

Evaluation of the Level of Knowledge among Allied Health Workers Regarding Hand Hygiene and Healthcare-Associated Infections (HAIs): A Cross Sectional Study Conducted In Pakistan

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Abstract

Healthcare associated infections (HAIs) are not incubating at the time of admission to the hospital but develops in patients during their stay in the healthcare facility and extend the duration of stay in the healthcare facility. Healthcare-associated infections (HAI) characterize unsolicited consequences of healthcare with significant outcomes on the patients' progress such as a rise in their misery, prolonging their stay in the hospital, in the healthcare expenses, in the disease and the death. The goal of this study was to evaluate the level of knowledge among allied health workers regarding hand hygiene (HH) and healthcare associated infections (HAIs). Cross sectional study design was used and data was collected from a tertiary care hospital of Lahore from October to December 2018. Total number of 60 allied health workers working at different designations and having different experience were interviewed. Eleven allied health workers out of 60 (19%) were found to have poor knowledge regarding HAIs, 34 (56%) allied health workers had average knowledge and 15 (25%) allied health workers had excellent knowledge about the HAIs. . Response from 1 (2%), 28 (47%) and 31 (51%) allied health workers were poor, average and excellent respectively. Considering their possible interactions with the patients there must be continuous education in the discipline of infection control for all healthcare workers and practice of healthcare staff to update their knowledge their compliance to the guidelines/ standards of infection control evaluated periodically and corrective actions must be devised.

Key words: healthcare, infections, hygiene, interventions, qualification, designation

Introduction

Healthcare associated infections (HAIs) are not incubating at the time of admission to the hospital but develops in patients during their stay in the healthcare facility and extend the duration of stay in the healthcare facility (Mumtaz et al., 2020). Healthcare-associated infections (HAI) characterize unsolicited consequences of healthcare with significant outcomes on the patients' progress such as a rise in their misery, prolonging their stay in the hospital, in the healthcare expenses, in the disease and the death (Nedelcu et al., 2020). Infections associated with hospitals usually occur after 48 hours of hospital admission, 72 hours after discharge or 30 days after surgery (Al-Salih, et al, 2018). HAIs are one of the key health concerns which can extend patients' duration of stay and surge the expenses of treatment. HAIs affect the morbidity and mortality significantly therefore, patient safety focuses on reducing the HAIs, principally within hospitals. ((Arefian, et al, 2019). Healthcare associated infections are a worldwide problem, affecting approximately 1 out of 25 patients in United States. Patients become vulnerable if patient discharged from that room was infective (Brons et al., 2020). Healthcare associated infections are alarming the globe because of their significant impact on morbidity and mortality, leading to prolonged hospitalization and increased costs (Salem, 2019). Professionals in health care are exposed to many micro-organisms which can result in severe infections. Hence, healthcare staff must have good knowledge and strict compliance to the infection control guidelines in practice (Fashafsheh, et al, 2015). Pollution of the healthcare environment with pathogenic organisms adds to the weight of healthcare associated infections, therefore, it becomes so significant for all health workers to know regarding HAIs. Antimicrobial surfaces are intended to decrease microbial sullyng of healthcare associated infections (Muller, et al, 2016). Implementation of an effective Infection Control Program (ICP) can minimize the healthcare associated infections particularly in ICUs (Hagel, et al, 2019).

Objectives

The study was aimed to assess the level of knowledge among allied health workers regarding hand hygiene and healthcare associated infections.

MATERIALS AND METHODS

Study design: A cross sectional study was conducted in a tertiary care hospital of hospital of Lahore. Span of the study was three months, i.e. October to December 2018. A pre-designed questionnaire was used as instrument to collect information.

Study area: This study was conducted in a tertiary care hospital at Lahore, Pakistan.

Sample size: Total number of 60 allied health workers (radiology, physiotherapy, pharmacy) were interviewed through pre-designed questionnaire. The participants were selected from different units of the hospital using convenience sampling method.

Sampling unit: Each allied health worker was considered as a sampling unit.

Validity and reliability: A pilot study was conducted in the same study area. In this pilot study, a self-developed, closed-ended questionnaire was distributed to 12 allied health workers (20% sample of size) to determine the level of knowledge among allied health workers regarding hand hygiene and healthcare associated infections. The answered questionnaire was estimated for the desired outcomes and value of Cronbach's α was calculated (0.77) to check the reliability of the instrument. Components of the instrument were discussed and agreed by a specialist in microbiology and academic nursing.

Data collection: Allied health workers from different units of the hospital (radiology, physiotherapy, pharmacy) were interviewed through pre-designed questionnaire to assess their knowledge regarding hospital acquired infections. After taking consent from each participant, questionnaire was distributed to answer and collected upon completion. Data for demographic variables (qualification, designation and total working experience) and different variables for knowledge was collected (Questionnaire was designed in English language).

Data analysis: The descriptive analysis was used to analyze the data.

RESULTS

The allied health workers from the participating hospital were interviewed through a pre designed questionnaire, to assess the level of knowledge regarding hand hygiene and healthcare associated infections.

Two demographic variables were selected initially to compare the level of knowledge among allied health workers 1. Current Designation, and 2. Total Clinical Experience.

As indicated in table 1 (appendix)

The response from participants were categorized as poor, average and excellent knowledge. Table 2 below shows that 14 allied health workers were not able to define HAIs, 45 allied health workers had average/fair knowledge and 1 staff defined HAIs perfectly. As indicated in table 2 (appendix)

Table 3 shows below shows participant's response (summed up as poor, average and excellent) for each variable in the pre designed questionnaire. Most of the allied health workers responded excellently when asked about susceptible sites in the body for HAIs, highly infectious invasive devices/procedure and hand hygiene. As indicated in table 3 (appendix)

It was calculated using the data from table 3 that 11 (19%) allied health workers possess poor knowledge regarding HAIs, 34 (56%) had average/fair knowledge and 15 (25%) allied health workers were excellent in expressing their knowledge regarding HAIs as indicated in figure 1 (appendix)

Level of knowledge regarding hand hygiene is graphed in figure 2. More than half 31 (51%) of the allied health workers responded perfectly when asked about hand hygiene, 28 (47%) were average and 1 (2%) was found to be poor knowledge regarding hand hygiene. As indicated in figure 2 (appendix)

Results of this study showed some association between demographic variables (designation and experience) and knowledge of allied health workers regarding hand hygiene and healthcare associated infections. Respiratory therapists with experience >3 years were found to be having fair/average and excellent knowledge regarding HAIs followed by physiotherapists, medical laboratory technicians and x-ray technicians respectively.

CONCLUSION

It was noted that level of knowledge of most of the allied healthcare workers under study was average/fair and excellent knowledge regarding healthcare associated infections and hand hygiene. At the same instant, a significant number of allied health workers were not able to answer correctly for most of the variables. Considering their possible interactions with the patients there must be continuous education in the discipline of infection control for all healthcare workers to keep their knowledge upated and practice of healthcare staff must be monitored to evaluate their compliance to the guidelines/ standards of infection control and corrective actions must be devised when it's required.

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APPENDIX

Table 1. Frequencies and percentage of the staff interviewed; according to Designation and Work experience

Demographic Details	Frequency	Percent
Designation		
Medical lab technician (MLT)	11	19%
X-ray/Radiology technician (XT)	8	13%
Physiotherapist (PT)	12	20%
Respiratory therapist (RT)	29	48%
Work Experience		
0-1 Year	15	25%
1-3 Years	20	33%
3-5 Years	15	25%
> 5 Years	10	17%

Table 2. Participants' response to one of the variables; definition of healthcare associated infections

Nosocomial infections are infections which develop:		MLT	XT	PT	RT	Total	
1	At the time of admission	5	3	5	0	13	Poor
2	48 hours after admission	5	3	4	23	35	Ave
3	Just after discharge from the hospital until 30 days	1	1	3	6	11	Ave
4	30 days after discharge from the hospital	0	1	0	0	1	Poor
Total		11	8	12	29	60	Excell

MLT: Medical Laboratory Technician, XT: X-Ray/Ultrasound technician, PT: Physiotherapist, RT: Respiratory therapist, Ave: Average.

Table 3. Knowledge of allied health workers for different variables interviewed

No.	Variables interviewed through questionnaire	Poor	Average	Excellent
1	Definition of health-care associated Infections	14	45	1
2	Factors Contributing to development of health-care associated infections	23	35	2
3	Susceptible Body Sites	5	25	30
4	Most prevalent organism responsible for health-care associated infections	13	38	9
5	Highly Infectious Invasive Procedures	3	24	33
Overall response for HAIs		11	34	15
Overall response for hand hygiene		1	28	31

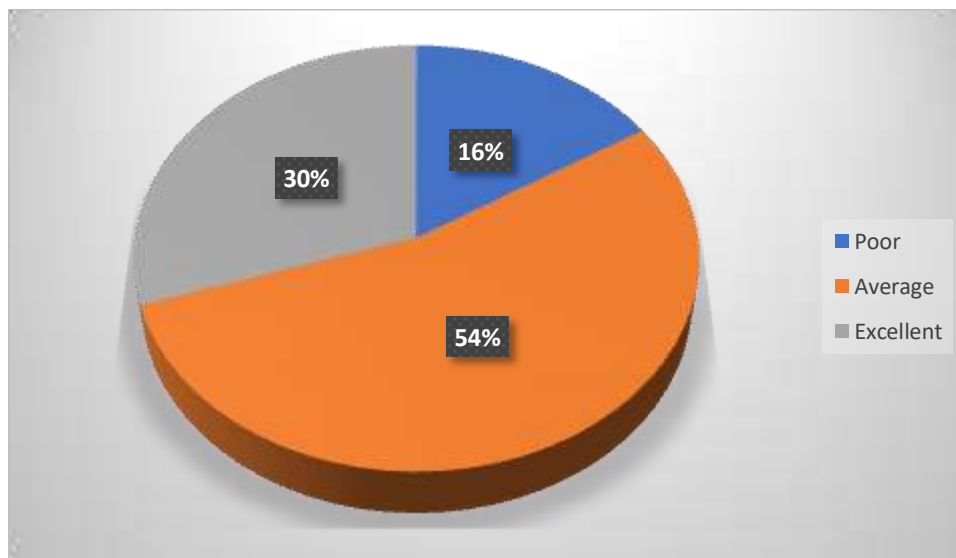


Figure 1. Level of knowledge of allied health workers regarding healthcare-associated infections
 Note: Poor $\geq 50\%$, Average 51-79% and Excellent $\leq 80\%$

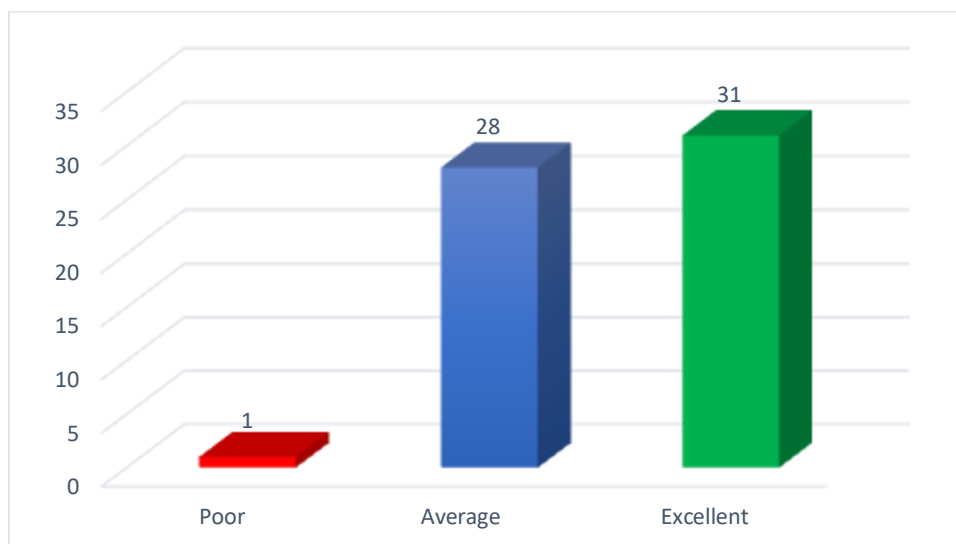


Figure 2. Level of knowledge of allied health workers regarding hand hygiene
 Note: Poor $\geq 50\%$, Average 51-79% and Excellent $\leq 80\%$