A Study to Assess the Effectiveness of Self-Instructional Module for Staff Nurses Regarding Universal Precautions on HIV/AIDS in Selected Hospitals at Delhi NCR

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Abstract

Background: Nurses face significant occupational risks of HIV/AIDS due to exposure to blood and body fluids. Universal precautions are critical, yet knowledge and practice often remain inadequate.

Objectives: To assess knowledge and practices of staff nurses regarding universal precautions, to develop and administer a self-instructional module (SIM), and to evaluate its effectiveness.

Methods: A pre-experimental one-group pre-test post-test design was conducted among 50 staff nurses at Dharamshila Narayana Multi-Speciality Hospital, Delhi NCR. Participants were selected using purposive sampling. Data were collected using a validated structured questionnaire. After baseline assessment, the SIM was administered, and post-test knowledge was evaluated after 8 days. Paired *t*-test was applied.

Results: Pre-test findings showed 10% had poor knowledge, 84% had average knowledge, and only 6% had good knowledge. The mean pre-test score was 20.32 (58.05%) which improved significantly to 31.86 (91.02%) in the post-test, showing a 32.97% increase. The difference was statistically significant ($p < 0.001$). No demographic variable was significantly associated with knowledge scores.

Conclusion: The self-instructional module was highly effective in improving nurses' knowledge on universal precautions for HIV/AIDS. In-service training and continuous educational programs are recommended to strengthen infection control practices.

Keywords: HIV/AIDS, Universal Precautions, Staff Nurses, Self-Instructional Module, Nursing Education

1. Introduction

1.1 Background

Healthcare providers, particularly nurses, are at the frontline of patient care and thus highly vulnerable to occupational hazards. Exposure to blood and body fluids places them at risk of acquiring blood-borne infections such as **Hepatitis B, Hepatitis C, and HIV/AIDS**. According to WHO, more than 3 million healthcare workers suffer percutaneous exposures annually, with HIV accounting for a significant risk.

In India, around **2.3 million people live with HIV**, making occupational safety critical. Nurses are central to infection control, yet several studies show inconsistent compliance with universal precautions, often due to inadequate knowledge, heavy workload, and lack of training opportunities.

1.2 Need for the Study

Universal precautions, first introduced by CDC in 1987, remain the gold standard for preventing transmission. They include **hand hygiene, use of PPE, safe disposal of sharps, and post-exposure prophylaxis**. Despite clear guidelines, adherence varies across hospitals. SIMs, being **self-paced and cost-effective**, can bridge this knowledge gap.

1.3 Objectives

1. To assess the knowledge of staff nurses regarding universal precautions on HIV/AIDS.
2. To assess their practices regarding universal precautions.
3. To develop and administer a self-instructional module.
4. To evaluate its effectiveness.

1.4 Hypothesis

There will be a significant difference between pre-test and post-test knowledge scores of staff nurses after administration of the SIM.

2. Materials and Methods

2.1 Design

Pre-experimental one-group pre-test post-test design.

2.2 Setting & Sample

- Setting: Dharamshila Narayana Multi-Speciality Hospital, Delhi NCR.
- Population: Staff nurses providing direct care.
- Sample: 50 staff nurses, purposive sampling.

2.3 Tool Development

- **Section A:** Demographic profile (age, gender, qualification, experience, source of information).
- **Section B:** Knowledge questionnaire (35 items, validated, reliability r = 0.72).

2.4 SIM Content

- Epidemiology of HIV/AIDS.
- Universal precautions (hand hygiene, PPE, sharp disposal).
- Risk reduction strategies.
- Post-exposure prophylaxis (PEP).

2.5 Procedure

1. Pre-test conducted.
2. SIM distributed to nurses.
3. Post-test after 8 days.

2.6 Data Analysis

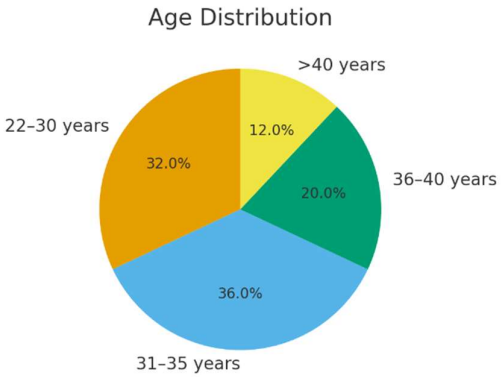
- Descriptive: frequency, mean, % distribution.
- Inferential: paired *t*-test, chi-square.
- Significance set at $p < 0.05$.

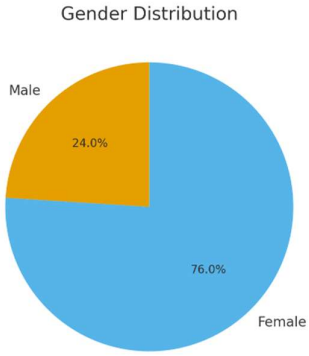
3. Results

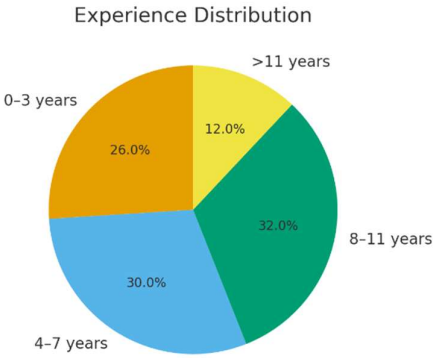
3.1 Demographics

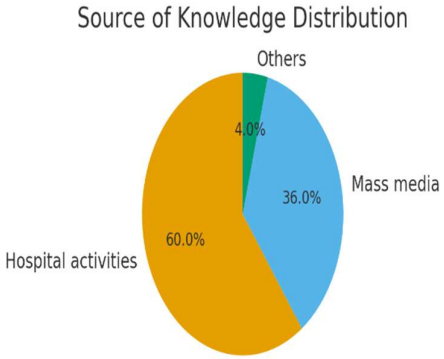
Table 1. Distribution of Demographic Variables (N=50)

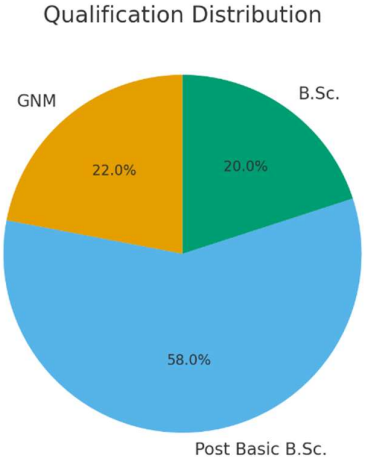
Variable	Category	n (%)
Age	22–30 years	16 (32)
	31–35 years	18 (36)
	36–40 years	10 (20)
	>40 years	6 (12)
Gender	Male	12 (24)
	Female	38 (76)
Qualification	GNM	11 (22)
	Post Basic B.Sc.	29 (58)
	B.Sc.	10 (20)
Experience	0–3 years	13 (26)
	4–7 years	15 (30)
	8–11 years	16 (32)
	>11 years	6 (12)
Source of Knowledge	Hospital activities	30 (60)
	Mass media	18 (36)
	Others	2 (4)









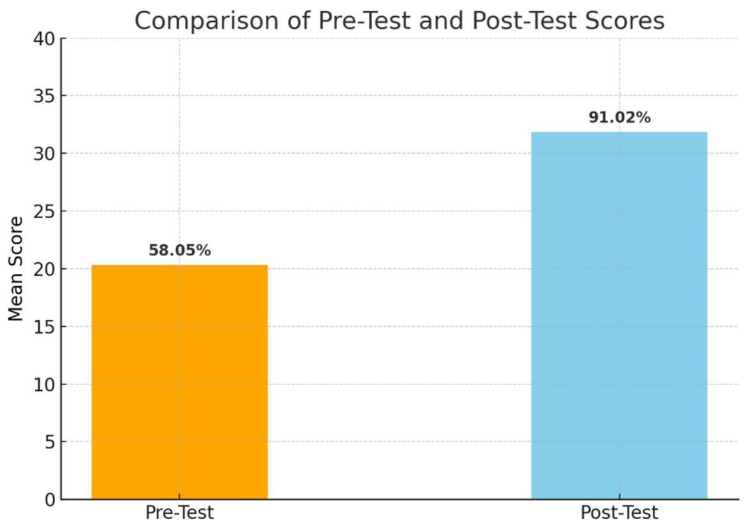


3.2 Knowledge Scores

Table 2. Knowledge Levels (Pre vs Post Test)

Knowledge Level	Score Range	Pre-test n (%)	Post-test n (%)
Poor	0–15	5 (10)	0 (0)
Average	16–25	42 (84)	4 (8)

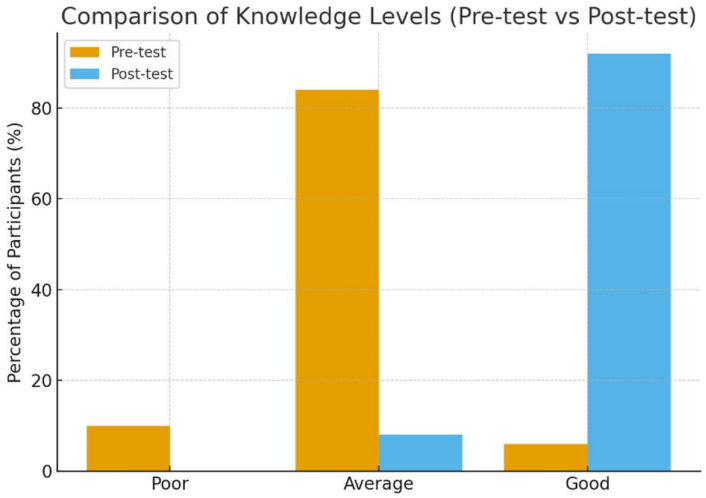
Good	26–35	3 (6)	46 (92)



3.3 Effectiveness of SIM

Table 3. Comparison of Mean Scores (Paired *t*-test)

Group	Mean Score	Mean %	SD	Gain	t-value	p-value
Pre-Test	20.32	58.05%	4.78	–		
Post-Test	31.86	91.02%	2.92	32.97%	12.97	<0.001



Interpretation: The SIM intervention significantly improved knowledge.

4. Discussion

4.1 Key Findings

- Majority nurses had **average knowledge** at baseline.
- SIM improved mean scores by **11.54 points (32.97%)**.
- No demographic variable significantly associated with knowledge.

4.2 Comparison with Literature

- **Askarian et al. (2006):** Education improved HIV precaution awareness in Iran.
- **Sax et al. (2005):** Structured training improved compliance in teaching hospitals.
- **Adepoju (2006):** Highlighted need for early integration of HIV training in nursing.

4.3 Implications

- **Practice:** Strengthens infection control.
- **Education:** SIMs should be integrated into nursing curricula.
- **Administration:** Regular in-service training must be mandatory.
- **Research:** Larger controlled studies recommended.

4.4 Limitations

- Small sample size.
- Single hospital setting.
- Short follow-up (8 days).

5. Conclusion

The SIM was **highly effective** in improving staff nurses' knowledge of universal precautions for HIV/AIDS. Nurses should undergo regular refresher training, and hospital administrators must institutionalize structured learning programs.

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