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Nurses' Performance toward Patients with Delirium in Intensive Care Unit

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Abstract: **Background: Delirium is considered a common, life threatening and a cause of morbidity and mortality that can be prevented in ICU patients. Several studies have indicated that nurses' knowledge and practices for delirium are inadequate. Therefore, Aim of this study is to assess the level of nurses' performance toward patients with delirium in intensive care unit. Design: A descriptive exploratory research design was utilized in this study. Setting: The study was conducted at intensive care unit in Banha health insurance hospital. Sample: A convenient sample of nurses (65) from both sex working in the intensive care unit. Tools of data collection: Data were collected by using three tools: Tool (I) Nurses' self-administered interview questionnaire it consists of two parts (Part I Socio Demographic Characteristics of Nurses, Part II Nurses' Delirium Knowledge Assessment Questionnaire), Tool II Observational Checklist to assess the level of nurses' practice and Tool III Nurses' Attitude Assessment Questionnaire. Results: the majority of the study subjects had satisfactory knowledge and nearly two third of the studied subjects had positive attitude; while more than three quarters of them had incompetent practice toward patients with delirium in intensive care unit. Conclusion: the study funding indicated a highly statistically significant positive correlation between nurses' knowledge, practices and attitude. Recommendations: Incorporating cognitive assessment in general and delirium assessment in particular into nursing education courses and Integration of delirium assessment and management into daily nursing care of critically ill patients and training critical care nurses about early recognition of delirium among critically ill patients.**

Keywords: **Delirium, Nurses' performance.**

1. INTRODUCTION

Intensive care unit (ICU) patients are those patients who are suffering from a serious illness, with multiple diseases which could be respiratory, cardiovascular, gastrointestinal, or other autonomic body systems. Typically, these patients need constant care, which can be in the form of cardiac monitoring or breathing treatments. ICU patients experience overall dysfunction in the brain as a result of the pain, invasive procedure, and the environment is unfamiliar and the fear of death. Delirium is a common manifestation of acute brain dysfunction in ICU patient. According to American Association of Retired Persons, delirium is one of six leading causes of injuries associated with hospitalization in patients over 65 years of age (**Adams, et al., 2016).**

Delirium is an acute organic brain dysfunction characterized by disturbances of attention and cognition with a fluctuating course, as a direct consequence of an underlying medical condition. Delirium occurs frequently in ICU patients, and is associated with poor outcome **(Wassenaar, et al., 2015).**

Delirium has several basic features: changes in the level of consciousness decreased ability to concentrate or maintain attention, and either a change in cognition or develop perceptual disorder. Delirium has many types' as hyperactive, hypoactive, or mixed subtypes. Hyperactive delirium tends to present more as hallucinations, delusions, agitation, and restlessness. Hypoactive delirium is characterized by decreased responsiveness, slowed motor skills, withdrawn behavior, and lethargy. Mixed delirium shows characteristics of both types **(Heeder, et al., 2016)**

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Delirium assessment is particularly difficult in the hospital setting because of the fluctuating nature of the condition. This can be a particular problem for the nurse what he or she did not have the necessary knowledge and skills to be able to identify subtle changes in neurological status during his or her shift. Assessment is the first and most important step in the prevention and treatment of delirium in the patient's in intensive care unit. Without identifying the problem, there can be no intervention (**EL Hussein, et al., 2015)**.

Nurses spend a lot of time at the bedside of patients and continuously have frequent contact with them; they could be considered as medical staff who can detect delirium at early stages and who can provide nursing care in timely manner, they are also important for periodic monitoring on the group at high risk for delirium, as well as performing preventive intervention activities. However, many nurses lack in delirium related knowledge that makes them insufficient at assessing delirium early. Sometimes, they cannot practice sufficient patient care in reality **(Choi, et al., 2017).**

Absence of education on delirium assessment is also a problem. As the nurses often have had little training in how to assess patients with delirium. Cognitive assessment is not routinely included in nursing educational program and accordingly has not been deciphered into nursing practice. Nursing assessment is focused more on the physical signs and symptoms of a patient than their cognitive functions. If nurses do not have the knowledge of delirium then their practice will be based on tradition not evidence. With no education, nurses will not recognize delirium when it occurs and will not understand its significance for their patients (**Speed, 2017).**

2. SIGNIFICANCE OF STUDY

Delirium incidence varies, contingent upon patients and the types of screening tool utilized. Its frequency ranges from 16 to 87 % among ICU patients, and 70% of them have delirium during their hospital length of stay. While the mechanically ventilated patients having a higher incidence at up to 60–85 %. About70.4% of ICU patients developed delirium within 48 hours after admission **(Kalabalik, et al., 2016).** Delirium patient surveillance was conducted in Critical Care department of Cairo University Kasr Elani hospital. Delirium was found among approximately one quarter (23.69%) of the totally admitted critically ill patients (N = 650) during the first 36-48 hours of their stay in the ICU in a study done by **(Shoeib, et al., 2012)**. However, the medical records of the critical care departments at Cairo University-Kasr Elani hospital didn't have statistical data about delirium in the ICU. This situation boosts the potential for substantial increases in morbidity and mortality.

3. AIM OF THE STUDY

This study aims at assessing nurses' performance toward patients with delirium in intensive care unit through the following objective:-

- Identifying the level of nurse's knowledge about delirium among patients in intensive care unit.
- Assess nursing practice of delirium toward patients in intensive care unit.
- Assess nursing attitude toward patients with delirium in intensive care unit.

4. SUBJECTS AND METHODS

I. Technical design:

Research design and setting: A descriptive exploratory design was used in carrying out the study at Banha health insurance hospital.

Subjects: A Convenient sample of (65 nurses) all available nurses in intensive care unit.

Tool of data collection: Data were collected using three tools: **Tool I: Nurses' Self-administered Interview questionnaire:** This tool was consisted of two main parts as following:

Part(1):Socio Demographic Characteristics of Nurses: It included nurses' age, years of experience in ICU, gender, educational level and attending training program related to care of delirious patients.

1. Part (2): Nurses' Knowledge regarding patient with delirium in ICU: This tool was adopted from ***Hare, et al. (2008)*** to assess the level of intensive Care nurses' knowledge about delirium. This tool consists of five main parts and included 25 questions 5multiple choices and 20 true/false questions as following: definition, Incidence, type, risk

factor and clinical manifestation of delirium. **Scoring system**: each true answer will have (1) mark, false answer will have (0). Total scoring (25graded) was being classified into two categories as follow: scores more than 60% is measured as satisfactory knowledge level while scores less than 60% un-satisfactory knowledge level according to **Elliott 2014).**

Tool II: Observational checklist for assessment of nurses' practices about delirium: This tool is adapted from **(Devlin, et al., 2008)** which consist of 20-item scale using the standard of nursing care of the American Association of Critical Care Nurses. The scale will observe nurses to identify the nursing practice that the nurses use to assess and manage patients with delirium in intensive care unit as: Decreasing audiovisual stimulation, reorientation the patient to person, place and time, using cognitive stimulation and verbal stimulation.

Scoring system: each adequately done practice will have (1) mark, not done or missed practice will have (0) mark. Total scoring (20 marks) was being classified into two categories as follow: score more than 75 % competent practice level and incompetent practice level less than 75% according to (**Lee, et al., 2016).**

Tool III: Nurses' Attitude toward Patients with Delirium:

This tool adopted from **(Patel, et al., 2009)** to assess nurses' attitude toward patients with delirium in intensive care unit. Which consist of 15 items agree/disagree like nurses use kind word to calm down a patient, don't have enough resources and skills to help the patient recover from delirium.

Scoring system: each agree answer will have (1) mark, disagree attitude will have (0) mark. Total scoring will be classified into two categories as follow: positive of attitude for nurse's toward patient with delirium more than70 % and negative attitude less than 70% according to **(Monfared, Soodmand, & Ghasemzadeh, 2016).**

II. Operational design

The Preparatory phase:

It was including reviewing of related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection. During this phase, the investigator also visited the selected places to get acquainted with the personal and the study settings. The development of the tool was under supervision guidance and expert's opinions were considered.

Validity& Reliability:

It was be used to modify the tools and ascertained by a jury of 5 experts from medical and nursing education staff, to review the tools for clarity, Relevance, comprehensiveness, understanding and applicability.

Reliability was be used to assess the tools to produce stable and consistent results. Reliability of the tools were measured through (10%) of the subject using the established questionnaire and retested after one week on the same subject and the results were be the same in each time. The internal consistency of the reliability of the tool whether all of the items of the tool measure the same variable were done through Coronbach Alpha. Cronbach's Alpha is model of internal consistency, based on the average inter-item correlation. The correlation test was used to compare the means of tow variables.

Pilot study

(10% of the total sample) who chosen as a pilot study to assess, objectivity and the applicability of the tools. Based on results of the pilot study, necessary modifications were done accordingly prior to data collection. Some items have been rephrased to be clear and understood. The nurses in the pilot study excluded from total sample.

Field work

There were two phases to implement the study: preparation and implementation phases.

A. Preparation phase

This phase began in November 2019 to end of February 2020. This phase included a review of the literature related to study sample and how to collect data based on a review of literature and current, nationally and international related literatures. The tools were modified and developed by the investigator. Then, the investigator has translated into Arabic and tested for validity and reliability.

10% of the study subject was chosen as a pilot. The investigator collects data two days per week; from 11.00 am to1.00 pm for the morning shift and from 3 p. m. to 5 p.m. for the afternoon shift.

The investigator distributed the tools to the subjects and asked them to fill it after explaining the aims of the study and its implication. The investigator was available all the time of data collection for any clarification. The investigator collected data from two work shifts (morning & afternoon) by her through meeting the study subjects of each unit at working according to availability of nurse and workload to fill the sheet.

B. Implementation phase

Data were collected when permission was obtained from director of hospital and after talking with charge nurse of ICU to do the proposed study: nurses who agreed to participate in the study were interviewed individually for 20-30 minutes by the investigator to fill tool one and nature and purpose of this study was explained to them.

The data were collected during the two shifts, "morning, evening" and according to their schedule predetermined. Began collecting data with a tool (I),(III) which included personal background data, assess the knowledge of nurses about the delirium and assess nurses attitude toward patients with delirium that completed each nurse through 20-30 minutes. Nurses' practices were evaluated through using tool (II) which include "observational checklist" to assess level of practice regarding delirium assessment and management. It has been observed by the investigator once for each nurse during the care of patients in intensive care unit.

III. Administrative design:

Ethical considerations: The study protocol was approved by the Ethics Committee at the Faculty of Nursing in Helwan University. A verbal informed consent was obtained from each participant after explaining the purpose of the study and informing him/her about the rights to refuse or withdraw from the study at any time. Confidentiality of the data collected was ascertained. The questionnaires were anonymous and self-administered.

IV. Statistical design:

Statistical analysis: Data entry and analysis were performed using (SPSS) the Statically Package for Social Sciences version 22. The quantitative data were presented as numbers and percentages. The chi- square (χ^2) was used to find the association between variable of qualitative data. The p value of ≤ 0.05Indicates statistically significant result while, p value of < 0.01 indicates a highly statistically significant result.

5. RESULTS

Table 1 indicates frequency and percentage distribution of the study subjects' socio-demographic characteristics**.** This revealed that, 84.6% of the studied nurses their age ranged from 20-<30 years, with Mean SD 24.31 ± 6.12 year. Also, 72.3% of them were female. Moreover, 67.7% of the studied nurses their years of experience in ICU were 1-<5 years, with Mean SD 6.81 ± 2.76 year. In relation to the educational level of the nurses under study, it was found that, 72.3% of them had Technical institute of nursing Also, 73.8% of the studied nurses didn't attend training courses or conference about delirium.

Table 2 indicates frequency and percentage distribution of the study subjects regarding their knowledge about delirium related to (definition, incidence and subtypes) in intensive care. This table illustrate that, 55.4% &, 43.1% of the studied nurses had correct knowledge about the definition of delirium and selected hypoactive delirium as the delirium subtype that has the highest prevalence in the ICU setting respectively. Also 29.2% of them answered that the hyperactive clinical subtype of delirium is associated with longer duration of it while, 92.3%ofthem had incorrect answer about Incidence of delirium among mechanically ventilated patient in ICU

Figure 1 indicates percentage distribution of the studied nurses' total knowledge toward patients with delirium in intensive care unit. showed that, 83.1% of the studied nurses had satisfactory level of total knowledge toward patients with delirium in intensive care unit. While, 16.9% of them had unsatisfactory level of total knowledge.

Figure 2 indicates percentage distribution of Nurses' practice toward patients with delirium in Intensive care unit. This figure showed that, 75.4% of the studied nurses had incompetent level of total practices toward patients with delirium in intensive care unit. While, 24.6% of them had competent level of total practices.

Figure3 indicated distributions of the studied nurses' attitude toward patients with delirium in intensive care unit. **)** showed that, 66.2% of the studied nurses had positive attitude toward patients with delirium in intensive care unit. While, 33.8% of them had negative attitude.

Table 3 shows that: Relation between demographic characteristics of the studied nurses and their total knowledge toward patients with delirium in intensive care unit. demonstrated that, there was highly statistically significant relation between total knowledge of the studied nurses toward patients with delirium in intensive care unit and their years of Nursing experience in ICU, educational level and attendance of training courses at (P= < 0.01). Also, there were statistically significant relation with their gender at (P= < 0.05). While, there were no significant relation with their age at (P= >0.05).

Table 4 indicates that**:** Correlation between socio- demographic characteristics of the study subjects and their total knowledge toward patients with delirium in intensive care unit delirium in intensive care unit. there were a highly statistically significant relation between total practice of the studied nurses toward patients with delirium in intensive care unit and their educational level and attendance of training courses at (P= < 0.01). Also, there were statistically significant relation with their gender and years of Nursing experience in ICU at (P= < 0.05). While, there were no significant relation with their age at (P= >0.05).

Table 5: Correlation between socio- demographic characteristics of the study subjects and their total practice toward patients with delirium in intensive care unit. demonstrates that, there were a highly statistically significant relation between total attitude of the studied nurses toward patients with delirium in intensive care unit and their educational level and attendance of training courses at (P= < 0.01). Also, there were statistically significant relation with their years of Nursing experience in ICU at (P= < 0.05). While, there were no significant relation with their age and gender at (P= >0.05).

Table 6 indicates that: relation between the nurses' knowledge toward patients with delirium in intensive care unit and their practice and attitude. Showed that, there was a highly significant positive correlation between total nurses' knowledge toward patients with delirium in intensive care unit and their practice and attitude.

Table (1): Frequency and percentage distribution of the study subjects socio-demographic characteristics (N=65).

Variable	N	%
Age (year)		
20-<30	55	84.6
30-<40	7	10.8
40-<50	1	1.5
≥ 50	2	3.1
Mean SD 24.31 ± 6.12		
Gender		
Male	18	27.7
Female	47	72.3
Years of Nursing experience in ICU		
1-<5	44	67.7
5-<10	15	23.1
10-<20	4	6.1
≥ 20	2	3.1
Mean SD 6.81 ± 2.76		
Level of education		
BSc Nurse	8	12.3
Technical institute of nursing	47	72.3
Secondary nursing School	10	15.4
Training courses or conference about delirium		
Yes	17	26.2
No	48	73.8

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Table (2): Frequency and percentage distribution of the study subjects regarding their knowledge about delirium related to (definition, incidence and subtypes) in intensive care (N=65).

Variable	Correct		Incorrect	
1- Definition of delirium	**N**	**%**	**N**	**%**
Amnesic, drowsy, sudden onset of incontinence, uncontrolled salivation and disorganized thinking.	4	6.2	61	93.8
Acute confusion, fluctuating mental state, disorganized thinking and altered level of consciousness.	**36**	**55.4**	29	44.6
Anxiety, diaphoresis, trembling, muscle weakness, dysphasia and altered arousal level.	22	33.8	43	66.2
Slow onset of confusion, memory loss, disorientation, lack of spontaneity and change in personality.	3	4.6	62	95.4
2- Incidence of Delirium among mechanically ventilated patient in ICU				
More than 20%	25	38.5	40	61.5
More than 40%	18	27.7	47	72.3
More than 60%	17	26.1	48	73.9
More than 80%	5	7.7	**60**	**92.3**
3- One of the following is a characteristic of the hyperactive clinical subtype of delirium				
Apathy	21	32.3	44	67.7
Lethargy	10	15.4	55	84.6
Restlessness	**19**	**29.2**	46	70.8
Flat affect	15	23.1	50	76.9
4- In the ICU setting, the delirium subtype that has the highest prevalence is				
Hypoactive	**28**	**43.1**	37	56.9
Hyperactive	15	23.1	50	76.9
Mixed	9	13.8	56	86.2
Both (A, C)	13	20	52	80
5- The subtype of delirium that is associated with longer duration of delirium is				
Hypoactive	15	23.1	50	76.9
Hyperactive	19	**29.2**	46	70.8
Mixed	10	15.4	55	84.6
Both (A, C)	21	32.3	44	67.7

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Figure 1: Percentage distribution of the study subjects total knowledge toward patients with delirium in intensive care unit (N=65).

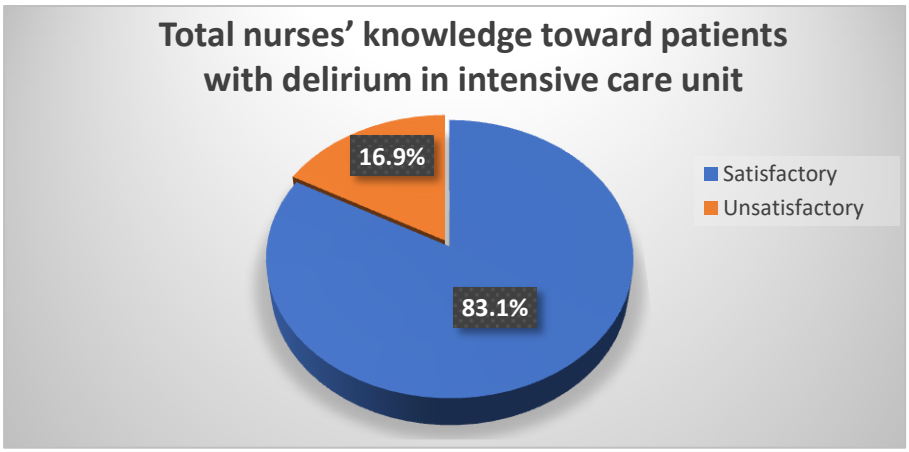

Figure 2: Percentage distribution of the study subjects total practice toward patients with delirium in intensive care unit (n=65).

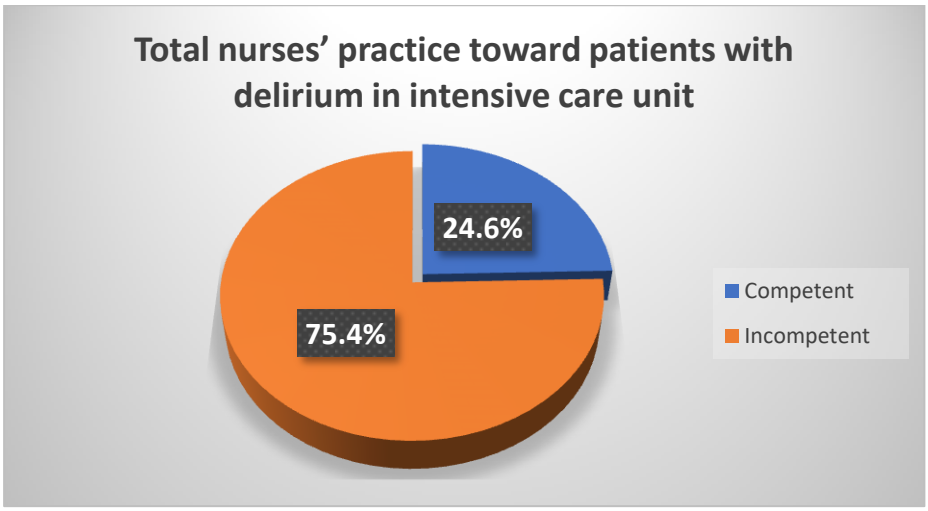

Figure (3): Percentage distribution of the study subjects' total attitude toward patients with delirium in intensive care unit (n=65).

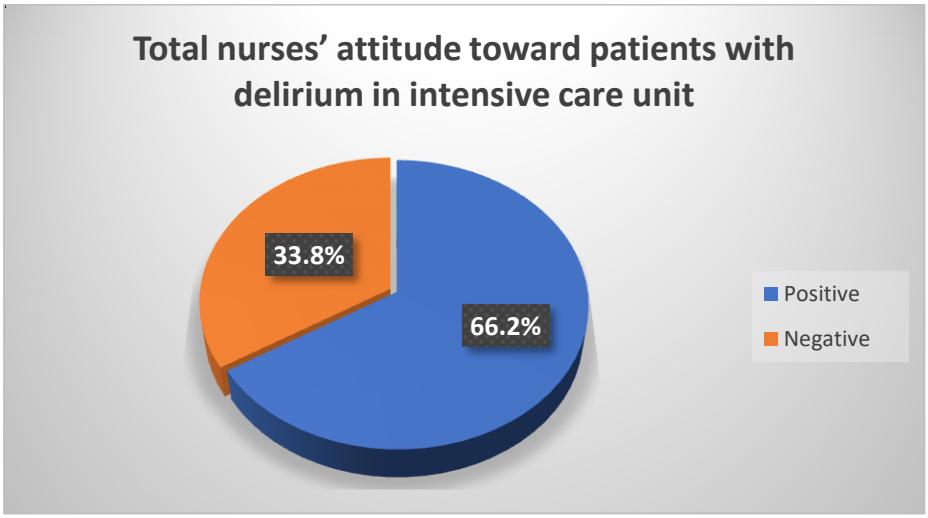

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Table (3): Correlation between socio- demographic characteristics of the study subjects and their total knowledge toward patients with delirium in intensive care unit (N=65).

Variable		Total knowledge				X2	P-Value
		Satisfactory (N=54)		Unsatisfactory (N=11)			
		N	%	N	%		
Age (year)	20-<30	46	85.2	9	81.8	6.140	0.117
	30-<40	7	12.9	0	0.0		
	40-<50	0	0	1	9.1		
	≥ 50	1	1.9	1	9.1		
Gender	Male	17	31.5	1	9.1	14.36	0.01*
	Female	37	68.5	10	90.9		
Years of Nursing experience in ICU	1-<5	36	66.7	8	72.7	17.99	.003**
	5-<10	12	22.2	3	27.3		
	10-<20	4	7.4	0	0.0		
	≥ 20	2	3.7	0	0.0		
Level of education	BSc Nurse	8	14.8	0	0.0	18.26	.001**
	Technical nursing institute	45	83.3	2	18.2		
	Secondary nursing School	1	1.9	9	81.8		
Training courses	Yes	17	31.5	0	0.0	20.62	.000**
	No	37	68.5	11	100		

(*) Statistically significant at p<0.05--(**) highly significant at p<0.0

Table (4): Correlation between socio- demographic characteristics of the study subjects and their total practice toward patients with delirium in intensive care unit (N=65).

Variable		Total practice				X2	P-Value
		Competent (N=16)		Incompetent (N=49)			
		N	%	N	%		
Age (year)	20-<30	11	68.7	44	89.8	7.140	0.117
	30-<40	5	31.3	2	4.1		
	40-<50	0	0.0	1	2		
	≥ 50	0	0.0	2	4.1		
Gender	Male	14	87.5	4	8.2	12.51	0.012*
	Female	2	12.5	45	91.8		
Years of Nursing experience in ICU	1-<5	3	18.7	41	83.7	14.25	0.01*
	5-<10	12	75	3	6.1		
	10-<20	1	6.3	3	6.1		
	≥ 20	0	0.0	2	4.1		
Level of education	BSc Nurse	8	50	0	0.0	18.72	.004**
	Technical nursing institute	6	37.5	41	83.7		
	Secondary nursing School	2	12.5	8	16.3		
Training courses	Yes	16	100	1	2	20.13	.000**
	No	0	0.0	48	98		

(*) Statistically significant at p<0.05--(**) highly significant at p<0.01

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Table (5): Correlation between socio- demographic characteristics of the study subjects and their total attitude toward patients with delirium in intensive care unit (N=65).

Variable		Total attitude				X2	P-Value
		Positive (N=43)		Negative (N=22)			
		N	%	N	%		
Age (year)	20-<30	36	83.7	19	68.4	5.891	0.127
	30-<40	4	9.3	3	13.6		
	40-<50	1	2.3	0	0.0		
	≥ 50	2	4.7	0	0.0		
Gender	Male	16	37.2	2	9.1	7.254	0.114
	Female	27	62.8	20	90.9		
Years of Nursing experience in ICU	1-<5	24	55.8	20	90.9	15.30	0.01*
	5-<10	13	30.2	2	9.1		
	10-<20	4	9.3	0	0.0		
	≥ 20	2	4.7	0	0.0		
Level of education	BSc Nurse	8	18.6	0	0.0	18.93	.001**
	Technical institute of nursing	25	58.1	22	100		
	Secondary nursing School	10	23.3	0	0.0		
Training courses	Yes	17	39.5	0	0.0	21.07	.000**
	No	26	60.5	22	100		

(*) Statistically significant at p<0.05--(**) highly significant at p<0.01

Table (6): Correlation between the nurses' knowledge toward patients with delirium in intensive care unit and their practice and attitude.

Variable	Total practice	Total attitude
Total knowledge	r = 0.324 P = .001**	r = 0.859 P = .000**
Total practice		r = 0.309 P = .001**

(*) Statistically significant at p<0.05--(**) highly significant at p<0.01

6. DISCUSSION

This study explored nurses' knowledge, practice and attitude toward patients with delirium in intensive care unit. The total subject of the current study 65 nurses; most of them hold Technical Institute of nursing, age group of the study subjects ranged from 20 less than 30 years the studied nurses their years of experience in ICU were 1 less than 5 years, and the majority of studied subject female nurses.

The minority of studied subject did not attend training programs the findings agreed with **Shrestha & Shrestha, (2017):** indicated that the studied nurses never receive training about assessing and handling delirium.

The current study revealed that knowledge level of majority of the studied nurses was satisfactory. The finding of study agreed with **Shrestha, & Shrestha (2017) & Elliott (2014).** Who revealed that, more than half of studied samples had correct delirium knowledge questions. But the previous finding was contraindicated by **Lieow, et al., (2019).**

Results of the current study revealed that the level of all nurses' practices about delirium was incompetent. This finding disagreed with **Abdullah, et al., (2020)** who revealed that, more than one half of studied sample had a fair to low level of effective nursing practice to manage ICU delirium.

The present study indicated that, the nurses' attitude toward patients with delirium was positive. This finding is consistent with **(Monfared,A.,&Soodmand,M., Ghasemzadeh,G., 2017)** who relieved that: nurses had positive attitude in ICU, but inconsistent with **Trogrlic, et al., (2016),** who reported that nurses had a higher negative attitude than physicians towards screening and prevention of delirium.

The finding of the present study showed that, there were a highly statistically significant relation between total knowledge of the studied nurses toward patients with delirium in intensive care unit and their years of nursing experience in ICU, educational level and attendance of training courses at Also, there were statistically significant relation with their gender. This result agrees with **Monfared, A., &Soodmand,M., Ghasemzadeh,G., 2017).** While, there were no significant relation with their age.

The present of study finding indicate that, there were highly statistically significant relation between total practice of the studied nurses toward patients with delirium in intensive care unit and their educational level and attendance of training courses. Also, there were statistically significant relation with their gender and years of nursing experience in ICU. While, there were no significant relation with their age. This finding agreed with **Alharbi, (2019):** who revealed that, the correlation between nursing practice and demographic characteristics showed a significant positive correlation with nurses' gender and years of experience in nursing.

The present of study finding relived that there were a highly statistically significant relation between total attitude of the studied nurses toward patients with delirium in intensive care unit and their educational level and attendance of training courses. Also, there were statistically significant relation with their years of nursing experience in ICU While; there were no significant relation with their age and gender. The finding agreed with **Lieow, et al., (2019)** who revealed that, the correlation between nursing attitudes and demographic characteristics showed significant positive correlation with nurses' educational level and attendance of training courses and years of nursing experience.

The present study revealed that, there was a highly significant positive correlation between total nurses' knowledge toward patients with delirium in intensive care unit and their practice and attitude. This result agrees with **Mon fared, &Soodmand,Ghasemzadeh, 2017** who indicated a significant relationship between knowledge about delirium and attitude.

While the study contradicted with (**Lee, K., et al., 2016)** who indicated There was no statistically significant correlation between delirium-related knowledge and practice. Also this result contradicted with **Abdullah, et al., (2020)** who indicated that no correlation between knowledge and practice.in the same line **Xing, et al., (2017)** revealed that not significant relation to their attitude and skill.

7. CONCLUSION

In the light of the present study, it was concluded that, the majority of the studied subjects had satisfactory knowledge towered patients with delirium in intensive care unit. About three quarters of the studied subjects had a total incompetent practice toward patient with delirium in intensive care unit. Nearly two third of the studied subjects had a positive attitude toward patients with delirium in intensive care unit. On the same line there was a highly statistically significant positive correlation between total nurses' knowledge, practice and attitude.

8. RECOMMENDATIONS

Based on the study findings, the following are the main recommendations were suggested:

- Incorporating cognitive assessment in general and delirium assessment in particular into nursing education courses.
- Integration of delirium assessment and management into daily nursing care of critically ill patients.
- Training critical care nurses about early recognition of delirium among critically ill patients.

Recommendations for further researches-:

- Generalization of the study on a larger number of subjects **.**
- Follow up to monitor the nurses' knowledge and practices regarding assessment and management of delirium in the ICU **.**
- Carrying out educational programs about delirium assessment and management in critically ill patients

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