

Assessment of Nurses' knowledge concerning Prevention of Central Venous Catheter Infection in Intensive Care Units at Baghdad Teaching Hospitals

تقييم معارف الممرضين حول منع عدوى القسطرة الوريدية المركزية في وحدات العناية
المركزة في مستشفيات بغداد التعليمية

Dr.Sabah A. Ahmed, PhD(*)

Ali S. Foaad, BSc(**)

Dr. Aqeel H. Jasim, PhD (*)

Husham A. Hashim, BSc(**)

Dr. Tahseen R. Mohamed, PhD (*)

Duaa A. Noori, BSc(**)

Ahmed A. Kadeem, BSc(**)

Samar D. Ahmed, BSc(**)

Mohammed J.Katea, BSc(**)

الخلاصة:

خلفية البحث: معارف الممرضين حول منع عدوى القسطرة الوريدية المركزية في وحدات العناية المركزة في المستشفيات من المواضيع الاساسية التي يجب على الممرضين معرفتها لغرض تقليل او منع حدوث المضاعفات للمريض.

الهدف: تقييم معارف الممرضين حول منع عدوى القسطرة الوريدية المركزية، ولمعرفة إذا كان هنالك اي علاقة بين تلك المعارف والمعلومات الديموغرافية والمهنية للممرضين

المنهجية: لتحقيق هذا الهدف تم اعداد استمارة استبيانيه قد صممت وفقا لمراجعة الادبيات، وتتألف من جزئين، الاول يعنى بالبيانات الشخصية المهنية للملاك التمريضي في وحدة العناية المركزة، اما الجزء الثاني فيتضمن اسئلة تم صياغتها لاختبار معارف الممرضين حول منع عدوى القسطرة الوريدية المركزية. العينة تتكون من (50) ممرض وممرضة ممن يعملون في وحدة العناية المركزة في مستشفى غازي الحريري ومستشفى ابن البيطار التعليمي، مستشفى ابن النفيس التعليمي. مستشفى بغداد التعليمي مستشفى الكرامة التعليمي، مستشفى الكندي التعليمي. تم تحديد الثبات والمصدقية لاستمارة الاستبانة من خلال (13) من الخبراء (10) منهم يعملون في كلية التمريض جامعة بغداد، (3) منهم يعملون في مستشفى بغداد التعليمي وفي مستشفى ابن البيطار التعليمي. تم جمع المعلومات التي تخص الدراسة من خلال استمارة الاستبيان عن طريق المقابلة الشخصية المنظمة، الدراسة بدأت من 15 كانون الأول 2014 الى 22 ايار 2015، وقد تم تحليل البيانات بمساعدة خبير احصائي باستخدام الاحصاء الوصفي والاستدلالي.

النتائج: كشفت النتائج ان اعمار الممرضين (52%) منهم كانوا من الفئة العمرية (20-29) سنة وان أكثر من نصفهم (58%) كانوا ممرضين نساء، (54%) كانوا من خريجي كلية التمريض مع عدم وجود دورة تدريبية في وحدة العناية المركزة خاصة، واطهرت الدراسة ان حوالي (54%) كانت درجة معلوماتهم متوسطة.

الاستنتاجات: استنتجت الدراسة أن أكثر الممرضين كانت معلوماتهم متوسطة.

التوصيات: أوصت الدراسة إلى تصميم برنامج تدريبي لزيادة معارف الممرضين حول منع عدوى القسطرة الوريدية المركزية باستخدام تقنيات حديثة، وكذلك اجراء دراسات اخرى باستخدام عينة أكبر وجمع المعلومات من الملاكات الصباحية والمسائية.

ABSTRACT:

Background: Nurses' knowledge concerning the Prevention of Central Venous Catheter Infection in intensive care units in hospitals is one of the main issues that nurses should know is to reduce or prevent patients' complications.

Aims of study: Assess the Nurses' knowledge concerning the Prevention of Central Venous Catheter Infection, to find out the relationship between the nurses' knowledge with their demographic and occupational characteristics.

Methodology: To achieving this objectives a questionnaire was developed according to review of literature and consist of two parts, the first part deal with demographic and occupational characteristic of intensive care unit nurses, while the second part include questions for knowledge test regarding prevention of central venous catheter infection, Sample consist of (50) nurses who work in intensive care unit in: Ghazi Alhareri Teaching Hospital, Ibn Al-Bitar Teaching Hospital, Ibn Al-Nafis Teaching Hospital, Baghdad Teaching Hospital, Alkarama Teaching Hospital, AL-Kindy Teaching Hospital. The validity of the questionnaire was achieved through (13) of experts, (10) who working in Nursing college University of Baghdad and also (3) expert who work in Baghdad Teaching Hospital and Ibn Al-Bitar Teaching Hospital, The data collection instrument of choice was structure interview, the study starting from 15 December 2014 to 22 May 2015, collected data were analyzed with the assistance of a statistician using descriptive and inferential statistic.

Result: Show that the study of the research in regard to nurses age (52%) of them were in age group (20-29) years, and more than one half (58%) of them were female, (54%) were nursing college graduate with no training session in especially in intensive care unit, also reveals that the nurses' knowledge in fair level (54%).

Conclusion: This study concludes that the most of the nurses had a fair level of knowledge.

Recommendations: A training program should be designed to increase nurses' knowledge toward prevention of central venous catheter infection in the ICU through new technical methods. Further study should be conducted by using large study sample and data collected through the morning and night shifts staff.

* PhD, Adult Nursing Department, College of Nursing, University of Baghdad. Email: Sabah.abbas@ymail.com

** BSc in Nursing, Ministry of Health.

INTRODUCTION:

The catheter of the central venous is a device that can support life for ICU patients but it will lead to have a complications when using in inappropriate techniques which may lead to infections that increase the risk of life continuity and increase life threatening and may lead to raise the cost spent in case of infections occurrence for (10% to 20%) of nosocomial infections, many infected are preventable ⁽¹⁾.

Central venous catheter infections called “catheter-related sepsis” that bacteria associated with catheter and can be dangerous for patients’ life such as nosocomial bacteremia and high expenses ⁽²⁾.

In United States, millions of patients need these catheters annually, in spite of its lead to many complications that associated with use it, which may lead to pressure of patients regarding economic status and complications treated in cases of most serious diseases. Many recorded reported that (3 - 8%) of the catheter infection are original cause of infection as nosocomial in critical care units and especially ICUs ⁽³⁾.

The main functions of catheter as dialysis device in renal impairment or as passage to insert medication like intravenous line or as nourishment way for the patients in safe mode without complications and may be used for blood aspiration for blood tests ⁽⁴⁾. Infections of central venous catheter may be happened in many ways, may be result from catheter site or hub of catheter contamination ⁽⁵⁾. Catheter consider as important device used for patients in intensive care units and this study was assess knowledge of nurses regarding process of catheter infections preventions ⁽⁶⁾.

This study made to assess the Nurses’ knowledge concerning the Prevention of Central Venous Catheter Infection in Baghdad teaching hospitals.

AIMS OF STUDY

Assess the Nurses’ knowledge concerning the Prevention of Central Venous Catheter Infection, to find out the relationship between the nurses’ knowledge with their demographic and occupational characteristics.

METHODOLOGY

A descriptive study used to assessment of nurses’ knowledge concerning prevention of central venous catheter infection in intensive care units in Baghdad Teaching Hospitals, the study starting from 15 December 2014 to 22 May 2015. Sample component of (50) nurse in six hospitals includes : ten nurses from Ghazi Alhareri teaching hospital, ten nurses from Ibn al-Nafis teaching hospital, ten nurses from Ibn Al-Bitar teaching hospital, ten nurses from Baghdad teaching hospital, five nurses from Al-karama teaching hospital, five nurses from AL-Kindy teaching hospital. A pilot study was conducted on (10) nurses selected randomly

according to criteria that have mentioned previously. A questionnaire was designed and constructed by the researchers to measure the variables underlying the present study which was consisting of three parts.

Part I: Demographic characteristics.

Part II: occupational data for nurses.

Part III: nurse's knowledge concerning preventing of central venous catheter infection.

The validity of the instrument was achieved through review of (10) of experts. Data were analyzed through the use of statistical package of social sciences (SPSS) version16.

RESULTS:

Table (1): Distribution of the Study Sample by their Sociodemographic Characteristics

Characteristics	Frequency	Percentage
Age		
20-29 years	26	52
30-39 years	18	36
40-49 years	6	12
Mean(SD)	30.96 (6.61464)	
Total	50	100
Gender		
Male	21	42
Female	29	58
Educational level		
Nursing school	0	0
Preparatory Nursing school	6	12
Nursing Institute	16	32
Nursing College	27	54
Master and doctorate	1	2
Total	50	100.0

Table (1) present that more than one-half (52%) of the nurses were in age group (20-29) years, and more than one half (58%) of them were female, and most of them (54%) were nursing college graduates.

Table (2): Distribution of the Study Sample by their clinical characteristics

Characteristics	Frequency	Percentage
Nurses experience in nursing place		
1-5	27	54
6-10	8	16
11-15	9	18
16-20	4	8
21-25	0	0
26-30	2	4
Mean (SD)	7.42 (6.99)	
Total	50	100
Nurses experience in ICU		
1-5	36	72
6-10	8	16
11-15	6	12
16-20	2	4
21-25	3	6
26-30	1	2
Mean(SD)	4.84 (5.936)	
Total	50	100.0
Training session in ICU		
No session	24	48
One	11	22
Two	10	20
Three	2	4
Four	1	2
Five	2	4
Total	50	100.0

Table (2) present that more than one half (54%) of them were in (1-5) years of experience in nursing as general and two third (72%)of them were in (1-5) years of experiences in intensive care unit, and approximately half of them hasn't at tending session in ICU.

Figure (1): Distribution of the Study Sample by their nurse’s knowledge

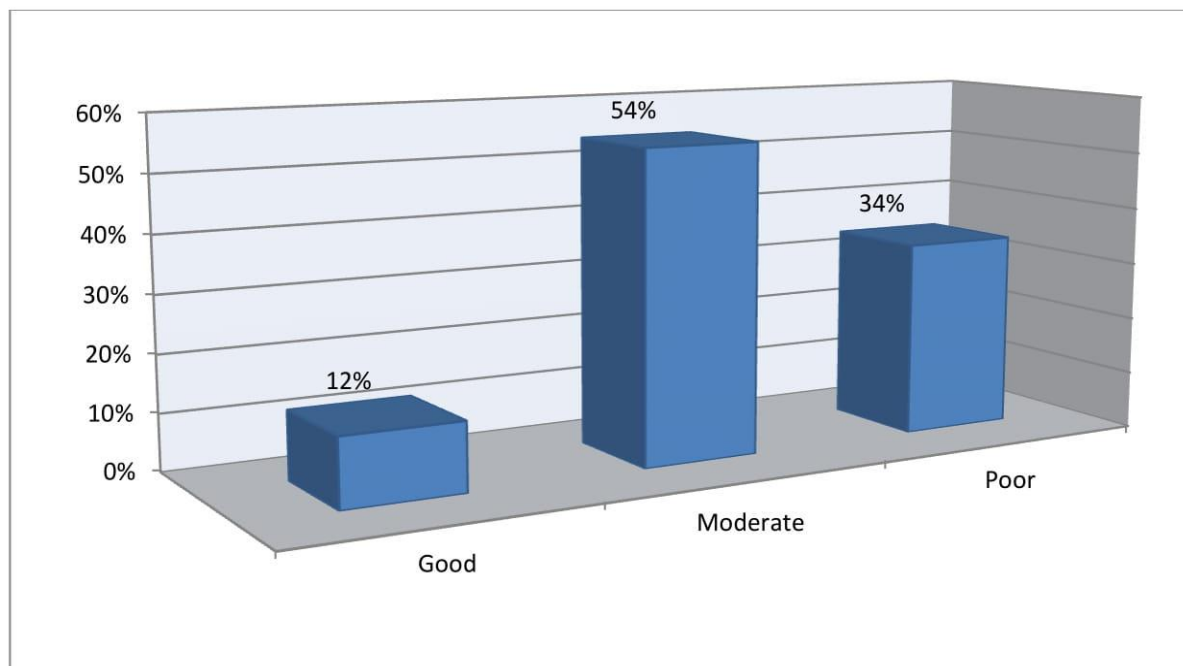


Figure reveals that the more than one half (54%) of nurses’ knowledge in fair level and the lowest percentage (12%) of nurses’ knowledge in good knowledge.

Table (3): Relationship between the gender of Study Sample and their nurse’s knowledge

Gender	Knowledge level						Total	
	Good		Moderate		Poor			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Male	3	14.3	8	38.1	10	47.6	21	42
female	3	10.3	19	65.5	7	24.1	29	58
Total	6	100	27	100	17	100	50	100
Contingency Coefficient	Value =0. .267		P value=0.14		D.F=2, Sig=non-significant			

Study result present there is no statistical significant relationships between nurses' gender and nurse's knowledge, table also show that nurses knowledge in female better knowledge rather than male nurses.

Table (4): Association between levels of knowledge with ICU nurses experience

ICU Experiences (years)	Knowledge level								Contingency Coefficient Tests			
	good		Moderate		Poor		Total		Value	P. value	Df	Significance
	F	%	F	%	F	%	F	%				
1-5	4	66.7	20	74.1	12	70.6	36	72	0.372	0.433	10	NS
6-10	1	16.7	2	7.4	5	29.4	8	16				
11-15	0	0	2	7.4	0	0	2	4				
16-20	1	16.7	2	7.4	0	0	3	6				
21-25	0	0	0	0	0	0	0	0				
26-30	0	0	1	3.7	0	0	1	2				
Total	6	100	27	100	17	100	50	100				

Table reveals that there is no statistical significant association between nurses' knowledge and intensive care unit experiences (years), table also show that more of the study sample were in (1-5) years.

DISCUSSION

Throughout the course of the present study, it has been noted that in regard to nurses age (52%) of them were at the age group (20-29) years, and more than one half (58%) of them were female, and most of them (54%) were nursing college graduate, Cicolini et al,(2014) reported they study include Sixteen hospitals from six regions of Italy participated, another study reported Most participants in their study were female (70.1%), undergraduate (51.8%), worked in medical (35.8%) and surgical departments (28.0%)⁽⁷⁾, another study reported that most of respondent were female (76%) of the sample while 24% were male⁽¹⁾. Regarding the clinical characteristic of the study sample, the result of the study present that more than half (54%) of them have (1-5) years of experience in nursing as general and (72%) have (1-5) years of experiences in intensive care unit, and approximately half of them have no participation in training sessions regarding ICU, another research study reported that respondent were had more than ten years experiences work in ICU⁽¹⁾, Pushpakala and AchuRavinath, (2014) reported that the result from their study reveals that the patients knowledge for nursing care with catheter was improved and enhanced with training and educated program regarding prevention of central venous catheter infection⁽⁸⁾.

Cicolini et al, (2014) show that most participants in their study 55% had more than (10) years of experience, it also concluded that low nurses' knowledge could be a potential harmful for patient health⁽⁸⁾, regarding the nurse's knowledge related to prevention of central venous catheter infection, the study reveals that the nurses knowledge in fair level (moderate) (54%). Concerning the association between level of knowledge and intensive care unit experiences, the study reveals that there is no statistical significant association between nurse's knowledge and intensive care unit experiences (years), result also show that 74.1% of the study sample have (1-5) years experiences and they have moderate knowledge level. Friedt, (2011) reported that application of program with educational reinforcement lead to increase nurses knowledge level and decrease the risk for infections related to central venous catheter⁽⁹⁾.

Other research study reported that nursing knowledge regarding catheter were a little regarding steps of process of catheter care in all steps like: substances used for hand hygiene, the type of lock solution used⁽⁶⁾. In previous Turkish study, it shows that the nurses

knowledge regarding central venous catheters have no association with nurses' experiences, work place, level of education, the low level of nurses' knowledge toward catheter⁽¹⁰⁾.

CONCLUSIONS

The study confirmed that most of study sample were female, and in moderate knowledge concerning the Prevention of Central Venous Catheter Infection, in age group between (20-29) years. The study confirmed that most of the nurses in the study sample were in high academic level in education. The study indicated that there is no significant statistical association between nurses' knowledge and nurse's gender, nurses' experiences in intensive care units.

RECOMMENDATIONS

The researchers recommended a training program and manual handbook should be designed to increase nurses knowledge toward prevention of central venous catheter infection in ICU through new technical methods. And further study should be conducted by using large study sample and data collected through morning and evening shift.

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