

Assessment of Knowledge among Nurses Regarding Spread of Nosocomial Infection

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ABSTRACT

Introduction: Nosocomial infections, also described as healthcare-associated infections (HAI), are illnesses that occur in hospitals or other healthcare settings. Infection obtained while receiving care and was not aware at the moment of hospitalization. Hospital - associated infection occurs when a client is taken to a hospital for a long or short term for particular treatment reasons but has no indication of infection time of admission. Nosocomial infections can always be microbial, prion, highly infectious, or parasitic, but they can be observed with in wind, inside the body, or on surfaces.⁽¹⁾

Objective: To assess the knowledge among nurses regarding spread of nosocomial infection. To identify association between knowledge about nosocomial infection and demographic variables of staff nurses.

Place and duration: University Lahore teaching hospital Lahore, Pakistan. This study approximately took in 5 months (September, 2021 to January, 2022). The data is collected in 1 month.

Methodology: A cross sectional study design was used in of University Lahore teaching hospital Lahore, Pakistan. Questionnaire distributed among staff nurses and data analyzed by SPSS software (version 21). All male and female Staff nurses having age 20-60 years, who have more than one year working experience were included. Sample size of n=159 staff nurses were taken by using convenient sampling. Throughout the study, participants' identities were kept strictly confidential to ensure research participants protection.

Results: The results of study show that 23.9% of individuals demonstrated excellent knowledge of nosocomial infection transmission. 46.5 percent of individuals had good knowledge about nosocomial infection spread, whereas 29.6 percent had poor knowledge about nosocomial infection spread.

Conclusion: We concluded that nurses had a good knowledge regarding spread of nosocomial infection. Antibiotic resistance in emerging pathogens can be reduced by following sound and health care delivery techniques devised by infection control committees, preventing transmission of these illnesses with suitable antimicrobial usage methods.

Keywords: Knowledge, nurses, nosocomial infection

INTRODUCTION

A nosocomial infection is an illness or poisonous agent that is found in a specific place, such as a hospital. Health-care associated infections (HAIs) and hospital-acquired illnesses are once again linked to nosocomial infections. Before anyone seeks hospital treatment for a HAI, the sickness must not have been visible. The intensive care (ICU), in which doctors prescribe deadly illnesses, is among the most prevalent units where HAIs occur. A HAI impacts just around one in every 10 persons hospitalized. They also were associated with high mortality rates, death rates, and hospital bills.⁽¹⁾

A nosocomial infection or health care associated contamination (HAI) is characterized by the World Wellbeing Association (WHO) as a disease happening in a patient during the course of care in a clinic or other medical services office, which was absent or brooding at the hour of confirmation. This incorporates contaminations procured in the medical care office, however showing up after release, and furthermore word related diseases among medical services laborers (HCWs) of the facility.⁽²⁾

Contaminations from nosocomial infections or health services develop symptoms undergoing clinical evaluation. These contaminations occur in both industrialized and developing economies. Nosocomial illness affects 7% of people in the developed world and 10% of people in poor countries. Such contaminations occur throughout emergency clinic visits, resulting in a prolonged stay, disability, and financial difficulties.⁽³⁾

Caretakers are in danger of obtaining and communicating emergency clinic procured diseases while conveying nursing care; hence, they ought to have adequate information also, practice to control and forestall spread of nosocomial disease. Utilization of standard safety measures to forestall patients from nosocomial disease is significant piece of nursing care. It has been recommended that medical services laborers ought to have palatable information level with respect to of contagious diseases. A review from Kenya uncovered that the 100% members

rehearsed hand cleanliness; 87.8% by utilizing water also, cleanser while 12.2% of the members revealed that they utilized liquor based hand rub during hand cleanliness. In any case, when noticed for training, a lower extent (16.7%) of the members performed hand cleanliness prior to doing a methodology. A bigger extent (100%) performed hand cleanliness after contact for certain tainted materials, for instance subsequent to purging a catheter sack. This shows that attendants are more stressed over their lives than those of patients.⁽¹⁾

HAI caused by health care occurs all over the world, but it is most prevalent in low- and middle-income countries, which are reported to be 5.7–19.1 times more prevalent than the industrialized nations. The general gauge demonstrated over than 2.5 million cases of nosocomial infection occur each year in the developing and developed world¹⁶, with over 90% of contaminations occurring in an asset-restricted scenario. As a result, HAIs have become more widespread everywhere on the earth; in major league salary countries, 5–15 percent of inpatients have HCAIs, which can affect anywhere from 9 percent to 37 percent of those sent to advanced care units. Despite the fact that concerns associated to HAIs are sometimes delayed by insufficient information, HAI has been estimated to account for more than 40% of assets in asset-constrained countries such as Asia, Latin America, and Sub-Saharan Africa. As per a few investigations in Ethiopia, HAIs expanded by in excess of two creases from 5.7% in 2009 to 19.41% in 2018 among patients^{20–22} and may prompt expanded word related danger among HCWs⁽⁴⁾

Aim of the Study: The aim of this study was to assess the knowledge among nurses regarding spread of nosocomial infection and to identify association between knowledge about nosocomial infection and demographic variables of staff nurses.

METHODOLOGY

Time Framework: This study approximately took in 5 months (September, 2021 to January, 2022). The data is collected in 1 month.

Study Population: Study population consist of that population from where we gather all the information relevant for research and this study population consist of the nurses of the University of Lahore Teaching Hospital.

Study Design: A quantitative descriptive cross sectional study design will be use to conduct this study

Study Site: This Study site will be conduct in the University of Lahore Teaching hospital.

Study Setting: Data will be conducted in the all wards of University Of Lahore Teaching hospital.

Sampling Strategy: The required sample of n=159 will be recruited through convenient sampling method.

Research Tool: In this research a self-administered questionnaire adopted from the article (Chitimwango&2017) to collect data.

Data Collection Plan: A questionnaire is adopted for data collection to measure the Knowledge among nurses regarding spread of nosocomial infection. It will be distributed among nursing staff of University Of Lahore teaching hospital. It can consist of 9 questions about Knowledge among nurses regarding spread of nosocomial infection. The study subjects will be given 20 minutes to fill the questionnaire during the break time or after complete of duty hours.

Data Analysis: Data analysis on SPSS version 21.0 statistical software for data analysis. The data will be analyzed on SPSS version 21 quantitative variables such as age experience will be measure using mean, median mode. Whereas qualitative variables will be measure using frequency. However, to test the hypothesis, Chi square test will be used to find out any association between dependent and independent variables of the study.

Ethical Consideration: All participants will be asked to sign a written ethical approval. All information and data gathered will be kept private. Throughout the research, respondents will stay confidential. The subjects will be informed that the study would have no drawbacks. They will also be notified that they will be free to withdraw at any moment during the study's course, and that their information will be kept private. There are no known dangers linked with this study. We will do everything possible to keep your information private. Your personal information will be kept private. You identify will not be exposed in any study-related publications.

RESULTS

Data was collected from the staff nurses of university of lahore teaching hospital on the 'Knowledge among nurses regarding spread of nosocomial infection'the cross sectional study. The demographic data of this study was that out of 159 participants female's nurses were n=114(71.7%) and male were n= 45(28.3%). Out of the 159 participants ,87 participants were between 20 to 25 years old,59 were between 26 to 30 years old and 13 in between 31 to 35. Out of the 159 participants 15.10% participants were working in gynae ward, 13.20% participants were working in surgical ward, 11.90% participants were working in medical ward, 13.20% participants were working in OPD, 11.90% participants were working in private ward, 11.30% participants were working in dialysis ward, 10.70%participants were working in operation theater, 8.80% participants were working in female surgical specialty ward and 3.80% participants were working in male surgical specialty ward. As per the results, 113(71.1%) of the participants have a diploma in nursing, 35(22%) have a BSN degree and 11(6.9%) were LHV. 55.30% participant's experience were between 1-4 years and 39.60% participants experience were between 5-8 years and 5.00% participants experience were between 9-12 years. The analysis of the data was consisted in to two parts. The first one include demographic data and 2nd one include knowledge questionnaire.

Table 1. Demographic data of the participants

Variables	Frequency	Percentage (%)
Age		
20-25 years	87	54.7
26-30 years	59	37.1
31-35 years	13	8.2
< 36 years	0	0

	Total	159	100
Gender	Male	45	28.3
	Female	114	71.1
	Total	159	100
Wards	Gynae ward	24	15.1
	Surgical ward	21	13.2
	Medical ward	19	11.9
	OPD	21	13.2
	Private ward	19	11.9
	Dialysis ward	18	11.3
	Operation theater	17	10.7
	FSSW	14	8.8
	MSSW	6	3.8
	Total	159	100.0
Experience	1-4year	88	53.3
	5-8 year	63	39.6
	9-12 year	8	5.0
	Total	159	100.0
Qualification	BSN	35	22.0
	Diploma nurses	113	71.1
	LHV	11	6.9
	Total	159	100.0

Sr	Questions	Frequency	Percentage
1.	Nosocomial infections may be transmitted by		
a)	Syringes/ Catheters	43	27.0%
b)	Beds	87	54.7%
c)	Stethoscopes	14	8.8%
d)	None	15	9.4%
2.	Neutropenia patients or those with communicable diseases should be kept in.		
a)	Private rooms	7	4.4%
b)	ICU	10	6.3%
c)	Isolation ward	142	89.3%
d)	Emergency	0	0.0%
3.	Which of the following nosocomial infection are commonly seen in your hospital?		
a)	Urinary tract infections	59	37.1%
b)	Surgical wound infections	87	54.7%
c)	Skin infections	10	6.3%
d)	None	3	1.9%
4.	Which of the following behavior(s) can spread infectious organisms?		
a)	Coughing/Sneezing	69	43.4%
b)	Spitting	28	17.6%
c)	Handshaking	57	35.8%
d)	None	5	3.1%
5.	Which is the single most effective method to prevent nosocomial infection?		
a)	Hand washing properly	90	56.6%
b)	Wearing caps, masks, and shoe covers	40	25.2%
c)	Regular vaccination of healthcare workers	19	11.9%
d)	Isolation of infected patients	10	6.3%
6.	Which is the preferred hand washing method to prevent transmission of Clostridiumdifficile-associated infections?		
a)	Alcohol hand rub	101	63.5%
b)	Water and soap	8	5.0%
c)	Iodine solution	42	26.4%
d)	None	8	5.0%
7.	The minimum distance between beds in multi-patient rooms should be:		
a)	0.6 meter (or 2 feet)	33	20.8%
b)	1meter (or 3 feet)	115	72.3%
c)	1.5 meters (or 5 feet)	11	6.9%
d)	None	0	0.0%
8.	What is the recommended by WHO duration for hand- washing?		
a)	30seconds	65	40.9%
b)	20 seconds	84	52.8%
c)	10 seconds	10	6.3%
d)	I don't know	0	0.0%
9.	Which of the following have been demonstrated to be risk factors for nosocomial (hospital acquired) infections in NICU and PICU patients?		
a)	Length of stay/TPN	103	64.8%
b)	Lines/catheters	31	19.5%
c)	Severity of illness	25	15.7%
d)	None	0	0.0%

Total knowledge

Sr.	Knowledge	Frequency	Percentage	Mean	Median
1.	Excellent knowledge	38	23.9%	2.056604	2.0000
2.	Good knowledge	74	46.5%		
3.	Poor knowledge	47	29.6%		
	Total	159	100.0%		

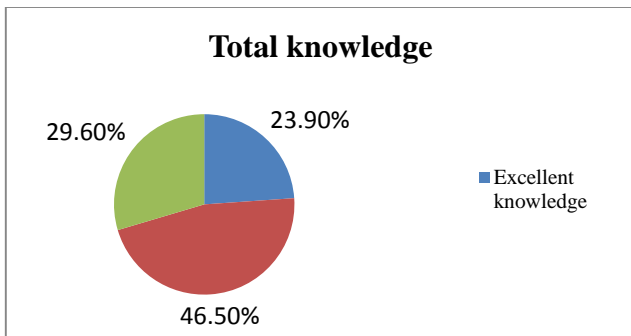


Fig 1: Total Knowledge

Fig 1 shows that 23.9% participants had excellent knowledge about spread of nosocomial infection. 46.5% participants had good knowledge about spread of nosocomial infection. And 29.6% participants had poor knowledge regarding spread of nosocomial infection.

This table show the association between age and knowledge

Association between age and knowledge questionnaire			
Questionnaire	Chi Square value	Df	P value
Nosocomial infections may be transmitted by	0.76369	2	0.682599
Neutropenia patients or those with communicable diseases should be kept in	0.218417	2	0.896543
Which of the following nosocomial infection are commonly seen in your hospital?	0.218417	2	0.896543
Which of the following behavior(s) can spread infectious organisms?	0.981140	2	0.612277
Which is the single most effective method to prevent nosocomial infection?	1.709944	2	0.425295
Which is the preferred hand washing method to prevent transmission of Clostridium difficile-associated infections?	3.254078	2	0.196511
The minimum distance between beds in multi-patient rooms should be:	2.879116	2	0.237033
What is the recommended by WHO duration for hand- washing?	3.680196	2	0.158802
Which of the following have been demonstrated to be risk factors for nosocomial (hospital acquired) infections in NICU and PICU patients?	2.103957	2	0.349246

This table shows the association between gender and knowledge.

Association between Gender and knowledge questionnaire			
Questionnaire	Chi Square value	Df	P value
Nosocomial infections may be transmitted by	0.017813	1	0.893826
Neutropenia patients or those with communicable diseases should be kept in	4.715066	1	0.029899
Which of the following nosocomial infection are commonly seen in your hospital?	1.520780	1	0.217502
Which of the following behavior(s) can spread infectious organisms?	0.217502	1	0.049561
Which is the single most effective method to prevent nosocomial infection?	0.217502	1	0.217502
Which is the preferred hand washing method to prevent transmission of Clostridium difficile-associated infections?	4.172116	1	4.172116
The minimum distance between beds in multi-patient rooms should be:	4.765038	1	0.029043
What is the recommended by WHO duration for hand- washing?	0.006376	1	0.006376
Which of the following have been demonstrated to be risk factors for nosocomial (hospital acquired) infections in NICU and PICU patients?	0.006376	1	0.349246

DISCUSSION

The aim of the research was to assess the knowledge among nurses regarding spread of nosocomial infection, The demographic data of this study was that out of 159 participants females nurses were n=114(71.7%) and male were n= 45(28.3%). Out of the 159 participants. As per the results, 113(71.1%) of the participants have a diploma in nursing, 35(22%) have a BSN degree and 11(6.9%) were LHV. 55.30% participant's experience were between 1-4 years and 39.60% participants experience were between 5-8 years and 5.00% participants experience were between 9-12 years. These findings are comparable to those of

Jahangir, Ali (1) conducted study in Pakistan. Infection obtained at a hospital is a typical occurrence all over the world. As a result, up-to-date learning and nursing abilities can help with infection management. As a vital element of patients' care, nurses should have the opportunity to practice infection prevention on a daily basis. That is why the current research was conducted. According to the findings of the research, over two-thirds of the people interviewed were between the ages of 20 and 30. old. This conclusion is in line with that of (Johnson et al., 2013) stressing the need of safeguarding this group of employees in their prime from.

23.9% participants had excellent knowledge about spread of nosocomial infection. 46.5% participants had good knowledge about spread of nosocomial infection. And 29.6% participants had poor knowledge regarding spread of nosocomial infection. These result supported by research conducted in Palestinian in 2015. Ayed (5) Knowledge among nurses about spread of nosocomial infection was good. Out of 159 participants 87(54.7%) were know that nosocomial infection transmitted by beds and 43(27%) participants were strongly chose answer nosocomial infection transmitted by syringes/catheters, 14(8.8%) participants agree with nosocomial infection transmitted by stethoscope and 15(9.4%) participants agree with nosocomial infection cannot transmitted by beds, syringe and stethoscope. These study result were also supported by the result of Bayleyegn, According to Bayleyegn, Mehari (4) research 236 participants were participated in this research, 90% participants knowledge was good.

89.3% participants know that Neutropenia patients or those with communicable diseases should be kept in isolation ward, 4.4%, 6.3% participants chose patient should be kept in private ward and ICU respectively. These findings are comparable to those of Jahangir et al. (2017) conducted study in Pakistan. According to 54.7% Surgical wound infections were in hospital. 37.1%, 6.3% participant's Urinary tract infections, Skin infections were commonly seen in hospital, respectively.

In this research 43.4% participants know that Coughing/Sneezing can spread infectious organisms. 17.5% participants were choosing Spitting can spread infectious organisms. 38.5% participants were choosing hand shaking can spread infectious organisms. 3.1% participants choosing none all these behavior cannot spread nosocomial infection. Kennedy, Elward (6) Study results were 77.5% participants had good knowledge about precautions nosocomial infection. 56.5% participants know that properly hand hygiene is the most effective method to prevent nosocomial infection. 25.2% participants choose Wearing caps, masks, and shoe covers can prevent from nosocomial infection. 11.9% Regular vaccination of healthcare workers can prevent from nosocomial infection. The results of Kamunge, Cahill (7) that out of 352 participants (90.3%) were know hand hygiene. 63.5% participants preferred Alcohol hand rub for hand washing method to prevent transmission of Clostridium difficile-associated infection. 5%, 26.4% participants preferred Water and soap, Iodine solution for hand washing method to prevent transmission of Clostridium difficile-associated infection, respectively. According to a statewide research, the transmission of healthcare pathogens can be effectively reduced by implementing safety precautions and hand cleanliness. 72.3% participants know that minimum distance between in multi-patient room should be 1meter (or 3 feet). It was also verified by the outcomes with another research, which demonstrated that in order to avoid nosocomial infection, care providers must adjust their pathogen control techniques. (8-10)

52.8% participants know that 20 second recommended by WHO duration for hand washing. 47.2% participants don't know correct duration recommended by WHO for hand hygiene. 64.8% participants know that Length of stay/TPN demonstrated to be risk factors for nosocomial (hospital acquired) infections in NICU and PICU patients and 35.2% people don't know which risk factors for nosocomial (hospital acquired) infections in NICU and PICU. In this study there was significant relation between ages with knowledge. With the age nurses have more than enough knowledge.

CONCLUSION

We concluded that nurses had a good knowledge regarding spread of nosocomial infection. 23.9% of individuals demonstrated excellent knowledge of nosocomial infection transmission. 46.5 percent of individuals had good knowledge about nosocomial infection spread, whereas 29.6 percent had poor knowledge about nosocomial infection spread. Antibiotic resistance in emerging pathogens can be reduced by following sound and health care delivery techniques devised by infection control committees, preventing transmission of these illnesses with suitable antimicrobial usage methods.

Recommendation: The management authority did not lack support for continuing professional education among the staff. However, in order to prevent nosocomial infection, policymakers and management must work together to develop and implement intervention solutions. In addition, to promote infection prevention habits among healthcare personnel, hospitals should provide infection prevention facilities and supplies, and all appropriate personal protective equipment.

Limitation: The sample size was one of the study's limitations. A more representative sample would be larger. A large study of knowledge nurses could involve using a different research strategy that relies on observation rather than a self-administered questionnaire.

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