

RESEARCH ARTICLE

Attitudes and Practices regarding Nosocomial Infection among a Sample of Para-medical staff in Al-Najaf Governorate

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ABSTRACT

Background: Nosocomial infection occurs in a patient during care in a hospital or other healthcare facility that was not present or incubating at the time of admission.

Objectives: To determine the level of attitudes and practices regarding nosocomial infection among a sample of para-medical. **Subject and Methods:** This observational descriptive cross-sectional study was done at nine hospitals in the Al-Najaf governorate. The data collection continued for four months, started from the period of 13th December 2020 continued to 18th April 2021.

Results: The current study was conducted on (600) Para-medical staff with age groups ranging from (20–59) years, and the highest percentage (63.8%) were from (20–29) years age group. While in gender, the highest percentage of females was 57.5%. The greater number of participants were institute (50.5%) total number was lowest percentage (17.3%) to secondary school, only (18.0%) of para-medical staff had training about nosocomial infection the most para-medical staff (79.2%) was acceptable attitude score and 56.7% was acceptable practice scores about nosocomial infection.

Conclusion: Most of the studied samples (para-medical staff) had acceptable attitudes and practice scores.

Recommendation: Health education programs about nosocomial infection, causes of nosocomial infection, how spread the infection and how to prevent and control it.

Keywords: Nosocomial infection, Attitude practice, Para-medical staff, Najaf governorate.

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INTRODUCTION

Nosocomial infections are newly acquired infections that are contracted within a hospital environment. Transmission usually occurs via healthcare workers, patients, hospital equipment, or interventional procedures. The most common sites of infection are the bloodstream, lungs, urinary tract, and surgical wounds. Hospital-acquired infection are associated with increased morbidity and mortality and excess costs, and because a significant proportion of them are preventable, they are considered to be a marker of the quality of patient care.¹ Para-medical staff play a crucial role in reducing healthcare-associated infections through adopting standard practice guidelines, including some simple but cost-effective interventions such as maintaining hand hygiene, using personal protective equipment, aseptic precautions, careful handling of sharps, and proper waste disposal.² Education and staff development activities result in the improvement of nursing care by reducing the spread of HAIs. Lack of proper equipment and supervision systems for HAIs, Furthermore, the high

workload of employees is due to the insufficient number of staff, which affects the fatigue of staff and brings poor results of the patient's recovery.³

Objective of Study

To determine the level of attitudes and practices of para-medical staff regarding nosocomial infection.

Subject and Methods

Study Design

This observational descriptive cross-sectional study was done at nine hospitals in Al-Najaf governorate.

Place of Study

In Al-Najaf governorate is a city in central Iraq about 160 km (100 mi) south of Baghdad. Its estimated population in 2017 was 1,500,522 people. The area of Al-Najaf is about 28,824 square kilometers.

Time of Study

The data collection continued for four months, starting from the period of 13 December 2020 continued to 18 April 2021.

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Table 1: Distribution of para-medical staff sample according to socio-demographic characteristics.

<i>Socio-demographic characteristics.</i>	<i>No</i>	<i>%</i>	
Age (years)	20–29	383	63.8
	30–39	117	19.5
	40–49	73	12.2
	50–59	27	4.5
	Mean ± SD (Range)	30.2 ± 8.2	(20–59)
Gender	Male	255	42.5
	Female	345	57.5
Marital status	Single (not married)	212	35.3
	Married	377	62.8
	Divorced	7	1.2
Residence	Widowed	4	0.7
	Urban	532	88.7
	Rural	68	11.3
Years of experience	1–4	283	47.2
	5–9	156	26.0
	10–14	50	8.3
	15–19	47	7.8
	⇒20 years	64	10.7
Educational level	Mean ± SD (Range)	8.0 ± 7.5	(1–38)
	Secondary school	104	17.3
	Institute	303	50.5
	Bachelor & high	193	32.2
	Medical Technical College	59	9.8
	Nursing college	108	18.0
Professional level	Medical assistant	175	29.2
	Pharmacist assistant	54	9.0
	Laboratory assistant	61	10.2
	Nurse	103	17.2
	Radiographer assistant	20	3.3
Have you entered training courses or workshops	Others	20	3.3
	Yes	108	18.0
How many times	No	492	82.0
	1	98	16.0
	2	10	1.7
	3	11	1.8
	4	37	6.2
How many days	5	37	6.2
	6	37	6.2
	7	16	2.7

Inclusion and Exclusion Criteria of Study

Inclusion Criteria

Randomly selected Para-medical staff from all hospital departments

Exclusion Criteria

Physicians, dentists and pharmacists, doctors, administrators staff, Para-medical staff who refuse to participate in the study, Para-medical staff work overnight, and Para-medical staff don't know the term nosocomial infection.

Statistical Analysis

Analysis of data was carried out using the available statistical package of SPSS-27 (Statistical Packages for Social Sciences-version 27). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values). The significance of the difference of different percentages (qualitative data) was tested using the Pearson Chi-square test (χ^2 -test) with the application of Yate's correction or Fisher Exact test whenever applicable. Statistical significance was considered whenever the *p* value was equal or less than 0.05.

RESULTS

The study contains 600 of Para-medical staff gathering from all nine hospitals in Al-Najaf fill out a questionnaire about nosocomial infection. Table 1 show the socio-demographic characteristics of para-medical staff. According to the age group ranging from (20 to 59) years old, the highest percentage (63.8%) was from (20 to 29) years, and the lowest percentage (4.5%) was in the age group (50–59) years. While in gender, the highest percentage in was female (57.5%), but the lowest percentage (42.5%) was male. And the marital status of para-medical staff (62.8%) were married (35.3%) were single, and (1.2%) were divorced, but the lowest percentage (0.7%) were widowed. Most para-medical staff (88.7%) lived in an urban area, and only (11.3%) lived in rural areas. Also, period of experience the majority of a participant in the study had (1 to 4) years was (47.2%) and the lowest percentage (7.8%) in (15–19) years. The greater number of participants were in the institute (50.5%) from the total number and the lowest percentage (17.3%) in secondary school. Related to a professional level the highest percentage (29.2%) was medical assistant, (18.0%) were nursing collage, (17.2%) were nurse, (10.2%) were laboratory assistant, (9.8%) were medical, technical college, (9.0%) were pharmacist assistant and (3.3%) were radiographer assistant and others professional level. Lastly, training courses or workshops on the subject (82.0%) were not entered training courses or workshops on the subject, while (18.0%) was entered training courses or workshops on the subject; refer to how many times entered training courses or workshops were (90.7%) said one time, about how many days the highest percentage (34.3 %) said were 3 and 5 days and lowest percentage (6.5%) said was 4 days.

Table 2 demonstrates the attitudes of para-medical staff about nosocomial infection, where the highest percentage

Table 2: Distribution of para-medical staff according to their attitudes toward nosocomial infection

Attitudes	Agree		Disagree		Not sure	
	No	%	No	%	No	%
Do you think the information and training you received while working in a hospital is sufficient to avoid infected with nosocomial infection	219	36.5	222	37.0	159	26.5
Do you think crowding and a large number of patients in the various places of the hospital prevent you taking all precautionary measures against nosocomial infection	427	71.2	99	16.5	74	12.3
Do you think the needle should be recapped before disposal in the special medical waste bin	453	75.5	104	17.3	43	7.2
Do you think you do not need to wash your hands when using the gloves	87	14.5	476	79.3	37	6.2
Do you think patients or visitors are able to transmit the infection from home to the hospital	515	85.8	37	6.2	48	8.0
Do you think nosocomial infection can cause an epidemic	414	69.0	94	15.7	92	15.3
Do you think the infection preventive measures used to protect healthcare workers only	108	18.0	422	70.3	70	11.7
Do you think the infection preventive measures necessary to protect the health of patients and visitors	526	87.7	40	6.7	34	5.7
Do you think all patients should be considered potential sources of infection	284	47.3	213	35.5	103	17.2
Do you think it is not necessary to use personal protective equipment in the hospital rest	200	33.3	282	47.0	118	19.7

Do you think it is not your responsibility to comply with nosocomial infection guidelines	100	16.7	438	73.0	62	10.3
Do you think Writing prevention guidelines and posters sufficient to prevent the spread of nosocomial infection	176	29.3	338	56.3	86	14.3
Do you think the children can visit patients in hospitals	71	11.8	485	80.8	44	7.3
Do you think that the World Health Organization and the Ministry of Health give importance to nosocomial infections	189	31.5	282	47.0	129	21.5
Do you think you got an infection from the hospital	331	55.2	128	21.3	141	23.5

(87.7, 85.8, and 80.8%) agree about the question of infection preventive measures necessary to protect the health of patients and visitor patients or visitors can transmit the infection from home to hospital and disagree about children can visit patients in hospitals. Also 79.3% disagree about not need to wash hands when using gloves, and 73.0% of para-medical staff disagree that it is not my responsibility to comply with nosocomial infection guidelines. In comparison 71.2% agree that crowding and a large number of patients in the various places of the hospital prevent you from taking all precaution measures against nosocomial infection. In addition 70.3% were disagree that the infection preventive measures used to protect healthcare workers only, observed about (69.0%) agreed that nosocomial infection can cause an epidemic. About half of the para-medical staff (56.3%) disagree about writing prevention guidelines and posters sufficient to prevent the spread of nosocomial infection, also 47.0% disagree that it is not necessary to use personal protective equipment in the hospital rest. And (47.3%) agree that all patients should be considered potential sources of infection, while (37.0% disagree, and 36.5% agree) that the information and training you received while working in a hospital is sufficient to avoid infection with nosocomial infection. But (47.0%) disagree that World Health Organization (WHO) and the Ministry of Health give importance to nosocomial infections.

Table 3 illustrates the para-medical staff participants' practice about nosocomial infection (44.7%) answered always wash their hands according to the guidelines of WHO. In comparison, hand washing steps number were (40.2%) correct practice, also exchange gloves to the same patient if they touch different places of the body (57.3%) always answered, and wash a white coat according to the guidelines of WHO (76.8%) answered always in addition only (28.3%) knew how

Table 3: Distribution of para-medical staff according to their practice toward nosocomial infection

Practices No %	Sometimes		Always		Never	
	No	%	No	%	No	%
Wash your hands according to the guidelines of WHO	299	49.8	268	44.7	33	5.5
What is the hand-washing steps						
a- 4 steps	123	20.5				
b-5 steps	108	18.0				
c-6 steps	241	40.2				
d- don't know	128	21.4				
Exchange your gloves with the same patient if they touch different places of body, some of them injured and others not, such as touching wounds or burns and other places free from wounds	191	31.8	344	57.3	65	10.8
Wash your white coat according to the guidelines of WHO	123	20.5	461	76.8	16	2.7
How many times a week you should wash						
a-every day	167	27.8				
b- 3times	108	18.0				
c-twice	170	28.3				
d-don't know	155	25.8				
Wear jewelry and accessories such as watches, rings, and bracelets while working in the hospital	268	44.7	64	10.7	268	44.7
Eat meals inside the working area like lobbies or laboratories	227	37.8	121	20.2	252	42.0
Handling body fluids with bare hands if gloves are not available	167	27.8	46	7.7	387	64.5
Touch your nose, mouth, or eye while caring for patients	182	30.3	39	6.5	379	63.2
Placed Sharps and sick waste are directly in the waste bin	102	17.0	434	72.3	64	10.7
Follows all the guidelines to prevent transmission of infection according to WHO and the Ministry of Health	277	46.2	291	48.5	32	5.3
Educates patients on hand washing and other measures to prevent the spread of infection	289	48.2	243	40.5	68	11.3

many times a weekly you should wash, but 44.7% never said about wear jewelry and accessories such as watches. Regarding eating meals inside the lobbies or laboratories were 42.0% never answered; about item of handling body fluids with bare hands if gloves are not available were 7.7% responded always, and 27.8% answered sometime, also touch your nose, mouth, or eye while caring patients was 6.5% said consistently, and 30.3% sometimes said, whereas highest percentage (63.2%) said never. The result show 72.3% always answered to place sharps and sick waste directly in the waste bin, and only 48.5% answered that we always followed all the guidelines to prevent transmission of infection. According to WHO and the Ministry of Health, practice educates patients on hand washing and other measures to prevent the spread of infection 48.2% answered sometimes. In comparison 40.5% always answered, and 11.3% answered never.

DISCUSSION

The study contains a number of socio-demographic information about para-medical staff found in Table 1. The majority of the age group (20–29 years) was 63.8%. This result agreed with to study done in Palestinian Hospitals (64.2%) (Ayed .,2015) and disagreed with the study in Kosovo (16.9%).³ This difference is related to the difference in sample size. More participants in the study were female (57.5%), while the male (42.5%). This

result disagreed (70% of male) to study development done in Baghdad, Iraq,⁴ while agreed (68.1% of female and 31.9% of male) result done in Saudi Arabia.⁵ The study was observed 35.3% of single para-medical staff, the majority percentage 62.8% were married, and 1.9% widowed and divorced. This result agrees with the study result done in Kuwait (11.4%) were single, (86.7%) were married, and (1.9%) were widows or divorce.⁶ In the present study, according to the residents of para-medical staff, approximately 88.7% were in the urban area, and (11.3%) were in rural. This agrees with what had been reported in a study in Menoufia Governorate in Egypt, the Egyptian study 68.2% was urban, and (31.8%) was rural.⁷ Regarding years of experience, most para-medical staff in this study show (1–4) years (47.2%). This is similar to the study in Zaria, Nigeria was 72.5% in 1–4 years of experience.⁸ The majority of para-medical participants (50.5%) had a diploma. This result agrees with other studies in Soroti Regional was 48.9%.⁹ In the current study, only 18.0% entered training courses or workshops on nosocomial infection, the majority percentage of staff without training was very small, which may lead to transmitted the different types of infection from staff to patients, and this difference with study in Bagdad, Iraq was (55%) of nursing taken trained⁴ and also, disagree with Palestine study was (36.2%) trained.¹⁰

The study findings in Table 2, regarding the attitude of para-medical staff about nosocomial infection, demonstrate a highly percentage (87.7%) of para-medical staff agree that "infection preventive measures necessary to protect the health of patients and visitors". Our study result agrees (84.4%) with the study in Enugu, Nigeria.¹¹ Relative to subject "patients or visitors are able to transmit the infection from home to hospital," the majority (85.8%) of para-medical staff was different (18.4%) from a study in Turkey hospital in Zambia.¹² The difference may be related to variations in sample size. While our study findings 79.3% disagree about "do you think you do not need to wash hands when using gloves", this result similar to the study in Turkey were had 70.6%.¹³ In addition (73.0%) disagree about "do you think it is not your responsibility to comply with nosocomial infection guidelines." This result disagrees (92.8%) with a study in Turkey hospital in Zambia.¹² Regarding "crowding and a large number of patients in the various places of the hospital prevent you taking all precaution measures against nosocomial infection," was (71.2%) agree with other studies in Trinidad and Tobago were had (87.7%).¹⁴ As has been shown that (55.2%) about half of the para-medical staff agree, "do you think got an infection from the hospital" this result is inconsistent (15.2%) with a study done in Sulaimani Hospitals in Iraq.¹⁵ While 47.3% agree that "all patients should be considered potential sources of infection," this result disagrees (95.4%) in the study in a Turkey hospital in Zambia.¹² The result means some para-medical staff didn't award the risk of patients with the disease without symptoms or in the incubation period. Our study showed (36.5%) of para-medical staff agree that the "information and training you received while working in the hospital is sufficient to avoid infect with nosocomial infection", this result similar to study in Libya was 47.2% in the Fezzan region southern Libya.¹⁶ Our study's low percentage may be because of the lack of para-medical staff training about nosocomial infection. In regards to the item "needle, its important items and such research had the following question should be recapped before disposal in special medical waste bin" 17.3% were of para-medical staff disagree, this result similar with studies (22.3%) in Davangere city in India¹⁷ and (22.7%) in Sulaimani Hospitals in Iraq.¹⁵ But, different (48.0%) in the study in Raipur city, Chhattisgarh¹⁸ and 74% in the study.¹⁹ The low percentage and difference is because some -times not provide a safety box that makes para-medical staff disposal of needles in ordinary waste bins dangerous to cleaning people infection via needle, so the para-medical staff recapped needle although the WHO guidelines didn't agree with an item of recapped needle.

The current study illustrates the practice of para-medical staff regarding nosocomial infections, Table 3. Concerning the item of "placed Sharps and sick waste are directly in the waste bin," the majority percentage of para-medial staff (72.3%) always said this result disagree (96.3%) with the study in Wolaitta Sodo Otona teaching and referral hospital.²⁰ While 44.7% of para-medical staff never said about "wear jewelry and accessories such as watches, rings, and bracelets while

working in a hospital," this result agrees with (38.0%) in a study among healthcare providers of a tertiary care hospital of south Gujarat.²¹ The item is "hands washing according to the WHO guidelines". The present always was 44.7% and sometimes was 49.8%. This not the same with the study were present always 70.4% and sometimes 27.8% in Makah, Saudi Arabia,²² hand washing considered the first and most important step to prevent nosocomial infection, so percentage should be more than in present study to prevent the spread of nosocomial infection by hands. Also, regarding to subject "what is the number of hand washing steps number" 40.2% of the para-medical staff corrected their answer (at six steps). This agrees with the Turkish study, where (31.3%) of the corrected answer.²³ Item "Eating meals inside the lobbies or laboratories" (42.0%) of para-medical staff never answered, this agreement with a study in Trinidad and Tobago (30.0%) never answered¹⁴ and agreement with (40%) in the study.¹⁹ The result reflects the staff's awareness that eating inside the working area can transmit different diseases. Regarding "educates patients on hand washing and other measures to prevent the spread of infection," were (48.2%) answered sometime. This result disagrees with the study were (64.6%) in Debre Markos referral hospital, northwest Ethiopia.²⁴ The result appeared that approximately half of the para-medical staff only gave advice to patients and attendants, which can cause the spread of the infection from one patient to another and from the patient to the hospital environment. This result considered low percentage of health education to patients.

CONCLUSION

Most of the studied samples (para-medical staff) had acceptable attitudes and practice scores.

RECOMMENDATION

Health education programs about nosocomial infection, causes of nosocomial infection, how spread the infection, and how to prevent and control it.

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