

## Assessment of Nurses' Knowledge about Nosocomial Infection at Burns Units in the Middle Euphrates Teaching Hospitals

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### ABSTRACT

**Background:** Nosocomial infections (NIs) are considered the major and common healthcare problems in most healthcare settings at most of developing countries like Iraq, important to assess the nurses' knowledge level and identifying gaps of their knowledge about NIs. **Objectives:** To assess the nurses' knowledge about nosocomial infection, and to find out the relationship between nurses' knowledge about nosocomial infection and selected demographic variables. **Methodology:** A descriptive study was conducted at burns' centers and units in the middle Euphrates teaching hospitals. The study was carried out from (25<sup>th</sup> October 2017) to (1<sup>st</sup> June 2018), A purposive (non-probability) sample was selected (129) from nurses that working at burns' centers and units in the middle Euphrates teaching hospitals. The instrument was presented to (15) experts from several universities to be valid, the reliability of the instrument was determined through the implicated the Cronbach's Alpha, the reliability of this instrument was ( $r = 0.833$ ). **Results:** The result of study was showed that the majority (69.8%) of nurses had (passed score) of knowledge regarding nosocomial infection in burns' units at middle Euphrates teaching hospitals. In addition, the present study pointed out there was a significant relationship between nurse knowledge and number of training courses about nosocomial infection. **Conclusion:** Nurses were pass knowledge in terms of nosocomial infections, prevention, control and precaution in patient care. Nurses age, gender, education, years of experience in-out burn unit have been not influenced their knowledge. Number of Nurses training courses have been affected their knowledge.

**Keywords:** Assessment; Nurse; Knowledge; Nosocomial infection; Burns units.

### INTRODUCTION

The term of infection was outlined as a condition that results from the presence of an infectious agent in/ on the body, infectious agent may be a disease producing microorganism<sup>1</sup>. In addition to, the Infections that emerge in hospitals are delineate as hospital-associated infections. occasionally, infections have additionally been known as Nosocomial Infections (NIs) and typically Hospital acquired Infections (HAIs)<sup>2</sup>. Nosocomial infections are a worldwide phenomenon that refers to infections occurring within forty eight hours of hospital admission, three days once discharge or thirty days after an operation in whom the infection was incubating or present at the admission time<sup>3,4</sup>. According to the world health organization (WHO), and by<sup>5</sup> that estimated about seven million cases of hospital acquired infections happen each year routinely. Single case from people of each twenty people sustain for hospital acquired infection and also this results in ninety-nine thousand cases of mortalities each year. In addition to, a previous study conducted by the WHO on fifty-five hospitals in fourteen countries that appear about eight point seven percent of the patients that enter in those hospitals turn into infected with nosocomial infections. In this regard, also through hospital treatment for acute diseases and individuals who

with long-term diseases that also cured in hospitals may be become more perfect and therefore the hospital remaining longer that lead to leads to nosocomial infections<sup>6</sup>. Burn has been outlined as loss of continuity of body surface because of coagulation and destruction of the skin and/or underlying tissues. Burn wounds occur when there's contact between tissue and an energy supply, parenthetically, heat, chemicals, electrical current, or radiation<sup>7</sup>. The severity of burns injuries was established regarding on the attached the following factors: depth, extent and site of burn injury, the age of the patient, etiologic agents that related to it such as the presence of inhalation injury and co-existing injuries or pre-existing sicknesses. The optimal care of the burns patients' needs specific and multidisciplinary teams. The composition and close collaboration of the burns care teams lead to favorable patient outcomes. The center of this team and the arranger of all patient care activities are the burn nurse. Additionally, the nurse also is accountable for observance changes that need current attention, pain management and infections prevention of wound<sup>8</sup>. Learning is the addition of latest information and experiences and understood in illuminating ways of previous information and expertise. The nurses become uses numerous teaching methods that increase

Table 1: Distribution of study sample by their Demographic Characteristics.

Demographic data	Rating	Frequency	Percent
Age (years)	20-29	89	69.0
	30-39	27	20.9
	40-49	10	7.8
	>50	3	2.3
	Total	129	100.0
Gender	Male	57	44.2
	Female	72	55.8
	Total	129	100.0
Educational Attainment	Graduate of the school of nursing	4	3.1
	Graduate of the secondary nursing school	71	55.0
	Graduate of the diploma nursing	39	30.2
	Graduate of the bachelor in nursing	14	10.9
	Graduate of postgraduate studies in nursing	1	0.8
	Total	129	100.0
Years of employment in nursing	1-5	86	66.7
	6-10	24	18.6
	11-15	8	6.2
	16-20	2	1.6
	>21	9	7.0
Total	129	100.0	
Years of experiences in the burns' units	1-5	112	86.8
	6-10	13	10.1
	11-15	3	2.3
	>16	1	0.8
Total	129	100.0	
Training course about Nosocomial infection	Yes	56	43.4
	No	73	56.6
Total	129	100.0	
Number of courses	< 2	56	43.4
	>2	73	56.6
	Total	129	100.0

information give a lecture, explanations, conversation and self-learning, the methods of self-learning have a priority than others because the student will educate by own himself<sup>9</sup>.

Additionally, the difficulties result from vital roles that nurses doing in the management and assessment biological, psychological and social aspects of patients, also, the caring of the patients contribute to satisfying them as a result of it provides nurses with a chance to show their conception of holistic care(8).However, unique information's and expertise related to a variety of team branches members particularly nurses were needed

in management caring of the patient with burns injury and which encompass from a large style of functions and accountabilities chiefly infection prevention.

## METHOD

A descriptive study was conducted at burns' centers and units in the middle Euphrates teaching hospitals. The study was carried out to assess of nurses' knowledge about nosocomial infection at burns centers and units in the middle Euphrates teaching hospitals from (25<sup>th</sup> October 2017) to ( 1<sup>st</sup> June 2018), A purposive (non-probability) sample was selected (129) from nurses that working at burns' centers and units in the middle Euphrates teaching hospitals (Al-Hilla teaching hospital,(burns unit) at Babylon governorate, the specialized burns' center at Al-Diwanya governorate, middle Euphrates specialized burns' centers at Al-Najaf Al Ashraf governorate, Al-imam Al-Hussein medical city teaching hospital (burns' unit) at Holly Karbala governorate, before collection of data formal administrative permissions were obtained to conduct the study from the Ministry of Planning, Central Statistical Organization and health directorate of governorate that mentioned above , the instrument was presented to (15) experts from several universities to be valid, the reliability of the instrument was determined through the implicated the Cronbach's Alpha, the reliability of this instrument was (r = 0.833), The data analyzed was conducted through the application of descriptive statistics (frequencies , percentages , mean of scores , Standard deviation ) and inferential statistics (Chi-squared test) , the data was collected by utilizing the questionnaire which included two parts:-

Part I: Demographic data of the sample include (Age, Gender, Educational level, Years of employment in nursing, Years of experiences in burn units and training courses and its number regarding nosocomial infection).

Part II: Assessment nurse's knowledge about (nosocomial infection definitions' and general information related it, types, transmission mods), as well as (prevention), (control and precautions) at burns' units in the middle Euphrates teaching hospital. It consisted of (35) questions as multiple choices, each question has (3) choices and was scored through giving the better true answer (3), the true (2), and the false (1).

## RESULTS

Table (1) revealed that (69 %) of nurses were between of the nurse's ages (20-29) years old. Regarding gender, results indicate that (55.8%) were female. About half of the study participants were secondary school nursing graduated in regarding with educational levels. Related years of employment in nursing about (66.7%) of the sample had(1-5) years' work in the nursing field, and (86.8%) of them worked in burn units for (1-5) years. While regarding the training course, (56.6%) were had no training course.

This figure (1) concerned with assessment domains about the knowledge of nurses. Results indicate that the majority of nurses (84.5%) were passed knowledge in

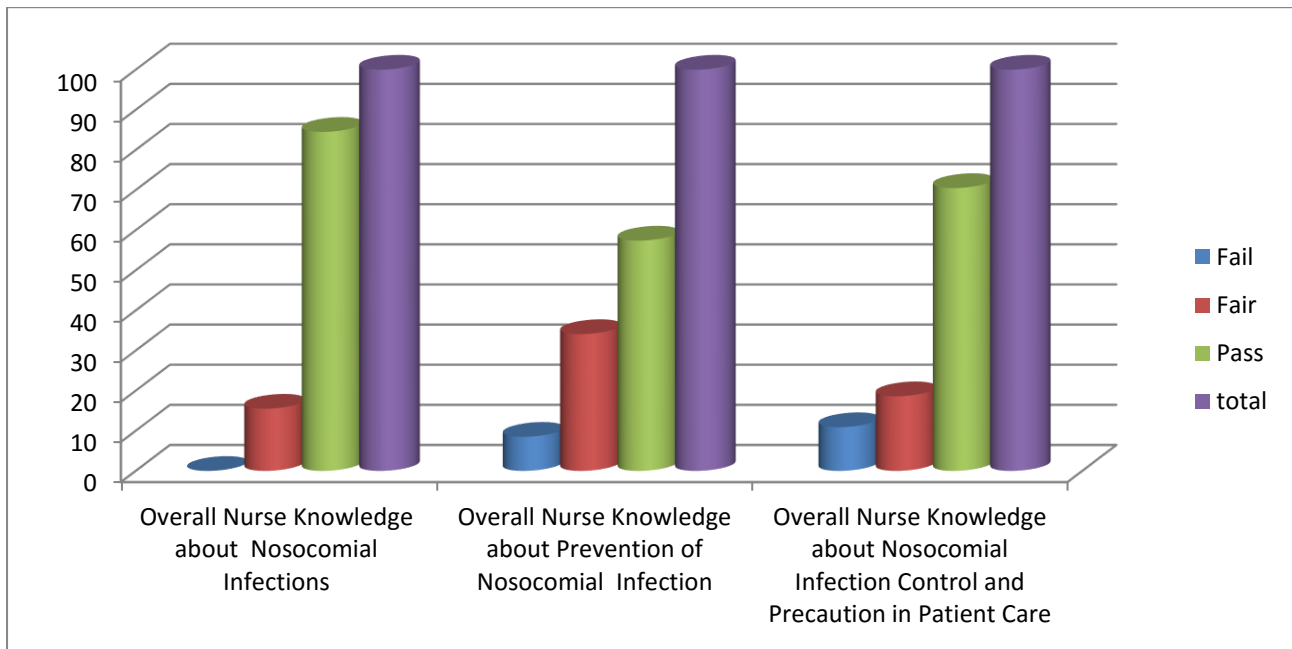


Figure 1: Assessment of Nurses Knowledge about Nosocomial Infection by their Domains.

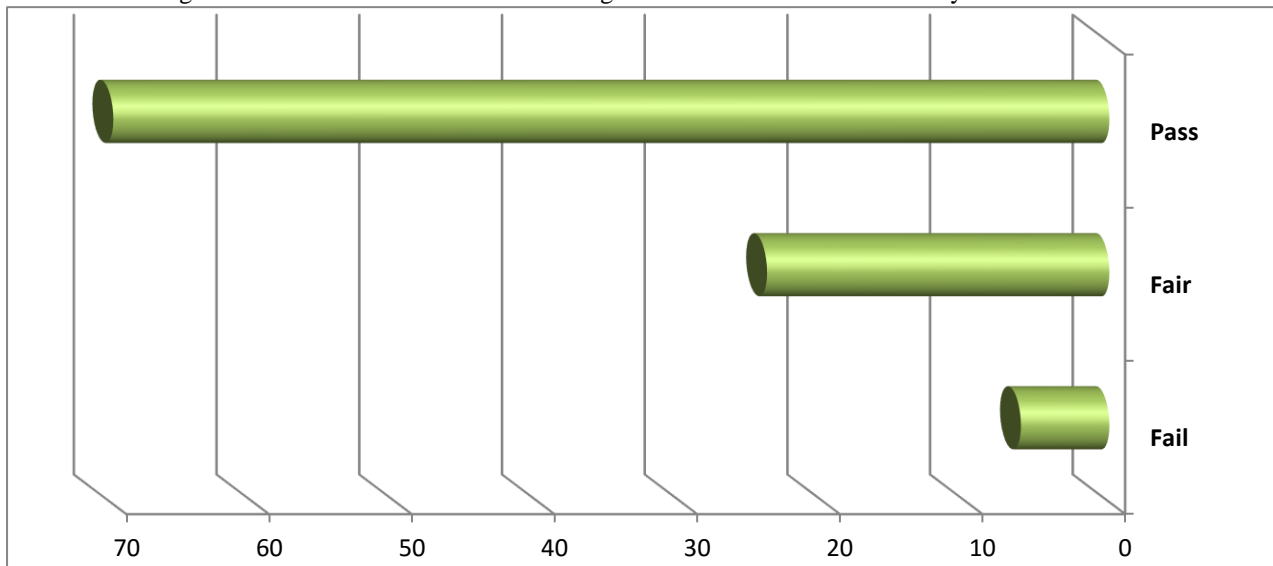


Figure 2: Nurses Knowledge Concerning Nosocomial Infection.

concerning definitions, general information related to nosocomial infection, types of nosocomial infection and transmission Modes of Nosocomial. The majority (57.4%) were passed knowledge concerning preventive measures for nosocomial infection. Most the nurses (70.5%) were passed knowledge concerning nosocomial This table (2) illustrated that there was no significant relationship between nurse knowledge in units of the burns and their demographic characteristics, p-value (>

**DISCUSSION**

The findings in table (1) were pointed out that the majority of the nurses (69 %) their ages between (20-29) years old, these findings were agree with (10), that was conducted in Zaria, Nigeria. In their study found that the majority of nurses were at ages between (20-29) years old.

infection control and precaution in patient care (mean of score 2.34 and more).

This Figure show that the majority (69.8%) of nurses were passed knowledge concerning nosocomial infections in burns units at middle Euphrates teaching hospitals

0.05) except the number of training courses related to nosocomial infection there was a significant relationship at p-value (< 0.05).

Related to gender the finding of the study was revealed that most of the nurses (55.8%) were female and the remaining percent were male. The result was compatible with (11) which was conducted in Baghdad City, Iraq, that was revealed which the majority of the samples (82.1%) were female and only (17.9%) were male.

Concerning the education attainment about half of the study participants were at secondary school nursing graduated this finding was supported (11) which declared

Table 2: Statistical Relationship between nurses' knowledge about nosocomial infection and Their Demographic Characteristics.

Demographic data	Rating	Overall Assessment			$\chi^2$	d.f	p- value
		Fail	Fair	Pass			
Age / years	20-29	5	22	62	1.70	6	0.945
	30-39	2	7	18	8		NS
	40-49	1	1	8			
	>50	0	1	2			
	Total	8	31	90			
Gender	Male	3	15	39	0.39	2	0.821
	Female	5	16	51	3		NS
	Total	8	31	90			
Educational Attainment	A graduate of the school of nursing	0	2	2	6.50	8	0.591
	A graduate of the secondary nursing school	7	15	49	3		NS
	Graduate of the diploma in nursing	1	9	29			
	A graduate of the bachelor in nursing	0	5	9			
	Graduate of postgraduate studies in nursing	0	0	1			
	Total	8	31	90			
Years of employment in nursing	1-5	6	22	58	2.97	8	0.936
	6-10	1	5	18	8		NS
	11-15	0	2	6			
	16-20	0	1	1			
	>21	1	1	7			
	Total	8	31	90			
Years of experiences in units of burns	1-5	7	28	77	5.68	6	0.459
	6-10	0	3	10	7		NS
	11-15	1	0	2			
	>16	0	0	1			
	Total	8	31	90			
Training course about Nosocomial infection	Yes	5	18	33	5.56	2	0.062
	No	3	13	57	3		NS
	Total	8	31	90			
Number Training of courses	< 2	5	18	33	4.97	2	0.042
	>2	3	13	57	1		S
	Total	8	31	90			

" $\chi^2$  = Chi-square", "Df= Degree of freedom", "P-value= Probability value", S= significant, NS= no significant".

that reveal about (35.7%) graduated from secondary nursing school, in addition to, the study finding was incompatible with (12) that was conducted in Baghdad City, Iraq, who found about (45%) of samples in that regarding their educational level were nursing institute. While years of employment in nursing was revealed about (66.7%) of the sample had between (1-5) years' work in the nursing field, this finding support by (12) who reported that about half of the nurses (43%) have less than (5) years of employment in the hospitals, in addition to, the study finding was incompatible with (13) in this study that was conducted in the Sana'a city, Yemen that was revealed about (43.4%) of nurses have more five years' in nursing experience.

Concerning with years of experiences in units of the burns the present study revealed that most of the nurses (86.8%) were worked in burn units for (1-5) years, this finding was supported by (14) in this study was showed that about half the nurses (50%) had less than five years' experience. Regarding to the training course the current

study showed about (56.6%) of nurses were had no training course and the same percentage of nurses had more than two training courses, this finding was supported by (12) it found more than half of nurses (55%) had (1 – 5) training course, this result illustrated that most of the nurses had further than two training course in NIs.

Figure (2) was showed that the majority (69.8%) of nurses had (passed score) of knowledge concerning NIs in burns' units at middle Euphrates teaching hospitals. The present study was in agreement (10) they mentioned that about half of the respondents (57.5%) had aware of NIs who the infections that have been appeared in next forty- eight hours of the patient inter to the hospital. The routes of transmission were contact, airborne and vehicle transmission. This finding was inconsistent with other study conducted by (15) this indicated that the awareness of nurses and nursing students was reported in the average level (68.1%) about nosocomial infections. In addition, these results of the present study disagreed by

(11), they were indicated that the pediatric nurses were had inadequate knowledge level about all domains of the NI. Moreover, the results of the present study also incompatible with (12) in a study who pointed out the majority of the sample (69%) had a poor knowledge regarding NIs. Related to the age there was no significant relationship between the nurse's knowledge about NIs and their nurse's ages at p-value ( $> 0.05$ ). this finding was supported by (13) that showed there were no significant relationships between the nurse's knowledge concerning SPs and NIs and their nurses' ages.

In addition, related to gender there was no significant relationship between nurse knowledge and gender at p-value ( $> 0.05$ ), this finding was supported by (13), the result of this study also pointed out there was no significant relationship between nurses' knowledge concerning SPs, NIs with their nurses' gender. The study finding was incompatible with the (16), in Tehran, Iran, who pointed out that there was a significant relationship between knowledge and gender ( $p < 0.05$ ) in the way that female nurses were had more aware regarding the NIs compared to the male nurses.

However, regarding to educational attainment there was no significant relationship between nurse knowledge and educational attainment at p-value ( $> 0.05$ ), this finding was agreed by (13), showed that was no significant a relationship between the nurses' knowledge regard the NIs and their nurses' educational attainment. Moreover, (17) in this study which conducted in Poland disagreed with current study finding and they showed who there were significant relationships between their nurses' knowledge of NIs and their educational levels.

However, regarding the years of employment in nursing the current study mentioned that there was no significant relationship between nurse knowledge and years of employment at p-value ( $> 0.05$ ). in this regard, this finding was supported by (12) who showed that the years of employment in nursing had no relationship with their knowledge toward NIs.

Moreover, in regarding of years of experiences in burns' units the present study finding pointed out there was no significant relationship between nurse knowledge and years of experiences in burns' units at p-value ( $> 0.05$ ). this finding was supported by (13), this study results showed that no significant relationship between knowledge of nurses regarding standard precautions and NIs and their nurses' working area.

However, the current study was clarified that the there was no significant relationship between nurse knowledge and the training course about nosocomial infection at p-value ( $> 0.05$ ). this finding was supported by (12), who the findings showed that there is no significant relationship between the nurse's training courses about NIs and their knowledge related NIs. In contrast, this current finding disagreed with the finding obtained from other studies done by (16) which showed that there was the good relationship between the training course and nurse's knowledge about NIs.

Additionally, the present study pointed out there was a significant relationship between nurse knowledge and

number of training courses about nosocomial infection at p-value ( $< 0.05$ ). this finding of current study was agreed by (18), which was conducted in AL-Amara City, Iraq, the study indicates that whenever there was when an increase in the number of training courses there was leading to an increase in nurses' knowledge regarding nosocomial infections.

## CONCLUSION

From the results of the present study, we can conclude that the Early adults female nurses who graduated secondary nursing school works for 5 years with inadequately courses of training, Nurses were pass knowledge in terms of nosocomial infections, prevention, control and precaution in patient care, Nurses age, gender, education, years of experience in-out burn unit have been not influenced their knowledge, and Number of Nurses training courses have been affected their knowledge.

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## CONFLICT OF INTEREST

The authors declare that no competing interest exists.

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