

## Nurse's knowledge concerning sterile technique performance at emergency department at Babylon teaching hospital for maternal and children.

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### Abstract

**Background:** Healthcare-Associated Infection (HAI) has emerged as an important health problem worldwide causing significant mortality and morbidity. A localized or systemic condition resulting from an adverse response to the presence of infectious agents is described as Healthcare-associated infection.

**Methodology:** by using a cross-sectional descriptive analysis to assess the knowledge of nurses regarding sterile performance at Babylon teaching hospital for maternal and children for the periods of September 1st, 2019 to June 1st, 2020. Using A non-probability convenient sample of (100) nurses who are working at different areas of Babylon teaching hospital for maternal and children. A descriptive statistical approach that includes frequencies, percentages data, and inferential statistics as chi-square were analyzed.

**Results:** Represents the distribution of the nurses their demographic characteristics in terms of frequencies and percentage. Out of (100) subjects who participated in this study their age ranged from (20-29) years old and constituted (69%) of the study sample. Concerning marital status, fifty-three percent of participants were married. Regarding the educational attainment, most of the nurses were institute graduated work at prematurity wards for 1-10 years with the one-time training course.

**Conclusion:** Nurses knowledge in terms of sterile performance, nurses was passing knowledge. Nurses age, marital status, gender, work area, training course, and years of experience have been not influenced their performance. The Nurse's educational attainment has been affected their performance.

**Keywords:** Knowledge, Nurses, Sterile performance, Emergency department.

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### Introduction

Patients were infected with Nosocomial Infections (NIs) known as Hospital-Acquired Infections (HAIs) during hospital care. When they first occur within 48 hours or more of hospital admission, infections are considered nosocomial. The World Health Organization (WHO) estimates that of the 190 million patients hospitalized worldwide each year, an average of 9 million people is infected by nosocomial infections, and that about one million patients die each year because of these infections. The figures confirm that the prevalence of nosocomial infection varies from 5% to 10% of all hospital and health facility admissions in developing countries to about 10% to 20% [1].

In addition, because of many factors including the prevalence of underlying diseases, longer stay, invasive diagnostic, and monitoring procedures carried out, compromised host defenses, and colonization by resistant microorganisms, the hospital environment is at greater risk of developing infections [2]. Potentially, all humans harbor infectious agents. Standard

precautions apply to all working activities that, regardless of their perceived or confirmed contagious status, are extended to all and maintain a fundamental level of prevention and control of infection. As a first-line approach to infection prevention and control in the healthcare community, adopting standard precautions minimizes the likelihood of infectious agents being spread from person to person, including in high-risk circumstances. Healthcare staff uses standard precautions to avoid or decrease the risk of transmission of infectious diseases from one person or location to another and to make items and places as free as possible from infectious agents and to keep them free of infection [3].

In the world, hospital-related infections are one of the biggest public health issues. Currently, according to World Health Organization (WHO) estimates approximately 1,400,000 patients suffer directly and indirectly from the side effects of nosocomial infections. The prevalence of Nosocomial infections in developed countries is 40%, while 9.4% in Iran has been registered [4]. Healthcare-Related Infection (HAIS) has now emerged as a major worldwide health issue that causes

substantial morbidity and mortality. HAI is characterized as a localized or systemic disorder resulting from an adverse reaction to an infectious agent's presence. No proof should be given that the infection was present or incubated at the time of admission to the healthcare environment [5].

In addition, most nurses lacked proper skills in hand hygiene and felt that they were busy and did not take their precious time to wash their hands. Instead of washing their hands, many nurses tend to wear gloves and dispose of them without washing their hands after using a glove and/or using the same glove for different patients. Dermal lesions caused by using detergent and antiseptics are another explanation for non-observance of hand hygiene [6]. This can be explained by several factors, including lack of resources, large numbers of patients, perception, cultural problems, opinion, understanding, poor performance, limited time and or lower nurse-to-patient ratios, and other factors that could contribute to lower nurse performance [7].

## Methodology

### Study aim

To assess nurse's knowledge towards sterile performance at emergency department at Babylon teaching hospital for maternal and children.

### Design of the study

A cross-sectional study descriptive design by assessment approach was carried to assess nurse's knowledge towards sterile performance at emergency department for the period of September 1st 2019 to June 1st 2020.

### Study setting

The study has been conducted at emergency department at Babylon teaching hospital for maternal and children.

### The study sample

“A non-probability convenient sample” of (100) nurses who are working at different areas of Babylon teaching hospital for maternal and children. The sample is selected according to the followings criteria which involve:

#### Inclusion criteria

- Nurses who work at Babylon teaching hospital for maternal and children.
- Nurses who any degree of educational attainment.
- Nurses who agree to participated in the present study.

### Statistical data analysis

During the use of the "Statistical Package for the Social Sciences it is called (SPSS -version 20)" the study data is analyzed. In order to analyze and estimate the effects of the research, the knowledge of statistical analysis methods is used to analyze and estimate (frequencies, mean, SD, and chi-squared test).

## Results

This table represents the distribution of demographic characteristics of nurses in term of frequencies and percentage. Out of (100) subject who participated in this study their age ranged from (20-29) years old and constituted (69%) of the study sample.

Concerning marital status, a fifty-three percent of participants were married. Regarding the educational attainment, most of nurses were institute graduated work at prematurity wards for 1-10 years with one-time training course (Tables 1 and 2).

No	Socio-demographic variables	F.	%
Gender			
1	Male	50	50
2	Female	50	50
Total		100	100
Age			
1	20-29 years	69	69
2	30-39 years	15	15
3	40-49 years	4	4
4	50+ years	12	12
Total		100	100
Marital Status			
1	Single	44	44

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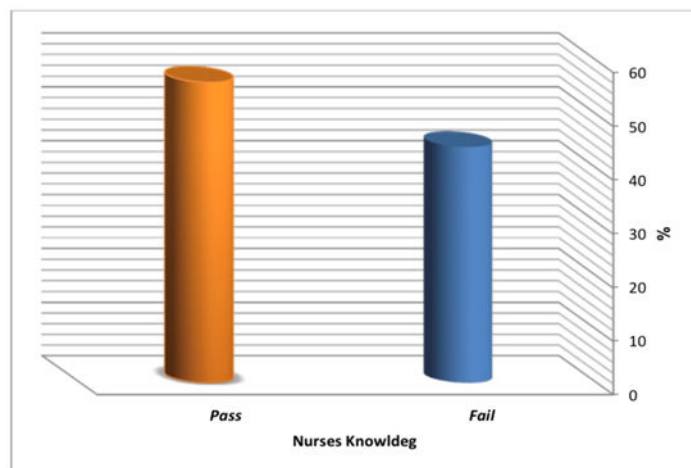
2	Married	53	53
3	Divorced	2	2
4	Widower	1	1
Total		100	100
Educational attainment			
1	Preparatory nursing	2	2
2	Nursing Institute	54	54
3	College of Nursing	43	43
4	Master of Nursing and more	1	1
Total		100	100

**Table 1.** Distribution of the study sample regarding to demographic characteristics.

Overall knowledge nursed	Rating	F.	%	Mean	S.d.	Assessment
	Fail	44	44			
	Pass	56	56			
	Total	100	100			

**Table 2.** The overall nurses' knowledge regarding sterile performance.

This table presented the overall nurses knowledge concerning sterile performance. The findings reveal that the majority of (56%) were pass knowledge of nurses in Al- Hilla city hospital (Figure 1).



**Figure 1.** Nurses knowledge.

Table 3 presented that relationship between nurse's knowledge about sterile performance at Babylon teaching hospital for maternal and children and their demographic characteristics.

There is a non-significant association between them at p-value 0.05 except, with their education attainment, there were significant relationship.

Demographic data	Rating	Nurses knowledge		Total	$\chi^2$ obs.	d.f	P-value
		Fail	Pass				
Gender	Male	19	31	50	1.461	1	0.221 NS
	Female	25	25	50			
	Total	44	56	100			

Age	20-29 Years	29	40	69	1.739	3	0.628 NS
	30-39 Years	7	8	15			
	40-49 Years	1	3	4			
	50+ Years	7	5	12			
	Total	44	56	100			
Marital status	Single	18	26	44	3.231	3	0.357 NS
	Married	25	28	53			
	Divorced	0	2	2			
	Widower	1	0	1			
	Total	44	56	100			
Education	Preparatory	0	2	2	8.226	3	0.048 S
	Nursing Institute	26	28	54			
	College of Nursing	18	25	43			
	Master of Nursing	0	1	1			
	Total	44	56	100			
Work area	Critical Wards	3	8	11	5.386	5	0.371 NS
	Operational Wards	8	14	22			
	Surgical Wards	11	6	17			
	Delivery Wards	4	3	7			
	Prematurity Wards	13	17	30			
	Emergency Wards	5	8	13			
	Total	44	56	100			
Years experience of	<1 Year	16	18	34	1.317	3	0.725 NS
	1-10 Years	26	32	58			
	11-20 Years	1	3	4			
	>20 Years	1	3	4			
	Total	44	56	100			
Training course	Non	10	6	16	2.814	3	0.421 NS
	1	13	21	34			
	2	10	11	21			
	3+	11	18	29			
	Total	44	56	100			

**Table 3.** Statistical relationship between nurse's knowledge and their demographical characteristics.  $\chi^2$ : Chi-square; d.f: Degree of Freedom; P-value: Probability value; S: Significant; NS: Non-significant.

## Discussion

### *Distribution of sample the study regarding demographic characteristics*

In our findings, out of (100) subject who participated in this study their age ranged from (20-29) years old and constituted

(69%) of the study sample due to the nature of the nursing profession need to be young to cover all duties in this units. Present results agree with Effectiveness of an education program on nosocomial infection awareness for nurses. Their research indicates that most nurses are 20-29 years of age [8].

Concerning marital status, a fifty-three percent of participants were married. These results come because most of these age groups are the age of marriage, especially after the completion of the study and appointment in the field of nursing. Where the Iraqi young after graduating from the study and the presence of employment opportunity take the side of marriage. In "assessment of nurses practices regarding sterile techniques critical care units in Al-Najaf AL- Ashraff city hospitals". Results find that the most of participants were married [9].

Regarding the educational achievement, for 1 year-10 years with one-time training course, most nurses were institute graduated work at prematurity wards, as the diploma degree was considered the main proportion of staff nurses in health organization, owing to the large number of institutions graduating from such degrees. This outcome is also due to the fact that hospital wards are entirely dependent on nurses graduating from nursing school and nursing high school, while nurses graduating from nursing college are allocated to special units and compared to other nurses are only in small numbers. Previous studies were in line with this outcome, consisting of studies as mentioned above, it confirmed that nursing institute degree were dominantly in study group (40%) [10].

As well as, the study that conducted at Kerman city in east of Iran, "assessed the knowledge, attitude, and performance of nurses toward hand hygiene in hospitals". They reported that the vast majority of study sample progressed from nursing institute [11]. In regard to the years of experience of the nurse, our findings indicate that a higher percentage of the nurses had (1-10) years of experience in the job as described above, this results due to very heavy work, leaving a job in prematurity wards to go to the nursing assistant sector in the office, and they need to have the proper training to do the job. The fact that rotation from one unit to another within the hospital is regular could explain the few years of nursing experience in prematurity wards. In the other hand, when nurses are younger than nurses in the higher age groups, the effect is that they would have a greater ability to develop their skills.

### ***Overall nurses' knowledge regarding sterile performance***

Nurse's knowledge questionnaire items towards sterile performance, which classified into 20 items using MCQ questionnaire's items technique which were, classified into two categories responses, such as "Pass, and Fail". Finding reveals that the majority of (56%) passed the knowledge of nurses. Versos these proportion the (44%) of nurses were failing in a very important knowledge in the health field. The deficit knowledge pretest regarding sterile performance. It may be for many reasons; nurses do not regularly improve and update their knowledge, most nurses working in health institutions stop reading books so that they do not follow up and just engage in nursing practices, so they have not been able to remember any details, especially the knowledge of sterile performance. The study conducted in Al-Najaf AL-Ashraff city, find that (60%) of nurses were sometimes applied the sterile performance [9].

Also, to assess the profession, understanding, attitude and self-efficacy of nurses in nosocomial control in Iran, which showed that (67.9) percent of nurses had moderate knowledge of "infection control", whereas research conducted in India to "evaluate the knowledge, attitudes and practices of 150 different health care staff on nosocomial infections in India", the study shows that (40) percent of nurses have poor practice [11].

### ***Relationship between nurses' knowledge and their demographic characteristics***

There is a non-significant association between them at p-value  $>0.05$  except, with their education attainment, there were significant relationship at p-value  $<0.05$  [12-14]. The results agree with, who assessed the awareness, attitudes and practices of nosocomial infections among different categories of health care workers and found that the level of education has a positive effect on the retention of knowledge, attitudes and practices in all categories of health workers [11].

### **Conclusion**

The study underhand concludes that their success was not affected by the knowledge of nurses in terms of sterile performance, nurses were transfer knowledge, nurse age, marital status, work area, gender, years of experience, and training course, and the educational achievement of nurses was affected by their performance.

### **Recommendations**

Encourage nurses to engage in training sessions to strengthen their knowledge and practice in order to keep them up to date with sterile results. After the training session, reassessment and follow-up for nurses must be carried out to track, evaluate and encourage their awareness and practice to ensure their application in the workplace. The strength point inexperience should be supported by decision-makers of the nurse to meet the needs of the patient. Special rules on the walls of various areas that can be seen by all nurses in the hospital should be enforced, stressing the basic rules of infection prevention in the hospital.

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