

A Study to Assess the Knowledge and Practice Regarding Infection Prevention and Control in Community Health Settings Among Nursing Students of Selected Nursing Colleges in India

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Abstract

Introduction: A key element of nursing practice is infection prevention and control, or IPC, especially in community health settings where there is a significant danger of the spread of infectious diseases. For nursing students to avoid illnesses linked to healthcare, they must be well-versed in the necessary procedures.

Materials and Methods: The study used a cross-sectional descriptive design. 120 nursing students from particular Indian nursing institutes participated in the study. Non-probability convenient sampling was used to choose the participants. A self-reported practice checklist and a structured knowledge questionnaire were used to gather data. The analysis employed both descriptive and inferential statistics.

Results: According to the results, 28% of pupils had adequate knowledge, 14% had inadequate knowledge, and 58% had fairly adequate understanding. In terms of practice, 52% showed good practice, 35% moderate practice, and 13% bad practice. Knowledge ratings were shown to be statistically significantly correlated with both year of study and prior infection control training ($p < 0.05$).

Conclusion: To improve infection prevention and control competences in community health settings, ongoing training and reinforcement are required, even if the majority of nursing students had adequate experience and moderate knowledge.

Keywords: Infection prevention; Infection control; Community health; Nursing students; Knowledge; Practice

Introduction

The term "infection prevention and control" (IPC) describes evidence-based procedures intended to stop the spread of infectious diseases in medical environments.¹ It is crucial to both patient safety and high-quality nursing care.²

Because of their high patient engagement and limited resources, community health settings—such as

primary health clinics, sub-centers, and home-based care settings—present particular problems in infection control.³

Worldwide, healthcare-associated infections (HAIs) continue to be a major public health concern.⁵ Inadequate infection control measures significantly increase the burden of disease in underdeveloped nations.⁵

As future medical professionals, nursing students need to acquire solid knowledge and practical skills in the areas of waste management, sterilization, hand hygiene, personal protective equipment (PPE), and standard precautions.⁶

Nursing students' theoretical understanding and practical practice differ, according to earlier research.⁷ Throughout nursing education, it is essential to regularly evaluate and reinforce IPC measures.⁸

Infections that develop in patients within 48 hours after being admitted to a medical facility are known as healthcare-associated infections (HAIs) [1,2]. But it's frequently forgotten that caregivers, including healthcare professionals (HCPs), are also at danger. Occupational infections are the term used to describe the HAIs that affect healthcare professionals. Human immunodeficiency virus (HIV), TB, hepatitis B, and hepatitis C are a few of these occupational illnesses that can be lethal.⁹

Low- and middle-income countries (LMICs) are resource-constrained, disease-endemic nations with high infection rates and a high risk of healthcare-associated infections (HAIs). The difficulty of diagnosing infections and the absence of established criteria have an impact on the absence of HAI surveillance systems. Additionally, surveillance systems for tracking and registering occupational illnesses are lacking in LMICs. Because of this, infectious disease prevalence and workplace safety continue to be underreported and disregarded.¹⁰

Thus, the purpose of this study is to evaluate nursing students' understanding and application of infection prevention and control in community health settings.

Objectives

1. To assess the level of knowledge regarding infection prevention and control among nursing students.
2. To assess the level of practice regarding infection prevention and control in community health settings.
3. To find association between knowledge and practice scores with selected demographic variables.

Hypotheses

H₁: There is a significant association between knowledge scores and selected demographic variables at $p < 0.05$ level.

H₂: There is a significant association between practice

scores and selected demographic variables at $p < 0.05$ level.

Materials and Methods

Research Approach: Quantitative approach.

Research Design: Descriptive cross-sectional design.

Setting: Selected nursing college in India.

Population: All undergraduate nursing students.

Sample: 120 B.Sc. Nursing students (2nd, 3rd, and 4th year).

Sampling Technique: Non-probability convenient sampling.

Inclusion Criteria

- Students willing to participate
- Students posted in community health settings

Tool for Data Collection

Section A: Demographic data (age, gender, year of study, previous training, area of residence).

Section B: Structured knowledge questionnaire (30 items).

Scoring:

- 0–10: Inadequate
- 11–20: Moderately adequate
- 21–30: Adequate

Section C: Practice checklist (20 items).

Scoring:

- 0–7: Poor
- 8–14: Average
- 15–20: Good

Validity and Reliability

Content validated by experts in community health nursing and microbiology.

Reliability:

Knowledge tool ($r = 0.84$)

Practice tool ($r = 0.79$)

Ethical Consideration

Institutional permission obtained. Written informed consent taken. Confidentiality maintained.

Data Analysis

Descriptive statistics: Frequency, percentage, mean, SD.

Results

Table 1: Distribution of Nursing Students According to Knowledge Level (N = 120)

Knowledge Level	Frequency	Percentage
Inadequate	17	14%
Moderately Adequate	70	58%
Adequate	33	28%

Majority (58%) had moderately adequate knowledge regarding infection prevention and control.

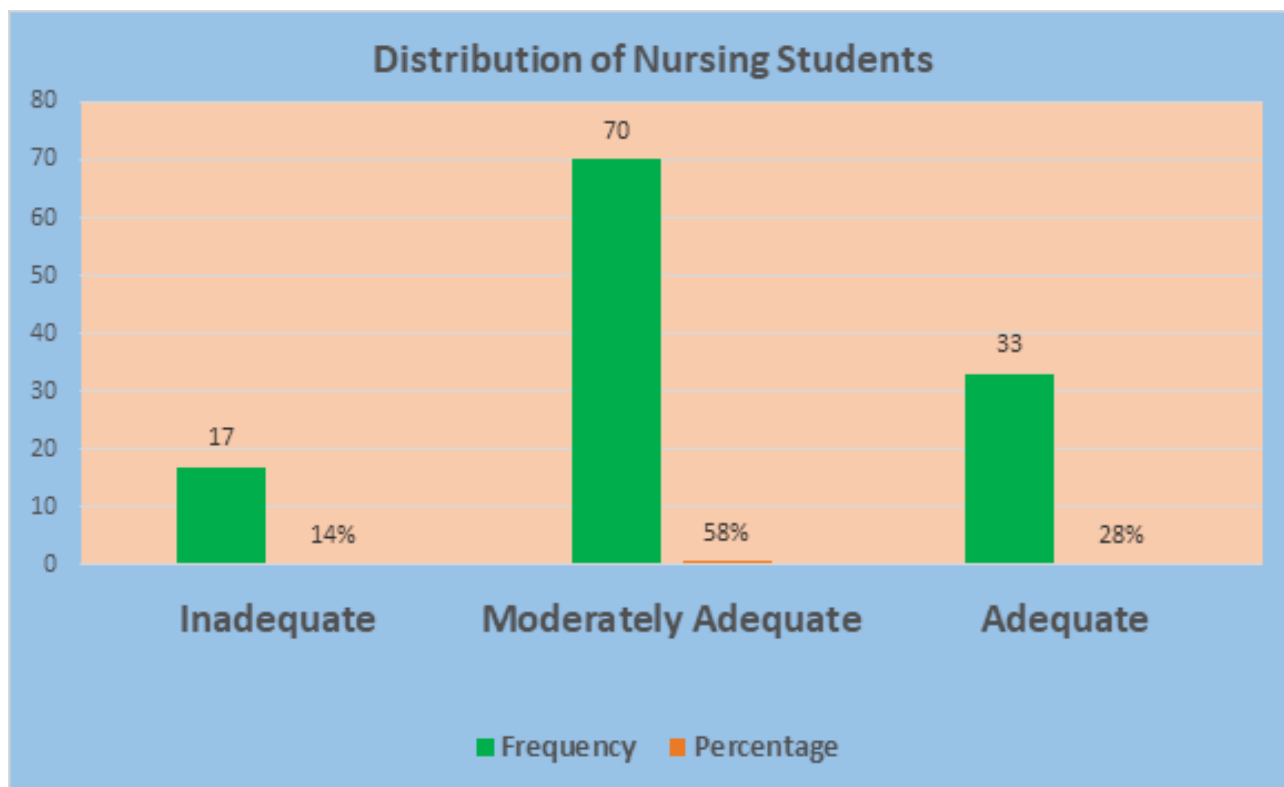


Figure 01: Distribution of Nursing Students According to Knowledge Level

Table 2: Distribution of Nursing Students According to Practice Level (N = 120)

Practice Level	Frequency	Percentage
Poor	16	13%
Average	42	35%
Good	62	52%

More than half (52%) demonstrated good infection control practices in community health settings.

Table 3: Association Between Knowledge and Selected Variables

Variable	-	p-value	Significance
Year of Study	8.62	0.013	Significant
Previous Training	6.94	0.031	Significant
Gender	2.11	0.34	Not Significant

Final Result Statement:

A statistically significant association was found between knowledge scores and year of study as well as previous training in infection prevention and control at $p < 0.05$ level.

Discussion

According to the current study, the majority of nursing students had good practices and knowledge about infection prevention and control that was only somewhat competent.

The results are in line with other research that found increased academic year and formal training exposure improved IPC competency.

Students who had attended previous infection control workshops demonstrated significantly better knowledge levels, highlighting the importance of continuous professional education.

Nonetheless, a minority's lack of understanding points to the necessity of organized reinforcement in community postings.

Conclusion

The study comes to the conclusion that, even though nursing students show adequate knowledge and practice of infection prevention and control, it is crucial to improve curriculum content and provide frequent hands-on training in community settings to guarantee patient safety and lower the spread of infections.

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