

Original Article

Knowledge and Practice Regarding Nosocomial Infections among Staff Nurses at Isra University Hospital, Hyderabad.

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Abstract

Objective: This study aimed to assess the knowledge and practices regarding nosocomial infections among staff nurses at Isra University Hospital, Hyderabad.

Study design: It was a Descriptive cross-sectional study.

Place and duration of study: The study was conducted at Isra University Hospital, Hyderabad from July to September 2024.

Material and Methods: The study participants included 50 staff nurses from designated wards, who appropriately completed a structured questionnaire that focused on their knowledge of nosocomial infections, measures for preventing infections, hand hygiene practices, usage of personal protective equipment (PPE), and disinfection procedures. In analyzing the results, descriptive statistics; frequencies, percentages, means, and standard deviations were employed using IBM SPSS Statistics Version 23.

Results: Most of the nurses (94%) indicated that they knew about infection prevention. In terms of awareness of preventive measures, 86% stated that hand washing helps in the prevention of infections, and 82% stated that gloves help prevent infections. Nonetheless, 64% of participants rated alcohol-based antiseptics as almost as effective as soap when the hands are not visibly dirty. Concerning the time taken to disinfect instruments, 46% proposed 10 minutes to disinfect instruments. Nurses recognized HIV/AIDS a disease as transmitted through needle stick injuries by 44%.

Conclusion: This study revealed that staff nurses have good knowledge and practice about infection control, although there are deficits, including inadequate knowledge about hand washing and alcohol-based hand rub. Additional educational programs are required to enhance these practices.

Keywords: Nosocomial Infections, Infection Control, Staff Nurses, Hand Hygiene, Disinfection, Knowledge, Practices.

1. Introduction

Hospital-acquired infections (HAIs) or Nosocomial infections (NIs) are a significant concern to all healthcare delivery systems globally.⁽¹⁾ These infections are acquired after the patients have been admitted to the hospital and while they are receiving their treatment.⁽²⁾ It is mostly spread by touching affected lights, medical equipment, or contaminated hands or by any of the carriers in healthcare facilities.⁽³⁾ ICUs are considered to be most vulnerable to outbreaks predominantly because of the medical state of the patients admitted to these facilities as well as the number of invasive interventions performed.⁽⁴⁾ Concerning Hospital-acquired infections it is believed that about 10% of all hospitalized patients are affected

by these infections globally which increases their morbidity, duration in hospital, and mortality rates.⁽⁵⁾ The situation is aggravated by a lack of supervision and compliance with the established antiseptics guidelines while applying numerous preventions.^(6,7)

Current Global healthcare leaders including the World Health Organization (WHO) and other healthcare organizations have emphasized the importance of healthcare-associated infections to patient safety especially in developing countries.⁽⁸⁾ A study indicates that the failure of healthcare workers especially nurses to be well-trained and oriented on infection control measures leads to the compounding of disease transmission.

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Nursing professionals require independent legal responsibility for their patient treatment since they are central to patients’ care and nosocomial infection control.⁽⁹⁾

However, certain knowledge-deficient areas concerning infection prevention measures, along with weak enforcement of infection control guidelines, remain beneficial in many healthcare institutions.^(10,11)

Therefore, there is a need to establish a level of awareness of infection control measures among healthcare workers, particularly nurses. Education and training of the healthcare workers have been proposed whereby extension of knowledge regarding infection control it is believed that the incidence of nosocomial infections can be minimized.⁽¹²⁾ The need to conduct this study in Isra University Hospital Hyderabad is, therefore, to assess the level of knowledge and practice that staff nurses have about Nosocomial Infections and further examine some of the deficiencies. In this regard, the study seeks to focus on these subjects in the effort to provide useful data about the successful implementation of existing infection prevention measures as well as assist in the formulation of future attempts to enhance patient safety and the quality of the healthcare delivery system.

2. Materials & Methods

The study was done in compliance with the ethical principles that were recommended by the Director of Isra University Hospital, Hyderabad. All the participants were given information about the study's aims and design, possible risks, and advantages. The study was voluntary, and consent to be included in the study whether in writing or verbally was sought from the participants. Participant identities were kept anonymous, and the participants were informed about their right to withdraw from the study from the study at any given time without any explanation.

This was a descriptive cross-sectional study conducted from July to September at Isra University Hospital, Hyderabad. The hospital serves patients from various regions of Sindh, and data was collected from BSN staff

working in different wards, including the Emergency Room (ER), Intensive Care Unit (ICU), Medicine, Surgery, and other specialized units.

This study was carried out from July to September 2024. The sampling used in the study was a non-probability convenience sampling technique. The target population was 57 staff nurses including both males and females working in morning shift at Isra University Hospital. The sample size was estimated using Raosoft online software where with a 5% margin of error and 95% confidence level the actual sample size was estimated to be 50 participants.

All male and female staff nurses working at Isra University Hospital were willing to participate and present during the data collection period. Staff nurses who were not available during the data collection period, not willing to participate, Student nurses and midwives were excluded in this study.

3. Results

Statement		Strongly Disagree	Disagree	Agree	Strongly Agree	Mean
I am aware of nosocomial infections.	Freq	2	2	11	35	3.58
	%	4%	4%	22%	70%	
Nosocomial infections are hospital-acquired infections.	Freq	2	2	12	34	3.56
	%	4%	4%	22%	68%	
Nosocomial infections occur within 3-10 days after admission or discharge.	Freq	3	3	23	21	3.24
	%	6%	6%	46%	42%	
Nosocomial infections can be transmitted via medical equipment.	Freq	6	7	19	18	2.98
	%	12%	14%	38%	36%	
Nosocomial infections are transmitted by direct/indirect contact, droplets, air, or common vehicles.	Freq	2	6	17	25	3.30
	%	4%	12%	34%	50%	
Healthcare workers are not immune to nosocomial infections.	Freq	3	11	18	18	3.020
	%	6%	6%	36%	36%	
Invasive procedures increase the risk of nosocomial infections.	Freq	1	5	25	19	3.24
	%	2%	10%	50%	38%	

Table 1: Knowledge of Nosocomial Infection

The findings on the awareness of nosocomial infections showed that a majority of the nurses possessed a good knowledge of hospital-acquired infections. The majority of the participants knew that nosocomial infections occur in the hospital and appreciated the common time frame when such infections develop. However, there was an indication that there was an existence of different levels of awareness of the mode

of spread of these infections. The survey also revealed that a large proportion understood that infections may be directly passed on as well as through medical instruments and carriers, but there are areas that need improvement. For instance, a significant proportion of nurses failed to appreciate an important part of the role of medical equipment in the spread of infections, and a number of them were unclear concerning whether healthcare providers can contract nosocomial infections.

Statement		Yes	No	Mean
Are you aware of infection prevention methods?	Freq	41	9	1.06
	%	94%	6%	
Do gloves provide complete protection from infections?	Freq	41	9.0	1.18
	%	82%	18%	
Does hand washing with soap or alcohol-based Antiseptic reduces infection transmission?	Freq	43	7	1.14
	%	86%	14%	
Is alcohol-based antiseptic as effective as soap if hands are not visibly dirty?	Freq	32	18	1.36
	%	64%	36.0	
Should gloves be worn when exposed to blood or body Fluid is anticipated?	Freq	42	8	1.16
	%	84%	16%	
Should you wash your hands before non-invasive procedures?	Freq	40	10	1.20
	%	80%	20%	
Is it okay to use the same gloves for multiple patients if they are not visibly contaminated?	Freq	26	24	1.48
	%	52%	48%	
Do you know which waste disposal bins are used for different contamination levels?	Freq	37	13	1.26
	%	74%	26%	
Are you familiar with the formula for preparing a 0.5% chlorine solution?	Freq	36	14	1.28
	%	72%	28%	

Table 2: Awareness and Practices Regarding Infection Control

Most of the nurses stated that they knew about infection prevention, for instance, the use of gloves and hand washing in containing spread. Nonetheless, there were some differences in some practices. The majority of the nurses believed that, in cases where there is a likelihood of contacting blood or body fluids, gloves should be worn. Most of the nurses disagreed with the re-use of gloves for the next patients even if the gloves do not appear to have contact with the blood or body fluids.. Similarly, while most of the nurses were certain that hand washing and alcohol-based antiseptics are effective in preventing infections, fewer of them were certain that alcohol-based antiseptics are as effective as soap when the hands are not dirty.

4. Discussion

The results of this study showed that most of the nurses knew about nosocomial infections, their hospital-

acquired nature, and various modes of transmission. This corresponds with other studies that explain that most healthcare workers have a good theoretical understanding of infection control.^(13,14) However, the respondents seemed more aware of the standards which exist but they were not putting them properly into practice in some cases. For instance, although awareness of the hazards emerging from both glove use and hand hygiene was evident, a gap was noted between the perfect understanding of these precautions and compliance with them in clinical environments. Another important concern that arose from the study was a gap between knowledge and practice of infection control. This is further supported by previous studies that observed that, even though Healthcare workers have knowledge of infection prevention measures, they undermine some or most of them in their practice because of time factors, work-related pressures, and negligence.^(15,16) While most of the nurses were concerned about the risk of transmission during blood or fluid exposure, about an equal number of them appreciated reusing gloves between patients if they seemed clean without any sign of contamination. This practice is not recommended, as it may lead to cross-contamination, highlighting the need for ongoing training and more stringent adherence to infection control protocols. This practice should not be encouraged because it creates cross contaminations something that requires training continually and stricter observation of the infection prevention practices. The study revealed that though a vast majority of the nurses admitted knowing the rationale of hand hygiene, specifically the use of soap, or alcohol-based antiseptics as inhibitors of the spread of infection, there was still some confusion regarding the efficiency of alcohol-based antiseptics as used where the hands are not dirty. This finding is consistent with other studies that have highlighted that, despite the guide showing that alcohol-based rubs are more effective in most healthcare facilities, healthcare workers at times prefer washing with soap and water.^(17,18)

This implies that more information education and enlightenment is required about the use of alcohol-based antiseptics particularly concerning infection control in hospitals. The difference in the recommended time in disinfection of medical instruments which

ranged from 10 minutes to 24 hours affirms this poor practice and procedure conformity. Similar observations were made by⁽¹⁹⁾ who revealed that there are no clear, standard approaches to disinfecting instruments used by healthcare workers. In the current study, the responses varied mean of 2.26 and a standard deviation of 1.439 implying that there should be improved protocols and uniform training of the personnel on time taken to disinfect. The study also evaluated the extent of knowledge of the nurses concerning the diseases transferred through needles. Awareness of other blood-borne infections including Hepatitis B and C was slightly lower than HIV/AIDS at 44%. This finding is in concordance with other studies done globally, showing that there is high awareness about transmission risks of HIV, but healthcare workers may not have adequate information concerning other blood-borne diseases.^(13,20)

Strengths and Limitations:

This study's strength is that the participants are drawn from various clinical departments of the hospital and thus provide a broad picture of the current infection control practices. The study's small sample size (n=50) and the fact that data collection was performed at only one hospital also place some constraints on generalizing the conclusions. Further, since the data collected was self-reported there is a high probability of a response bias which could greatly influence the results concerning the infection control practices which might have been inflated in this study by social desirability bias.

Conclusion:

This research showed that, although the overall knowledge of the staff nurses at Isra Hospital regarding nosocomial infections and methods of preventing them is good, there are significant deficiencies in their practices. The participants demonstrated moderate to high levels of knowledge on hand hygiene, use of gloves, and transmission of disease though areas of practice that needed improvement included proper use of gloves and proper methods of disinfection.

Disclosure/Conflict of Interest:

The authors state that this manuscript has not been submitted to any conference any abstract book or part of any thesis or project. No competing interests were identified for this work. This study did not involve any funding from any public, commercial, or non-profit funding institutions.

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