Goal five: Reduce the risk of healthcare-acquired infections, and Goal six: Reduce the risk of patient harm resulting from fall *(Despotou , Arvanitis , 2020)*.

Critical care nurses or ICU nurses must be proficient in a wide variety of high-level nursing skills. ICU nurses need to be a specialist in evaluating intensive care patients, recognizing complications, administering care, and coordinating with other members of the critical care team. Successful critical care nurses also excel at interpersonal communication, leadership, strategic planning, critical thinking, and decision-making *(Macey,* **Green & Jarden***, 2021)*.

The intensive care unit (ICU) has been described as an extremely stressful environment for nursing staff. It is a specialized section of a hospital that provides comprehensive and continuous care for critically ill patients. Moreover, it is highly technological area in which nurses are required to make rapid time sensitive decisions. For example, the patient's fight for life appears to be an endless battle for the nurses working in an ICU *(Tobin, 2017)*.

Significance of the study:

Every year, it is projected that 64 million disability-adjusted life years are lost due to hazardous care around the world. This means that patient damage as a result of adverse events is one of the world's top ten causes of mortality and disability, according to available information, 134 million adverse events attributable to hazardous care occur annually in hospitals in low and middle income countries, resulting in 2.6 million deaths. In high-income countries, one out of every ten patients gets injured while receiving hospital care *(National Academies of sciences, Engineering and medicine, 2018)*.

there is 1 in 300 chance of a patient being harmed during health care, 421 million hospitalizations in world annually and approximately 42.7 million adverse events occur in patients during these hospitalizations6 Patient safety has become increasingly imperative to hospitals. Nurses are the driving force behind patient perceptions of safety and it also is a concern among nursing professionals *(WHO, 2018)*.

Aim of the study

The aim of the study is to assess Nurses' knowledge and practice regarding the patients' safety goals in intensive care units.

2. SUBJECTS AND METHODS

I. Technical Design

Design : A descriptive exploratory design will be utilized to achieve the aim of this study.

Subject : A convenient sample of all available nurses (75nurses) from both sex working at intensive care units (ICUs)

Setting : The study was conducted at the ICUs in El Menofia university Hospital, it located beside the national institute of liver in shebin el kom.

Tools of Data Collection:

Data were collected using the following tools:

Tool I: Self-administered interview questionnaire It was developed by the investigator after reviewing the related literature from *(Jci, 2015)* and was written in simple Arabic to suite level of the nurses. To assess the nurse's demographic characteristics and knowledge regarding patient safety goals in intensive care units, It included the following parts.

Part 1: Demographic characteristics of nurses such as (Gender, age, level of education, years of experience. Etc).

Part II: Nurses' knowledge regarding patient safety goals in ICU

This include (patient identification, effective communication, medication safety, safe surgery, prevention of infection, prevention of patient fall). It was classified into 3categories:

- **Good** knowledge if score more than 80 %

- **Average** knowledge if score from 60% - 80%

- **Poor** knowledge if score less than 60%

Scoring System: A scoring system was followed to assess nurses` knowledge regarding patient safety goals in ICU. The tool contained of 29 questions, the total scores of the questionnaire were 29 grades, the correct answer was scored as one grade and the incorrect answer was scored as a zero grade. These scores were summed and were converted into a percent score.

Tool II: Observational checklist

it was adapted from (**Simmons, 2015**), developed and filled by the investigator to assess level of nurse's practice.

Scoring system:

A scoring system was followed to assess nurses' practice; each competency skill was assigned a score according to sub-items. The total score of nurses' practices were 45 grades, each item was evaluated as "competent" was taken one grade and "incompetent" was taken zero grade. These scores were summed up and were converted into a percentage score. It was classified into 2 categories:

- **Competent** if score ≥ 80%.

- **Incompetent** if score < 80%.

II. Operational item

The operational design included the preparatory phase, content validity of the developed tool, pilot study, and field work.

The preparatory phase

This phase was conducted through reviewing literature related to nurses' knowledge and practice regarding patient safety goals in ICUs. A review of the current and past available literature in the various aspects of the problems using books, articles, internet, periodicals and magazines were done. This served to develop the study tools for data collection. During this phase, the investigator also visited the selected place to get acquainted with the personnel and the study settings. The development of the tools was under supervisors' guidance and experts' opinions were considered.

Validity:

Content validity was conducted to determine whether the tools covered the aim, test its appropriateness, comprehensiveness, accuracy, correction, clearance, and relevance, etc. through a jury of 5 experts (Assistant professors and lecturers) of Adult Health Nursing from the Faculty of Nursing – Helwan University. Their opinion was elicited regarding tools consistency, rephrasing for some statements, and scoring system *(Newton &Paul, 2017)*.

Reliability

It was conducted for the developed tool, to achieve the criteria of trust worthiness of the tool reliability. Cronbach Alpha which is model of internal consistency was used in the analysis (value throughout the implementation phases are (0.78,

0.81) respectively. Statistical equation of Cronbach's Alpha reliability coefficient normally ranges between 0 and 1 higher value (more than 0.7) denotes acceptable reliability *(Subcommittee, 2017)*.

Pilot study:

A pilot study was carried out on (10%) (n= 8 nurses) of the subjects under the study was included and chosen randomly from the previously mentioned settings then later included to the sample. To test the applicability, feasibility, practicability, clarity of the constructed tools. The pilot study had also served to estimate the time needed for each subject to fill in the study tools. According to the results of the pilot study, no modifications were done for the used tools *(In, 2017)*.

Field work will include the following;

• Data collection of this study was started and completed within six months from the second week of march (2020) to the second week of September (2020).

• First, the investigator introduced herself to the studied nurses and gave them a brief explanation about

the study and its purpose prior to any data collection.

• An approval was obtained from a scientific, ethical committee of the faculty of nursing at Helwan University and the study subjects individually to give a verbal agreement to participate in the study.

• Data collection was being done three days/week , from Sunday to Tuesday by the investigator in the morning and afternoon shifts.

• The required time to collect data from each nurse for about 30-40 minutes.

• Self –administered questionnaire for assessing nurses' knowledge was being filled by the nurses who giving care for patient in ICUs .

• Observational checklist for assessment of nurses' practice regarding patient safety goals was filled by the investigator.

• The studied nurses were assured that the information collected would be

treated confidentially and that it would be used only for the purpose of the study.

Field work will include two phases as follow:

First phase: This includes:

1- Interview with available nurses individually before collection of data to explain the aim and objective of the study and take their approval to participate in the study prior to any data collection then basic assessment was be done and data was be collected from all nurses.

2- Assess nurse's knowledge regarding patient safety goals in ICU

Second Phase: This includes:

1-Direct & indirect observation for each nurse during care of patient in ICUs while applying safety goals ,each nurse take time about (10-15) minutes.

III. Administrative design

Official permission for this study was obtained by submission of the formal letter issued to the Dean of the Faculty of Nursing, Helwan University, and Director of the previously mentioned study settings. The investigator then met the hospital director before starting data collection to obtain their approval and assistance in conducting the study and explained the aim of the study and the methods of data collection.

Ethical considerations:

An approval was obtained from scientific ethical committee of faculty of nursing at Helwan University and the study subjects' prior data collection. The investigator clarified the objective and aim of the study to the subjects included. The

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 9, Issue 1, pp: (115-126), Month: January - April 2022, Available at: www.noveltyjournals.com

investigator assured maintain anonymity and confidentiality of the subjects' data and the subjects have the right to withdraw from the study at any time. Ethics, Values, culture, beliefs were respected.

IIII. Statistical design

Data collected from the study subjects was revised, coded, and entered into computer percentages. It was analyzed with the program (SPSS) statistical package for social science under windows version 23. The collected data were organized, revised, analyzed, tabulated using the number, and percent distribution. Data were presented using the descriptive statistic in the form of frequencies and percentages. Chi-square test (x2) was used for comparisons between qualitative variables, and correlation sufficiency (Spearmen's rank test) was used to test the correlation between variables. Statistical significant was considered at p-value$\leq$ 0.05 significant.

3. RESULT

Table (1) shows that, 45.3% of the studied nurses their age ranged between 20-<30 years, with Mean (32.2 $\pm$ 2.30) year. As regard the qualification of the studied nurses 57.3% of them had technical nursing degree. and , 56% of their years of experience ranged between 5-10 years, with Mean SD 7.81$\pm$1.29 year. Likewise, 84% of the studied nurses didn't attend any training course on patient safety standards.

Figure (1) shows that, 60% of the studied nurses were female. While, 40% of them were male.

Figure (2): illustrates that, 52% of the studied nurses had poor level of total knowledge about patient safety goals in the intensive care units. Also, 32% of them had average level. While, 16% of them had good level.

Table (2) reveals that, 50.7% of the studied nurses had competent practice towards effective communications. While, 68% and 57.3% of the studied nurses had incompetent practice towards patient identification and medications administration, respectively. Also, 65.3% and 62.7% of them had incompetent practice towards safe surgery (time out) and prevention of infection, respectively. Moreover , 66.7% of the studied nurses had incompetent practice towards fall prevention.

Table (3) shows that, 62.7% of the studied nurses had incompetent level of practical skills towards patient safety goals in the intensive care units. While, 37.3% of them had competent level.

Table (4) clarifies that, there was highly statistically significant correlation between total nurses' knowledge about patient safety goals in the intensive care units and their demographic characteristics as Qualification and attendance of training course at (P= < 0.01). also, there was statistically significant correlation with their age and years of experience at (P= < 0.05). While, there was no statistically significant correlation with their gender at (P= > 0.05).

Table (5) indicates that, there was highly statistically significant correlation between total nurses' practice towards patient safety goals in the intensive care units and their demographic characteristics as qualification and attendance of training course at (P= < 0.01). also, there was statistically significant correlation with their age and years of experience at (P= < 0.05). While, there was no statistically significant correlation with their gender at (P= > 0.05).

Table (6) illustrates that, there was highly significant positive correlation between nurses' knowledge and their total practice towards patient safety goals in the intensive care units at (P= < 0.05).

Table (1): Frequency and percentage distribution of the studied nurses according to their demographic characteristics (n=75).

Items		N	%
Age (year)			
20 - < 30		34	45.3
30 - < 40		28	37.3
$\geq$ 40		13	17.3
Mean SD	32.2 $\pm$ 2.30		

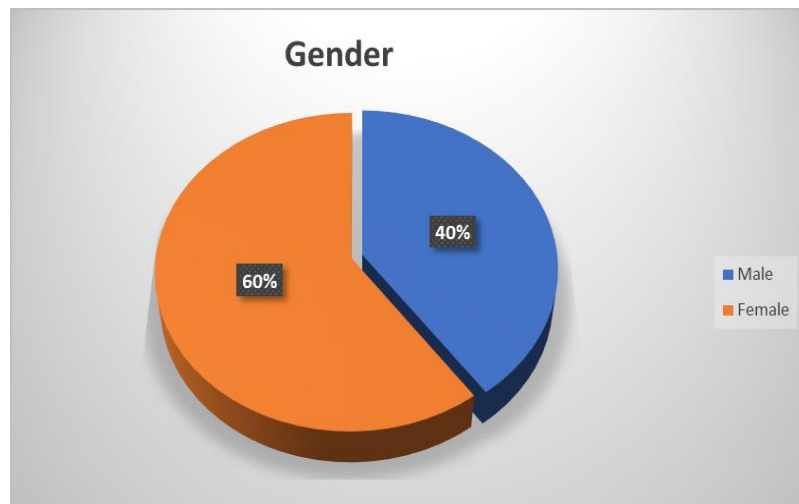| Gender		
Male	30	40
Female	45	60
Qualification		
Nursing Diploma	8	10.7
Technical nursing degree	43	57.3
Bachelor nursing degree	20	26.7
Post graduate degree	4	5.3
Years of Experience		
< 5	15	20
5 - 10	42	56
≥ 10	18	24
Mean SD	7.81±1.29	
Training Course on patient safety standards		
Yes	12	16
No	63	84

Figure (1): Percentage distribution of the studied nurses according to their gender (n=75).
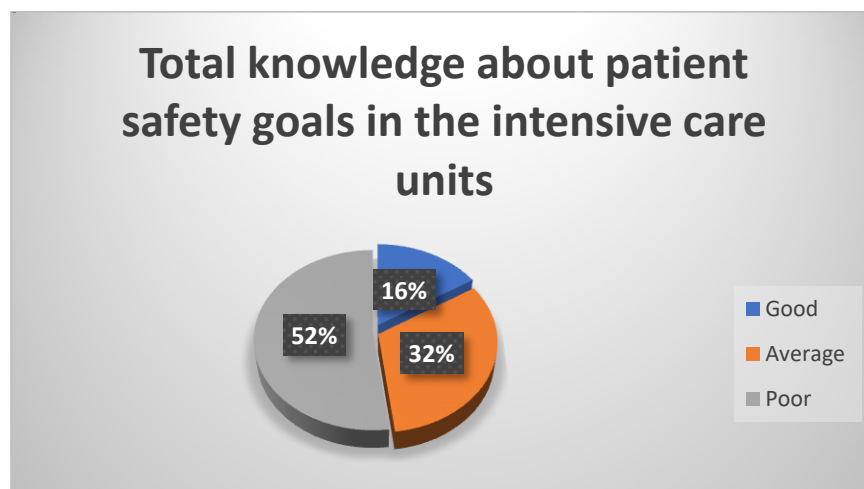

Figure (2): Percentage distribution of the studied nurses according to their total knowledge about patient safety goals in the intensive care units (n=75

Table (2): Frequency and percentage distribution of the studied nurses according to their practical skills towards patient safety goals in the intensive care units (n=75).

Items	Competent		Incompetent	
	N	%	N	%
patient identification	24	32	51	68
effective communications	38	50.7	37	49.3
medications administration	32	42.7	43	57.3
safe surgery (time out)	26	34.7	49	65.3
prevention of infection	28	37.3	47	62.7
fall prevention	25	33.3	50	66.7

Table (3): Number and percentage distribution of the studied nurses according to total practical skills towards patient safety goals in the intensive care units (n=75)

Level of total practice	N	%
Competent	28	37.3
Incompetent	47	62.7

Table (4): correlation between demographic characteristics of the studied nurses` and their total knowledge about patient safety goals in the intensive care units.

Items		The studied sample (n=75)						X2	P-Value
		Good (n=12)		Average (n=24)		Poor (n=39)			
		N	%	N	%	N	%		
Age (year)	20 - < 30	8	66.7	15	62.5	11	28.2	15.97	.019*
	30 - < 40	4	33.3	8	33.3	16	41		
	≥ 40	0	0	1	4.2	12	30.8		
Gender	Male	5	41.7	10	41.7	15	38.5	3.252	.131
	Female	7	58.3	14	58.3	24	61.5		
Qualification	Nursing Diploma	0	0	0	0	8	20.5	20.98	.001**
	Technical nursing degree	3	25	9	37.5	31	79.5		
	Bachelor nursing degree	5	41.7	15	62.5	0	0		
	Post graduate degree	4	33.3	0	0	0	0		
Years of experience	< 5	3	25	10	41.7	2	5.2	13.02	.028*
	5 - <10	7	58.3	8	33.3	27	69.2		
	≥ 10	2	16.7	6	25	10	25.6		
Training Course	Yes	12	100	0	0	0	0	25.67	.000**
	No	0	0	24	100	39	100		

*significant at p ‹ 0.05.   **highly significant at p ‹ 0.01.

Table (5): correlation between demographic characteristics of the studied nurses and their total practice towards patient safety goals in the intensive care units.

Items		The studied sample (n=75)				X2	P-Value
		Competent (n=28)		Incompetent (n=47)			
		N	%	N	%		
Age (year)	20 - < 30	18	64.3	16	34	16.02	.014*
	30 - < 40	10	35.7	18	38.3		
	≥ 40	0	0	13	27.7		
Gender	Male	15	53.6	15	31.9	5.301	.146
	Female	13	46.4	32	68.1		
Qualification	Nursing Diploma	0	0.0	8	17	19.02	.000**
	Technical nursing degree	6	21.4	37	78.7		
	Bachelor nursing degree	18	64.3	2	4.3		
	Post graduate degree	4	14.3	0	0		
Years of experience	< 5	6	21.4	9	19.1	17.85	.025*
	5 - <10	14	50	28	59.6		
	≥ 10	8	28.6	10	21.3		
Training Course	Yes	12	42.9	0	0	28.30	.000**
	No	16	57.1	47	47		

*significant at p ‹ 0.05.   **highly significant at p ‹ 0.01.

Table (6): Correlation between total knowledge of the studied nurses and their total practice towards patient safety goals in the intensive care units.

	practice	Total
Item	r	P -value
Total knowledge	0.371	.000**

(**) Statistically significant at p<0.05.

4.   DISCUSSION

The aim of this study was to assess nurses′ knowledge and practice regarding the patients′ safety goals in intensive care units at El Menofia University Hospital, Egypt.

Regarding characteristics of the studied nurses, the results of the present study revealed that less than half of the studied nurses were in the age group 20-<30 years, with a mean age of 32.2 ± 2.30. This result was contradicted with that of *Mamdouh*, *Mohamed, Abdelatief, (2020)*, and *Salem, et al .,(2019)*, who revealed that, most of the studied nurses in the Intensive Care Units at Damanhur university hospital and Kasralainy hospital, Cairo University were in the age group 20-30 years, with a mean age of 30.4 ± 5.3.

This result disagreed with that of *Tahoun, Safan and Ahmed , (2021)*, who conducted a study entitled "Nurses' Application of International Patient Safety Goals at Accredited and Non-accredited Hospitals'' and illustrated that, more than half of the studied nurses' were aged from 20 to less than 25 years old at Benha University and Elaraby International Hospitals respectively.

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 9, Issue 1, pp: (115-126), Month: January - April 2022, Available at: www.noveltyjournals.com

Concerning other characteristics of the studied nurses, the results of the present study showed that about two thirds of the studied nurses were female. This may be due to the greater fraction of the nurses in Egypt was female and may also related to the studying of nursing in Egyptian universities and institutions were exclusive for females only till few years ago.

This result was consistent with *Khamaiseh*, *Al-Twalbeh, Al-Ajlouni , (2020)*, who conducted a study entitled" Patient safety culture in Jordanian primary health-care centers as perceived by nurses" and found that, almost two fifths of nurses working in intensive care units were females. This result was consistent with *Hassanin, (2016)*, who conducted a study entitled" nurses' performance regarding the neurological assessment in neurological unit" who stated that three quarter of the study subject were female.

These results were in partial agreement with that of *Tahoun, Safan and Ahmed , (2021),* who found that at Benha University Hospital more than three quarters (76.7%) of studied staff nurses' were females, while at Elaraby International Hospital about three fifth of them were males.

Regarding qualification, results of the current study indicated that, almost more than half of the studied nurses had technical nursing degree. These results were in line with those of *Eldeeb, (2016)*, and *Ahmed*, *Mehany & Abd El-Hafez , (2018)*, who indicated that almost three fifths of nurses working in intensive care units at Jazan General Hospital, Sabia General Hospital and Abu Arish General Hospital had technical nursing degree.

Concerning years of experience and training course on patient safety standards, results of the current study indicates that more than halfs of the studied nurses their years of experience ranged between 5-<10 years, with Mean SD 7.81±1.29 year and the majority of them didn't attend any training course on patient safety standards respectively.

This result was argued with *Abo-Elmaged, (2019)*, and *Mamdouh*, *Mohamed, Abdelatief, (2020)*, who cleared that, the highest percentage of nurses working in ICUs at Assiut University hospital and Damanhur university hospital had more than ten years of experience in nursing and the majority had previously attended training courses. A possible explanation for this discrepancy of results is the lack of patient safety culture awareness where a majority of the enrolled nurses in the present study did not attend any training course on patient safety standards.

With total nurses knowledge about patient safety goals in the intensive care units, the present study showed that, more than half of the studied nurses had poor level of total knowledge about patient safety goals in the intensive care units and nearly one third of them had average level. While, minority of them had good level. This might be due to the majority of the studied nurses didn't receive educational courses about international patient safety goals and there was no policies about IPSGs at units ICU.

Based on the investigator`s point of view ,critical care nurses' knowledge levels of the IPGS were generally low, possibly due to a lack of continuing education programs and associated continuous quality improvement processes.

According to *Omer, et al., (2018)*, who conducted a study entitled "Residents‟ Awareness about International Patient Safety Goals" and pointed out to that the sufficient knowledge regarding safety issues among the nursing staff constitutes one of the strongest points for the promotion of patient safety in healthcare facilities.

This result was in the same line with *Shahin, Alshammari and Alabed, (2020)*,who indicated that critical care nurses have a high knowledge level regarding IPSGs as the mean of knowledge mean-scores for IPSGs scale was generally high (M = 0.930) .

This result was congruent with that of *Yilmaz & Goris, (2015)*, who stated in the context entitled for" Determination of the patient safety culture among nurses working at intensive care units" and reported that, 64.61% of nurses working at intensive care units had unsatisfactory knowledge about patient safety rules and regulation.

Considering total nurses, practical skills towards patient safety goals in the intensive care units, in the current study, less than two thirds of the studied nurses had incompetent level of practical skills towards patient safety goals in the intensive care units. While, a round one third of them had incompetent level. This might be due to the majority of the studied nurses hadn't received training about patient safety practices, that may have affect negatively on their application of international patient safety goals, there aren't any written policies of IPSGs in the unit and there was lack of consumables and resourced related to the application of international patient safety goals.

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 9, Issue 1, pp: (115-126), Month: January - April 2022, Available at: www.noveltyjournals.com

This result was similar with the study carried out by (*Shaheen, et al., 2016*), at El-Ebor family health centers which were not-accredited from JCI to assess healthcare providers practice toward Patient Safety" and illustrated that the majority of the participants had unaccepted practice regarding IPSGs.

Moreover, this finding was contraindicated with the study carried out by *Brasaite, et al., (2017),* who conducted a study entitled "Health care professionals' knowledge regarding patient safety" and showed that the majority of health care professionals were competent regarding IPSGs skills.

This result comes in the same line with that of *Ahmed*, *Mehany and Abd El-Hafez, (2018)*, who conducted a study entitled "Assessment of Critical Care Nurses Knowledge and Practice Regarding Patient Safety in Intensive Care Units" and found that, about 64.0% of nurses had inadequate practice about all items of patient safety. This result was agree with that of *Alahmadi*, *(2020)*, who conducted a study in Saudi Arabia and revealed that, 33% of the nurses had acceptable level of practical skills towards patient safety goals in the intensive care units. This might be explained by the point that these institutions were variable in terms of size, complexity, and focus on patient safety.

As regards the correlation between nurse's characteristics and their total knowledge about patient safety goals in the intensive care units, the present study noticed that there were highly statistically significant relation between nurse's characteristics namely Qualification & attendance of training course and their total knowledge regarding patient safety goals in the intensive care units. Also, there were statistically significant relation between nurses characteristics namely age & years of experience and their total knowledge regarding patient safety goals in the intensive care units.

These results were in partial agreement with those of *Shahin*, *Alshammari and Alabed, (2020)*, who showed there were no significant differences between nurse's characteristics namely qualifications & experience and their total knowledge regarding patient safety goals in the intensive care units.

As regards the relation between nurse's characteristics and their total practice about patient safety goals in the intensive care units, the present study noticed that there were highly statistically significant relation between nurse's characteristics namely qualification & attendance of training course and their total praactice regarding patient safety goals in the intensive care units. Also, there were statistically significant relation between nurses characteristics namely age & years of experience and their total practice regarding patient safety goals in the intensive care units.

These results were in partial agreement with those of *Mamdouh, Mohamed and Abdelatief, (2020)*, who showed that there were highly statistically significant relation between nurse's characteristics namely qualification and their total practice regarding patient safety goals in the intensive care units. The previous result was supported by those of (*John, et al., 2015*), who found similar results.

As regards the relation between nurse's total knowledge and their total practice, results noticed that there were positive correlation between nurses' knowledge and their total practice towards patient safety goals in the intensive care units. From the investigator point of view, this might be due to when technical skills increased, cognitive skills increased spontaneously. This result was supported with the study carried out by *Al-Rafay, Shafik and Fahem, (2018)*, who conducted a study, entitled "Assessment of nurses' performance regarding international patient safety goals at Primary Health Care Settings" and illustrated that there was statistically significant difference between nurses' knowledge and practice regarding to international patient safety goals.

This result was in agreement with *Hassan & Ahmed, (2015)*, who conducted a study entitled "Patient safety: Assessing Nurses Compliance" and demonstrated that, there were positive correlation between total knowledge and total practice. This finding reflects that nurse's performance is based on their knowledge.

This result was consistent with those of *Mamdouh, Mohamed and Abdelatief, (2020)*,who showed that positive significant correlation between total knowledge and total performance of the nurses under the study regarding implementation of patient safety measures in intensive care units.

5. CONCLUSION

Based on the findings of the present study. More than half of the nurses under study had poor level of total knowledge and about two thirds of nurses had incompetent level of practical skills regarding patient safety goals in the intensive care units. Furthermore,there was a positive correlation (P<0.05) between total nurses knowledge and their total practice regarding patient safety goals in the intensive care units. The poor nurses' knowledge and practice related to patient safety measures may be a reason of ineffective patient health care, long patient staying in ICU and increase mortality.

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 9, Issue 1, pp: (115-126), Month: January - April 2022, Available at: www.noveltyjournals.com

6. RECOMMENDATION

Based on the study results, the following recommendations can be given:

- Continues education and continuous learning programs should be planned to improve healthcare providers knowledge and integrate patient safety topics into the educational curricula.

- Continuous in-service training program should be held for critical care nurses about patient safety.

- Further research studies are needed for ongoing assessment of critical nurses ,including large samples about nursing practice for patient safety for generalized of the result.

REFERENCES

[1] **Abdullah, B. A., Abdullah, S. M., & Abo Elmagd, N. S. (2020):** Effect of Applying A training Program about International Patient Safety Goals on Patient's Safety Culture. *Assiut Scientific Nursing Journal*, *8*(22), 133-144.

[2] *Abo-Elmaged, N., (2019):* The effect of training in reducing medication errors at Assiut University Hospital , Faculty of nursing .

[3] **Afroza, S. (2020).** Patient Safety is the Priority for Quality Health Care. *Journal of Bangladesh College of Physicians and Surgeons*, *38*(1), 1-2.

[4] *Ahmed, A., Mehany, M. & Abd El-Hafez, A . (2018):* Assessment Of Critical Care Nurses Knowledge and Practice Regarding Patient Safety in Intensive Care Units. Assiut Scientific Nursing Journal. 14(6), Article 12: 111-118. DOI: 10.21608/asnj.2018.59756.

[5] *Alahmadi, H. (2020):* Assessment of patient safety culture in Saudi Arabian hospitals. bmj. 2020; 338:342. https://doi.org/10.1136/qshc.2009.033258.

[6] *Al-Rafay, S., Shafik, S. and Fahem, S. (2018):* Assessment of nurses' performance regarding international patient safety goals at Primary Health Care Settings. IOSR Journal of Nursing and Health Science (IOSR-JNHS), 7(6); 59-67.niversity, pp: 41-42.

[7] *Brasaite, I., Kaunonen, M., Martinkenas, A., Mockiene, V. and Suominen, T. (2017):* Health care professionals' knowledge regarding patient safety. Clinical Nursing Research, 26(3); 250-300.

[8] **Despotou, G., Her, J. & Arvanitis, T. N. (2020):** Nurses' perceptions of joint commission international accreditation on patient safety in tertiary care in South Korea: a Pilot Study. *Journal of Nursing Regulation*, *10*(4), 30-36.

[9] *Eldeeb, A., Ghoneim, M. and Eldesouky, K. (2016):* Perception of patient safety among nurses at teaching hospital. American Journal of Nursing Science, 5(1); 122-128.

[10] **Fracica, P. J. & Fracica, E. A. (2021):** Patient safety. In *Medical Quality Management* (pp. 53-90). Springer, Cham. Ocloo, J., Garfield, S., Franklin, B. D., & Dawson, S. (2021). Exploring the theory, barriers and enablers for patient and public involvement across health, social care and patient safety: a systematic review of reviews. *Health research policy and systems*, *19*(1), 1-21.

[11] *Hassan, R. & Ahmed, S. (2015):* Patient safety: Assessing Nurses Compliance. Journal of American Science 8(1): 748-755. (ISSN: 1545-1003).

[12] *Hassanin, H. (2016):* Entitil for' nurses performance regarding the neurological assessment in neurological unit, Page. 50.

[13] **In, J. (2017)**: Introduction of a pilot study. *Korean journal of anesthesiology*, *70*(6), p.601.

[14] **Jci, (2015):** joint commission international ,5th ed,P-p:7-8.avilable at https://www.joint commission international. org/assets/3/7/Hospital-5E-Standards-Only-Mar2014.pdf. accessed on 10\11\2019 7:30

[15] *John, L., Arifulla, M., Cheriathu, J. & Sreedharan, J. (2015):* reporting of adverse drug reactions, Ajman, United Arab Emirates. DARUJ Pharma Sci; 20:1-6.

[16] **Larasati, A. & Dhamanti, I. (2021):** Literature Review: Implementation of Patient Safety Goals in Hospitals in Indonesia. *Media Gizi Kesmas*, *10*(1), 138-148.

[17] **Macey, A., Green, C. & Jarden, R. J. (2021):** ICU nurse preceptors' perceptions of benefits, rewards, supports and commitment to the preceptor role: a mixed-methods study. *Nurse Education in Practice*, *51*, 102995.

[18] *Mamdouh, E. , Mohamed, H., Abdelatief ,D. (2020):* Assessment of Nurses' Performance Regarding the Implementation of Patient Safety Measures in Intensive Care Units. Egyptian Journal of Health Care, 2020 EJHCVol.11No.1

[19] **National Academies of Sciences, Engineering and Medicine, (2018)**: Crossing the global quality chasm: Improving health care worldwide . Washington (DC): The National National Academies Press ; (https://www. nap.edu/catalog/25152/crossing-the-global-quality-chasm-improving-health-care-worldwide, accessed 23 ,October, 2018.

[20] **Newton, Paul, E. (2017): "**Clarifying the consensus definition of validity." *Measurement: Interdisciplinary Research & Perspective* 10.1-2 :1-29.

[21] **Omer, J.A, Al-Rehaili, O., Al-Johani, H., Alshahrani, D.(2018**): Residents" Awareness about International Patient Safety Goals, Cross Sectional ,Study. Arch Pediatr JPED-139. 2018; (1):1-5.

[22] *Salem M, Labib J, Mahmoud A, Shalaby S. (2019):* Nurses' Perceptions of Patient Safety Culture in Intensive Care Units: A Cross-Sectional Study. Open Access Maced J Med Sci. 2019 Nov 15; 7(21):3667-3672. https://doi.org/ 10.3889/oamjms.2019.737

[23] *Shaheen, H., Mahros, O., Hegazy, F.and Salem. M. (2016):* Health care Providers practice toward Patient Safety in El-Ebor family health centers, Egypt. Journal of Caring Sciences: 5(2); 99.

[24] *Shahin, M., Alshammari, R., Alabed, H. (2020):* Quality of Care and Patients' Safety Awarenessand Compliance among Critical Care Nurses at Qassim National Hospital: Adopting IPSGs. Journal of Nursing and Health Science. 3 (9): 2320-1959. www.iosrjournals.org.

[25] **Shin, S. H., Kim, M. J., Moon, H. J. & Lee, E. H. (2021):** Development and Effectiveness of a Patient Safety Education Program for Inpatients. *International Journal of Environmental Research and Public Health*, *18*(6), 3262.

[26] **Simmons, J., (2015, February):** Use medical checklists as tools, not cure-alls, for patient safety problems. Washington DC: Health Leaders Media**.**

[27] **Subcommittee, (2017):** "IEEE reliability test system." IEEE Transactions on power apparatus and systems 6 :2047-2054.

[28] **Tahoun, A., Safan, S., Ahmed, E. (2021):** Nurses' Application of International Patient Safety Goals at Accredited and Non-accredited Hospitals. Journal of Nursing Science - Benha University: 682 – 3934.

[29] **Tobin, D.L. (2017):** Users manual for the Coping Strategies Inventory. Ohio: Ohio University, Department of Psychology; 2001]. Available from: http://www.peersupport.edu.au/wp-content/uploads/2014/08/Coping-Strategy-Indicator-Guide.pdf

[30] **World Health Organization (WHO), (2016**): Quality of care: a process for making strategic choices in health systems. [Internet] Geneva: WHO; 2006 [accessed on 06 May 2016]. Available at:http://www.who.int/management/ quality/assurance/QualityCare_B.Def.pd

[31] **WHO, (2018):**Ten facts on patient safety, Google search, available at www.who.int.

[32] *Yilmaz, Z. & Goris, S. (2015):* Determination of the patient safety culture among nurses working at intensive care units. Pak J Med Sci; 31(3):597-601.