

## KNOWLEDGE & PRACTICE OF INFECTION CONTROL AMONG BSN STUDENTS AT COLLEGE OF NURSING (MALE), SIR C.J INSTITUTE OF PSYCHIATRY HYDERABAD

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### ABSTRACT

**Background:** Hospital infection control is vital for the safety of patients, staff, and visitors. It impacts all hospital departments and involves quality risk management and clinical governance. Nurses are key in preventing infection through standard precautions and maintaining a safe healthcare environment.

**Objective:** The study aims to evaluate the knowledge and practices of infection control among BSN students at the College of Nursing (Male), Sir C.J. Institute of Psychiatry, Hyderabad.

**Methodology:** A self-administered questionnaire was used in a descriptive, cross-sectional study. Data were analyzed using descriptive statistics (frequency and percentage) with SPSS version 23. Results: The study included 102 male nursing students, ages 18 to 25, from 1st to 3rd year.

**Findings:** Finding showed 73.5% had knowledge of standard precautions; 79.4% knew about hand washing procedures; 64% were aware of personal protective equipment use; 58% understood respiratory precautions; and 57.8% knew about sharp instrument precautions. Most (94.1%) were knowledgeable and practiced hand rubbing and blood transmission precautions. However, 64% did not use precaution-based measures in emergencies.

**Conclusion:** It was concluded that BSN students at the College of Nursing (Male), Sir C.J. Institute of Psychiatry, Hyderabad, demonstrate good knowledge of infection control but show poor practice. The study highlights a need for ongoing availability of guidelines and training for effective infection prevention.

**Keywords:** Infection control, Nurses, Nosocomial infection, Hand washing.

### INTRODUCTION

A major problem in healthcare is infection, which raises morbidity and mortality rates. Healthcare workers and patients around the world are concerned about the safety of hospital-acquired infections (HAIs). The issue is exacerbated by elements like the growth of drug-resistant germs, a decline in patient resistance, and an increase in invasive treatments. Infections continue to affect patients as well as hospital staff, despite advances in public health and healthcare (1). Patients who are infected have the potential to spread their diseases to visitors and medical staff in hospitals.

Healthcare-related infections are a major global public health concern because they dramatically raise hospitalization costs, morbidity, and mortality (2). Due to increased hospitalization and prognosis, nosocomial infections, also known as hospital acquired diseases, are one of the main causes of death and have significant financial consequences (3). An effective health system depends on the prevention and management of infections. Practices for infection control are essential to contemporary healthcare (4). Infection control was described by the World Health Organization in

2011 as efforts to prevent susceptible people from contracting infections in both community and hospital settings. Hygiene is the foundational idea of infection prevention and management (5). It is well accepted that maintaining good hand hygiene is the most crucial action that can stop the transmission of infection. Through the use of common-sense precautions and upkeep of the medical facility, nurses are essential in stopping and managing the spread of infections (6). Nursing professionals can exhibit leadership in infection prevention and control across all roles and contexts by applying their expertise, abilities, and discernment to promptly and appropriately undertake infection control measures (7). The WHO categorized a few nursing staff members' roles in infection control. Nurses at various levels: the charge nurse on the ward, the chief administrator of nursing, and the nurse responsible for infection control. Furthermore, a control committee must be formed to oversee the execution of infection prevention strategies and design training programs for nursing staff members (8,9). Healthcare workers who don't wash their hands properly or change their gloves frequently spread illnesses. The most efficient way to lower infection rates is by hand washing, according to infection control standards. More than 60% of blood infections from intravenous lines or catheters are iatrogenic infections, often brought on by intrusive procedures. Compared to standard wards, nosocomial infections occur in intensive care units two to five times more frequently. These infections cause a large amount of morbidity, mortality, and financial burden, making them a serious public health concern (9). However, due to sharps injuries and recapping of a needle, medical professionals have been exposed to blood-borne infections, particularly hepatitis B, C, and HIV (10). Data showed that occupational exposure accounts for 2.5% of HIV cases and 40% of hepatitis Band C cases among health care workers globally in a 2002 WHO research.

**OBJECTIVES**

To evaluate infection control knowledge and practices among BSN (Generic) students at the College of Nursing (Male), Sir C.J. Institute of Psychiatry, Hyderabad.

**METHODOLOGY**

A Descriptive cross-sectional study was carried out, the research site was done at College of Nursing (Male) Sir, C.J Institute of Psychiatry Hyderabad and target population was BSN students who are working in clinical settings. 102 Student included in the study. The study employed non-random convenient sampling approach. A standardized questionnaire was utilized which consist of two parts, the first contains demographic data of participants (age, gender, year of study etc.) and second part consist of question regarding to infection control knowledge and practice. The study was approved by Principal College of Nursing (Male) Sir, C.J Institute of Psychiatry Hyderabad and participants were authorized for verbal and written consent.

**RESULTS**

**Table No.01**

Age in Years		
Frequency		Percent
18-25	100	98.0
26-30	1	1.0
31-35	1	1.0
<b>Total</b>	<b>102</b>	<b>100.0</b>

In this study, majority of students (98%) were in age group (18-25), and 1% in age group 26-30years and 1% in age group 31-35 years shown in table no.01.

**Table No.02**

Year of Study		
Frequency		Percent
First Year	35	34.3
Second Year	45	44.1
Third Year	22	21.6
<b>Total</b>	<b>102</b>	<b>100.0</b>

Table no.02 showed year of study of participants in which (44.1%) from second year ,34.3 % first year and (21.6%) from third year participated.

**Table No.03**

Standard precaution is?		
	Frequency	Percent
A (correct item)	75	73.5
B	13	12.7
C	14	13.7
<b>Total</b>	<b>102</b>	<b>100.0</b>

Table No, 03 showed that 73.5% of students had knowledge about standard precautions. when they asked about standard precautions.

**Table No.04**

The aim of standard precaution is?		
	Frequency	Percent
A	34	33.3
B	51(correct response)	50.0
C	17	16.7
<b>Total</b>	<b>102</b>	<b>100.0</b>

Table No.04 showed that 50.0% students had knowledge about the main aims of standard precautions. Because they knew that the aim of standard precaution is to protect health care workers against acquiring infections from patients and vice versa.

**Table No.05**

Knowledge about hand washing technique of standard precautions.		
	Frequency	Percent
A	12	11.8
B	81 (correct response)	79.4
C	9	8.8
<b>Total</b>	<b>102</b>	<b>100.0</b>

When the participants asked about hand washing technique of standard precautions, 79.4% students had knowledge about hand washing technique. The option B was the correct response which was chosen in majority by participants shown in table No.05.

**Table No.06**

Remove gown and wash hands before leaving patient's environment?		
	Frequency	Percent
A	66 (correct response)	64.7
B	16	15.7
C	20	19.6
<b>Total</b>	<b>102</b>	<b>100.0</b>

Table No. 06 showed that 64.7% students had knowledge about Removing gown and wash hands before leaving patient's environment.

**Table No.07**

Ever your hand punctured with a sharp instrument, immediately?		
	Frequency	Percent
A	30	29.4
B	13	12.7
C	59 (correct response)	57.8
<b>Total</b>	<b>102</b>	<b>100.0</b>

Table No. 07 showed that 57.8% participants responded they Wash and dry hands and report to the concerned authorities when puncture with sharp instrument.

**Table No.08**

Which protective barrier is most appropriate to use during venous blood collection?		
	Frequency	Percent
A	7	6.9
B	91(correct response)	89.2
C	4	3.9
<b>Total</b>	<b>102</b>	<b>100.0</b>

89.2% students had knowledge about most appropriate protective barrier of standard precautions during venipuncture. Majority responded with B option which was sanitizing hands with alcohol and use of gloves.

**Table No.09**

<b>Gloves should be changed during patient care if you move hands from “contaminated body site’ to ‘clean body site?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>A</b>	78 (Correct response)	<b>76.5</b>
<b>B</b>	14	<b>13.7</b>
<b>C</b>	10	<b>9.8</b>
<b>Total</b>	<b>102</b>	<b>100.0</b>

76.5% students were known about Gloves should be changed during patient care when they asked if you move hands from “contaminated body site’ to ‘clean body site.

**Table No.10**

<b>Transmission-based precautions are required For all patients admitted to hospital?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>A</b>	51 (correct response)	<b>50.0</b>
<b>B</b>	18	<b>17.6</b>
<b>C</b>	33	<b>32.4</b>
<b>Total</b>	<b>102</b>	<b>100.0</b>

When participants asked about Transmission-based precautions are required for all patients admitted to hospital, 50.0% students had knowledge about transmission-based precautions.

**Table No.11**

<b>In transmission-based precaution, respiratory protection requires?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>A</b>	26	<b>25.5</b>
<b>B</b>	16	<b>15.7</b>
<b>C</b>	60 (correct response)	<b>58.8</b>
<b>Total</b>	<b>102</b>	<b>100.0</b>

58.8% students had knowledge about transmission-based precautions of respiratory protection

**Table No.12**

<b>patients must be kept in a single room in order to prevent spreading infection to others?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>A</b>	14	<b>13.7</b>
<b>B</b>	34	<b>33.3</b>
<b>C</b>	54 (correct response)	<b>52.9</b>
<b>Total</b>	<b>102</b>	<b>100.0</b>

Table No.12 showed that 52.9% students had knowledge about patients should be kept in a single room in order to prevent spreading infection.

**Discussion**

The study found that approximately 73.5% of students were knowledgeable about standard precautions, specifically hand washing practices. This aligns with findings from Appiah EO et al., who reported high levels of hand washing adherence among students (3). Nevertheless, a portion of students preferred hand washing with water and soap over hand rubs, reflecting a divergence from more recent hand hygiene practices. This finding corroborates the results of previous studies, such as those by Donati et al. (2020), which noted baseline hand hygiene compliance rates of 63% and 61.9% in different groups (4). On another hand, Nigerian healthcare workers' compliance rate, according to Ataiyero et al. (2022), was much lower at 29.1%. (5). These discrepancies highlight variations in practice standards and suggest that while theoretical knowledge may be present, practical application can differ widely. The study also observed that 64.7% of students understood the importance of removing gowns and washing hands before leaving patient environments. This finding is supported by previous research demonstrating similar levels of compliance (6). The study by SO Chang et al. highlights how clinical practice and academic advancement change nursing students' comprehension of infection control (IC) care (7). Regarding prevention measures based on transmission, 58.8% of students knew that wearing N95 masks for respiratory protection was necessary. This is in line with safety precaution guidelines, as noted by Abhinav Singh et al., who discovered 69.8% compliance with face mask and glove use (8). Furthermore, the study noted that

57.8% of students understood the immediate actions required following a needle stick injury. This finding reflects ongoing concerns about occupational injuries among dental students, as noted by O Silva et al., who emphasized the need for continuous education on injury management (9). Additionally, the study found that wearing gloves and face masks is highly adhered to 95.1% of participants did so, which is comparable to the 100% of participants in Jordanian dentistry faculty and nursing care (10). But there are differences, as B Rai et al. (2020) noted, with 78% and 59% of Indian dentists using gloves and face masks, respectively (11). This demonstrates how various regions adhere to certain practices in different ways. Furthermore, this study's 94% compliance rate with appropriate hand washing techniques outperforms that of Acharya et al.'s 73% compliance rate among healthcare personnel (12). The study's findings also show a 64.7% compliance rate with hand hygiene practices among BSN student nurses, which is consistent with similar studies conducted in Rwanda (64.5%) and Ethiopia (66.1%) (13, 14). In contrast, lower compliance rates were reported in studies from Bangladesh and Ghana, suggesting that variations in sample size, study period, and participant characteristics may account for these discrepancies (15, 16, 17, 18). The study indicates a generally high level of knowledge and practice regarding infection control among nursing students, there are notable areas for improvement. Ongoing education and practical training are essential to ensure that theoretical knowledge translates effectively into clinical practice. Future research should consider broader and more diverse samples to enhance the generalizability of findings and address the variations observed in infection control practices (19, 20).

### **CONCLUSION:**

According to the results of the study, most BS nursing students possess a solid understanding of infection prevention, particularly when it comes to hand washing and wearing personal protective equipment. On the other hand, knowledge regarding safe handling of sharp objects and transmission-based measures is lacking. The study emphasizes that in order to improve practical application and commitment to infection control

measures, enhanced, interactive IPC education and rigorous assessments are required.

### **RECOMMENDATIONS**

- Implement interactive, standalone IPC courses at all study levels to deepen understanding and practical application.
- Provide targeted training on transmission-based precautions and safe handling of sharp instruments to address knowledge gaps.
- Introduce more rigorous evaluations of infection control practices during clinical hours to ensure adherence.

### **Conflict of Interest**

The authors disclose that they have no conflicts of interest.

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