

Knowledge and Attitudes of Nurses towards Health Care Associated Infections in Lahore, Pakistan

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Abstract

This study assesses the knowledge & attitudes of nurses regarding standard precautions about health care associated infections (HAIs) among the different hospitals of Lahore, Pakistan. Exposure to the body fluids and blood is the main sources for HAIs to the patients. Health care associated infection is a critical issue in the health care facilities because it causes mortality and infection among the hospitalized patients and health care workers. The World Health organization reported that ninety percent of infections among health care workers (HCWs) are associated with the occupational exposure to the body fluids and blood in the developing countries (Wilburn, et al., 2013). Standard precautions are used to provide the protection to health care providers from damages and to stop spread of nosocomial infection. Standard precautions recommend the proper hand hygiene before and after the procedure while contact with the patients (Boyce, et al., 2013).

The current study is of quantitative and cross-sectional design. Target population of the current study was 600 nursing staff of two hospitals of Lahore, Pakistan in which one is public hospital and other one is private hospital. The sample size of the current study was 172 which were calculated by using Slovin's formula. SPSS 20 was used for the data analysis.

The current study result shows that nurses have adequate knowledge regarding standard precautions of HAIs but lack the intention about precautions of HAIs. Thus, it is concluded that low level attitude of nursing staff regarding standards precautions about HAIs was assessed which cause infections to the health care providers and patients.

Keywords: Knowledge, Attitudes, Nurses, Standard precautions and Healthcare associated infections (HAIs).

Introduction

Healthy lifestyle is the life long effort to balance the activities of our life at every movement. Therefore, many situations may affect this balance and deprive our life from happiness. Among these situations, exposure to the body fluids and blood are the main sources for healthcare associated infections (HAIs). HAIs is a critical issue in the health care facilities because of its common cause of mortality and infection among the hospitalized patients and health care providers. Healthcare facilities are classified into biological, chemical, ergonomic, mechanical, physical and psychosocial.

The World Health Organization reported that ninety percent of infections among health care workers (HCWs) are attributed to the occupational exposure to the body fluids and blood in the developing countries (Wilburn, et al., 2013).

Healthcare associated infections (HAIs) can be defined as a systemic or localized condition that happens from an adverse exposure or reaction of the presence of an infectious agent that happens during hospital admission and there is no evidence that the infection was incubating

or present at the time of admission. Eriksen (2012) stated that incidence of health care associated infections are increased in Europe and United States within last 5 years.

Mbaisi (2013) investigated the health care sector of Kenya and emphasizes that the accidental occupational contact of healthcare workers to blood and body fluids subsequent to skin injury or mucous membrane contact comprises a risk for transmission of blood-borne pathogens. Moreover, the study describes that 25% of health care workers reported that they have been exposed to the blood and body fluids, overall 55.5% nurses were commonly injured during injection procedure to the patients, 78.9% during stitching, 25% laboratory personnel during blood specimen collection while 57.1% supportive staff during cleaning.

Afridi (2013) reported the reasons for needle stick injuries (NSIs) in Pakistan that 42% of nurses exposed to the needle stick injury during injecting medicine and drawing blood and 37% of nurses exposed to needle stick injury during two-handed recapping of needle. Furthermore, 34% of the nurses were vaccinated against hepatitis B infection. However, nurses had inadequate facilities at workplace concerning standard precautions such as 40% of nurses have accessibility of gloves / protective cloths and 10% of nurses fulfil protocols / infection control guidelines.

Serrano (2016) noted that overall prevalence rate of healthcare associated infections (HAIs) was 10.2%. Palliative care units and subacute care units have highest rate of HAIs that is 22.3% and 18.7% respectively. However, common infections were respiratory tract infection and urinary tract infection in long term care facilities.

Siegel (2012) emphasizes that proper implementation of standard precaution decreases the rate of healthcare associated infections (HAIs) from both unknown sources and expected sources in the healthcare setting. Moreover, implementation of standard precautions decreases the transmission of respiratory infections, human Immunodeficiency virus (HIV), hepatitis B (HBV) and other pathogens which grow in the blood and body fluids and minimize the risk of HAIs among nurses and other health care providers.

Magill (2014) highlighted that health care associated infections (HAIs) are increasing in U.S as 4.0% of the patients keep at least 1 health care-associated infection. Pneumonia and surgical-site infection were most common, subsequently gastrointestinal infection, primary bloodstream infection and urinary tract infection.

Study purpose

The purpose of this study is to assess the knowledge & attitude of nurse regarding standard precautions of Healthcare Associated Infections (HAIs) in different health care facilities of Lahore, Pakistan.

Significance of the study

This study provides awareness among the health care providers in different hospitals & explores the knowledge and attitudes of nurses' related standard precautions towards healthcare associated infections and its implementations. The study results will be helpful to the policy makers of different hospitals to develop the strategies for enhancement of knowledge and attitude of nurses. Similarly, the study will contribute to reduce the HAIs.

Objectives of the study

- 1) To determine the level of knowledge of nurses regarding standards precautions about healthcare associated infections (HAIs) in hospitals of Lahore, Pakistan.
- 2) To determine the level of attitude of nurses regarding standards precautions about healthcare associated infections (HAIs) in hospitals of Lahore, Pakistan.

Literature review

Hand hygiene is acknowledged as one of the most important strategies for preventing healthcare associated infections (HAIs). During observations, it has been noticed that 40% of health care workers (HCW) adhere with contact precautions or use of gloves, masks and

gowns while patients care (Septimus, et al., 2014). Furthermore, implementation of universal precautions has decreased the HAIs such as 44% reduction in all-cause bloodstream infection and 37% of MRSA clinical culture rates (Septimus, et al., 2014).

In addition, environmental contamination is the major determinant of transmission of HAIs to healthcare workers and patients. Morgan (2012) found that during routine clinical care of patients, 62% of HCWs who entered the patients' room wearing the contaminated gloves, mask, and gown. In developing countries, environmental contamination, malnutrition and frequently usage of invasive devices are major cause of HAIs. It has observed that invasive procedure or devices cause 73% HAIs in the hospitalized patients (Polin, et al., 2012). Moreover, proper utilization of universal precautions in ICUs decreases 40% to 50% of HAIs (Polin, et al., 2012).

The prevalence rate for HAIs has increased globally over the past 2 decades due to invasive procedures or devices such as mechanical ventilator, central venous catheter (CVC), arterial catheter, indwelling urinary catheter and wound drainage tube. Invasive procedure causing overall 55% of HAIs in which urinary tract infection is 54.8%, blood stream infection is 30.6%, surgical site infection is 6.6%, pneumonia is 4.5% and other site infection is 3.5% (Yang, et al., 2013).

Improvement in the hand hygiene of HCWs decreases the transmission of pathogens, therefore, hand hygiene is widely accepted as a foundation to avoid the infections. Ellingson (2014) mentioned that adherence with 5 practices of hand hygiene reduces more than 50% of transmission of pathogens to the ICU patients. These practices are: wash hands before (1) touching a patient, (2) clean / aseptic procedure, and after (3) body fluid exposure, (4) touching a patient and (5) touching patient surrounding.

A number of strategies have been investigated for the prevention of HAIs spread among nurses and hospitalized patients in which hand washing has been proven to be a significant component of interventions for the reduction of HAIs. Angelis (2014) analyzed that proper utilization of hand hygiene measures significantly (47%) decreases the rate of HAIs among nurses and patients.

Riven (2015) assessed the range of microorganisms found on noninvasive portable clinical items potentially shared among patients (NPIs) and evaluate the evidence regarding the potential for cross-transmission of microorganisms between NPIs and hospitalized patients in non-outbreak conditions. Subsequently, the study result shows that those rates of NPI contamination ranged from 23% to 90%. Normal skin or environmental floras were found on almost all positive cultures.

Kirk (2016) emphasizes that 25% of health care providers follow the standard precautions during patient care. However, as compared to knowledge the attitude of nurses was disappointingly less regarding the precautions about the HAIs.

Research methodology

Cross sectional descriptive study design was used to assess the knowledge and attitude of nurses regarding standards precaution of healthcare associated infection in the hospitals of Lahore. The data were obtained through the adapted questionnaire of Knowledge and attitude regarding HAIs of Parmeggiani (2010) which is based on 5 point Likert scale. Target population of the study was 600 registered nurses of the hospitals of Lahore, Pakistan. The data was collected from two hospitals (Nawaz Sharif Social Security Hospital & Doctors Hospital) of Lahore, Pakistan. Sample size of the current study was calculated by using Slovin's formula ($n= 172$), so, self-administered questionnaire was distributed to 172 nurses by simple random sampling technique. The inclusion criteria for this study were registered nurses while the student nurses and head nurses excluded. Period of the study was February 2016 to May 2016.

Data analysis & results

Reliability of the tool checked through Cronbach's alpha. Data was collected from both male and female nurses in which 83.7% (n=144) were females and 16.3% (n=28) were males. Majority of nurses that is 79.6% (n=132) of participants belong to age group 20 – 35 years in which 59.3% were single and only 40.7% were married. Data shows that 89.5% (n=154) nurses have General Nursing Diploma and 10.5% (n=18) has BS Nursing degree.

Table 1. Wearing gloves, mask, and protective eyewear are a HAIs control measures

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	5	2.9	2.9	2.9
Disagree	15	8.7	8.7	11.6
Neutral	44	25.6	25.6	37.2
Agree	51	29.7	29.7	66.9
Strongly Agree	57	33.1	33.1	100.0
Total	172	100.0	100.0	

Responses regarding knowledge of Health Care Workers (HCWs) or nurses are reported in Table1. Majority 62.8% (n=108) of nurses were aware that wearing of gloves, mask, and protective eyewear reduce the risk of HAIs although 11.6% (n=20) did not know that wearing of gloves, mask, and protective eyewear control the HAIs.

Table 2. Invasive procedures are a risk factor for HAIs

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	8	4.7	4.7	4.7
Disagree	11	6.4	6.4	11.1
Neutral	47	27.3	27.3	38.4
Agree	46	26.7	26.7	65.1
Strongly Agree	60	34.9	34.9	100.0
Total	172	100.0	100.0	

In Table 2, 61.6% (n=106) of the respondents knew that invasive procedures are a risk factor for HAIs while 11.1% (n=19) disagree that invasive procedures are risk factors for HAIs.

Table 3. HCWs' hands are a vehicle for transmission of nosocomial pathogens

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	7	4.1	4.1	4.1
Disagree	17	9.9	9.9	14.0
Neutral	45	26.2	26.2	40.1
Agree	54	31.4	31.4	71.5
Strongly Agree	49	28.5	28.5	100.0
Total	172	100.0	100.0	

Table 3 depicts that preponderance 59.9% (n=103) believed that HCWs' hands are a vehicle for transmission of nosocomial pathogens although 14% (n=24) respondents believed that HCWs are not accountable in transmission of nosocomial infection to the patients.

Table 4. Hands hygiene measures reduce the risk of HAIs among patients

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	10	5.8	5.8	5.8
Disagree	20	11.6	11.6	17.4
Valid Neutral	41	23.8	23.8	41.3
Agree	52	30.2	30.2	71.5
Strongly Agree	49	28.5	28.5	100.0
Total	172	100.0	100.0	

Concerning the perceived risk of acquiring healthcare associated infections (HAIs), health care workers (HCWs) and nurses are at high risk for transfer of infections to the patients and among other health care workers. Table 4 shows that 57.8% (n=101) of nurses believes that good hand hygiene of health care workers (HCWs) reduce the risk of HAIs among patients while 17.4% (n=30) did not know that hand hygiene of health care workers (HCWs) reduce the risk of HAIs.

Table 5. Hands hygiene measures reduce the risk of HAIs among HCWs

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	11	6.4	6.4	6.4
Disagree	17	9.9	9.9	16.3
Valid Neutral	41	23.8	23.8	40.1
Agree	56	32.6	32.6	72.7
Strongly Agree	47	27.3	27.3	100.0
Total	172	100.0	100.0	

Table 5 shows that nurses had an extremely positive attitude, so, 59.9% (n=103) of total emphasize that guideline of HAIs should be followed because hands hygiene measures reduce the risk of HAIs among HCWs, however 16.3% (n=28) nurses did not believe it.

Table 6. Aprons and face masks should be worn in procedures where splash/spill of blood is likely

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	9	5.2	5.2	5.2
Disagree	13	7.6	7.6	12.8
Valid Neutral	41	23.8	23.8	36.6
Agree	67	39.0	39.0	75.6
Strongly Agree	42	24.4	24.4	100.0
Total	172	100.0	100.0	

Table 6 shows that 63.4% (n=109) of nurses perceived that wearing of aprons and face masks decrease the HAIs during procedures where splash/spill of blood is likely, though 12.8% (n=22) of nurses do not distinguish that proper wearing of aprons and face masks decrease the HAIs during procedures where splash/spill of blood is likely.

Discussion

The current study examines the level of knowledge & attitudes of nurses of Lahore, Pakistan about healthcare associated infections (HAIs). The result proves that nurses and HCWs have enough knowledge regarding hand hygiene and wearing of gloves, masks, and

protective eyewear during patient care as tools to control the HAIs. Similarly, the study results of Asadollahi (2015) and Hosseinialhashemi (2015) that nurses have sufficient knowledge about hand hygiene and wearing of protective measures but they need to more emphasize on the training of hand hygiene for the improvement in the attitudes and practice. Similarly, Kirk (2016) emphasizes that nurses and doctors have more knowledge as compare to the attitude regarding prevention of HAIs.

Numerous studies support that the effect of knowledge and attitude of nurses and health care workers to reduce HAIs transmitted by hand. HAIs is critical to the healthcare facilities and increases the risks, prevalence of diseases and hospital costs. HAIs results in 4 to 5 hospitalization days and adds significant cost to the hospitals. However, hand hygiene is the most valuable means of prevention of HAIs. The current study results proved that nurses and HCWs have knowledge regarding importance of hand hygiene in HAIs but only 60% health care workers focusing on hand hygiene practices, therefore, HAIs are high in developing countries. Similarly, Jain (2015) analyzed the knowledge and attitude of doctors and nurses towards HAIs and found that only 57% of the respondents fulfil hand hygiene measures during patient care and invasive procedures, therefore, HAIs also high in such hospitals. The results of this study show that 57.6% of nurses agree that healthcare associated infections are control by proper measure, 6% participants were disagreeing and rest of the participants have given neutral response.

The healthcare providers in any healthcare systems should be well aware of effectiveness of HAIs control measures. The poor attitude of HCWs and nurses indicates a strong need of on job healthcare providers (nurses) trainings in the developing countries to control HAIs (Kanwar, et al., 2015).

Conclusion

Standard precautions are the repetitive action that may lead to the foundation of a habit and it may influence behavior which depends on the knowledge. Nurses and health care workers (HCWs) show high level of knowledge regarding prevention of healthcare associated infections (HAIs), but low attitude regarding standard precautions about HAIs. It is urgency to start on job training programs for HCWs for bringing change in their attitude. Furthermore, to motivate HCWs through different incentives for implementation of standard precautions because this practice ultimately decreases the rate of HAIs and patient stay in the hospital.

Limitations

There are some limitations of the current study. First, it offers as a cross-sectional study, only depends upon specific questions. Target population was nurses and low health care workers; therefore it ignores the participation of doctors and pharmacist due to shortage of time. Second limitation is the potential recording bias associated with the self-administered questionnaire. Third, the current study only investigates two hospitals of Lahore due to the time constraints which may not be generalizable to the other parts of the country.

Recommendation

The findings of the current study provide the valuable baseline data for further investigation and intervention. Future researchers may conduct interventional and qualitative study on large scale and also include the physicians, surgeons, pharmacist and other health care workers. Authorities should enhance the knowledge and attitude of health care team for the attainment of better result. The future research may do the comparison of level of knowledge and attitude among the nurses of public and private universities.

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