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Effectiveness of planned teaching programme on knowledge and attitude regarding post exposure prophylaxis for HIV among staff nurses working in selected private hospitals of Ahmedabad City

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Abstract
The study aimed at assessing the effectiveness of a planned teaching programme on knowledge and attitude regarding post-exposure prophylaxis (PEP) for HIV among staff nurses in selected private hospitals of Ahmedabad city. A pre-experimental one-group pre-test and post-test research design was adopted. The sample consisted of 60 staff nurses selected using a non-probability convenience sampling technique. Data were collected using a structured knowledge questionnaire and a Likert's attitude rating scale. Following the pre-test, a planned teaching programme on PEP for HIV was administered, and a post-test was conducted after seven days.
The findings revealed that prior to the intervention, 60% of nurses had poor knowledge and none had good knowledge. Post-intervention, 61.7% demonstrated good knowledge, with no participants remaining in the poor category. Regarding attitude, 75% had a favourable attitude in the pre-test, which improved to 100% favourable attitude in the post-test. The mean knowledge score increased from 13.35 (44.5%) to 23.23 (77.43%), and the mean attitude score increased from 66.15 (66.15%) to 82.65 (82.65%). Statistical analysis using paired t-tests showed significant improvements in both knowledge (t=38.591) and attitude (t=28.738) at $p<0.05$.
The study concludes that the planned teaching programme was effective in significantly enhancing both knowledge and attitude of staff nurses regarding PEP for HIV. It highlights the importance of educational interventions in reducing occupational risks and improving healthcare practices among nurses

Keywords: HIV, planned teaching programme, post exposure prophylaxis for HIV, staff nurses

Introduction
HIV remains a major global public health issue, claiming 40.1 million (33.6–48.6 million) lives so far, with ongoing transmission in all countries globally; some countries are reporting increasing trends in new infections after previous declines. There were an estimated 38.4 million (33.9–43.8 million) people living with HIV at the end of 2021. In 2021, 650,000 (510,000–860,000) people died from HIV-related causes and 1.5 million (1.1–2.0 million) people acquired HIV (WHO, 2021).
Occupational exposure to blood or other body fluids constitutes a significant risk of transmission of HIV and other blood-borne pathogens among healthcare workers. The rate of HIV transmission following percutaneous exposure in healthcare settings is approximately 3 per 1000 injuries (Gupta *et al*., 2008) [5]. Nurses, who manage a large number of patients infected with HIV, are highly vulnerable to occupational exposure such as needle stick injuries and splashes of blood or bodily fluids onto mucosal surfaces (Gupta *et al*., 2008; Tshering *et al*., 2020) [5, 10], thus making post-exposure prophylaxis (PEP) highly crucial among nurses.
PEP refers to comprehensive management given to minimize the risk of infection following potential exposure to blood-borne pathogens such as HIV, hepatitis B virus, and hepatitis C virus (Tshering *et al*., 2020[10]). Lack of awareness regarding timely initiation of PEP after needle stick exposure to high-risk body fluids and availability may increase the risk of seroconversion among exposed healthcare workers (Ajibola *et al*., 2014[1]).

Objectives
- To assess the knowledge of staff nurses regarding post-exposure prophylaxis for HIV before and after administration of planned teaching programme.
- To assess the attitude of staff nurses regarding post-exposure prophylaxis for HIV before and after administration of planned teaching programme.
- To evaluate the effectiveness of planned teaching programme on knowledge and attitude regarding PEP for HIV among staff nurses.
- To find out association between pretest knowledge and attitude scores of staff nurses with selected socio-demographic variables.

Hypothesis
- **H1:** The mean post-test knowledge scores will be significantly higher than mean pre-test scores at 0.05 level of significance.
- **H1:** The mean post-test attitude scores will be significantly higher than pre-test scores at 0.05 level of significance.
- **H1:** There will be a significant association between pretest knowledge scores and demographic variables.
- **H1:** There will be a significant association between pretest attitude scores and demographic variables.

Methodology
A pre-experimental one-group pre-test and post-test design was used. The target population included staff nurses from selected private hospitals in Ahmedabad. A sample of 60 nurses was selected using non-probability convenience

sampling technique. Ethical approval was obtained from Institutional Ethics Committee and consent was taken from the samples before the data collection. Data were collected using a structured knowledge questionnaire and Likert's attitude rating scale. Content validity was established through expert opinion, and reliability of the tool was assessed using Karl Pearson's split-half method.

After the pre-test, a planned teaching programme on PEP for HIV was administered, and a post-test was conducted after seven days. Descriptive statistics, including frequencies, percentages, and mean ± standard deviation, were used to summarize demographic data, knowledge and attitude scores. Inferential statistics, specifically the Chi-square test, were utilized to examine the associations between demographic variables and the participants' artificial knowledge and attitude levels.

Results

The data collected were analyzed and organized in accordance with the objectives of the study using descriptive and inferential statistics. The findings are presented under the following sections: demographic characteristics of the participants, assessment of knowledge and attitude regarding post-exposure prophylaxis (PEP) for HIV in pre-test and post-test, evaluation of the effectiveness of the planned teaching programme, and association between selected socio-demographic variables with pre-test knowledge and attitude scores.

1. Demographic Characteristics Of The Participants

Table 1: Presents the frequency and percentage distribution of participants according to their demographic variables [n=60].

Sl. No	Demographic Variables	Variables	Frequency (f)	Percentage
1	Age in years	21-30 year	38	63.3%
		31-40 year	16	26.7%
		41-50 year	06	10%
		51 and Above	00	00%
2	Gender	Male	11	18.3%
		Female	49	81.7%
		Transgender	00	00%
		Hindu	46	76.7%
3	Religion	Muslim	05	8.3%
		Christian	09	15%
		Others	00	00%
4	Professional qualification	ANM	08	13.3%
		GNM	36	60%
		P.B.B.Sc.(N) or B.Sc.(N)	14	23.3%
		M.Sc. Nursing	02	3.4%
5	Total work experience	0 – 5 years	30	50%
		6 – 10 years	20	33.7%
		11 – 15 years	06	10%
		15 years and above	04	6.7%
6	Current department of working	Medical ward	30	50%
		Surgical ward	20	33.7%
		CCU	06	10%
		Emergency room	04	6.7%

The demographic findings showed that the majority of participants were aged 21–30 years (63.3%), female (81.7%), and GNM-qualified (60%), with 50% having 0–5 years of experience.

2. Assessment of Knowledge Regarding Post Exposure Prophylaxis for Hiv in Pre Test and Post Test

The first objective of the study was to assess the knowledge of staff nurses regarding post exposure prophylaxis for HIV before and after administration of planned teaching programme.

Table 2: Presents the frequency and percentage distribution of pre-test and post-test level of Knowledge regarding Post exposure prophylaxis for HIV among staff nurses [n=60]

Level of knowledge	Pre-test		Post-test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Poor Knowledge	36	60	00	00
Average knowledge	24	40	23	38.3
Good knowledge	00	00	37	61.7
Total	60	100	60	100

The findings revealed that that in pretest, majority 36 (60%) samples had poor knowledge level, 24 (40%) samples had average knowledge level and none of the sample had good knowledge level. Whereas in post-test 37 (61.7%) samples had good knowledge level, 23 (38.3%) samples had average knowledge level and none of the sample had poor knowledge level.

3. Assessment of Attitude Regarding Post Exposure Prophylaxis for Hiv in Pre Test and Post Test

The second objective was to assess the attitude of staff nurses regarding post exposure prophylaxis for HIV before and after administration of planned teaching programme.

Table 3: Presents the frequency and percentage distribution of pretest and post-test level of attitude regarding Post exposure prophylaxis for HIV among staff nurses [n=60]

Attitude level	Favorable		Unfavorable	
	F	%	F	%
Pre test	45	75%	15	25%
Post test	60	100%	00	00%

The findings revealed that in pretest, majority 45 (75%) samples had favorable attitude and 15 (25%) were having unfavorable attitude. Whereas in post-test all the participants 60 (100%) had favorable attitude.

4. Evaluation of Effectiveness of Planned Teaching Programme

The third objective was to evaluate the effectiveness of planned teaching programme on knowledge and attitude regarding post exposure prophylaxis for HIV on staff nurses.

Table 4: Effectiveness of planned teaching programme on knowledge regarding Post exposure prophylaxis for HIV [n=60].

Knowledge Score	Mean	Mean %	Mean difference	SD	Df	Paired 't' test value	p value
Pre test	13.35	44.5%	9.88	3.46	59	38.591	<0.05
Post test	23.23	77.43%	32.93%	2.88			

Table 5: Effectiveness of planned teaching programme on attitude regarding post exposure prophylaxis for HIV [n=60].

Attitude Score	Mean	Mean %	Mean difference	SD	Df	Paired 't' test value	p value
Pre test	66.15	66.15%	16.5	6.12	59	28.738	<0.05
Post test	82.65	82.65%	16.5%	3.89			

The mean post-test knowledge score (23.23; 77.43%) was significantly higher than the mean pre-test score (13.35; 44.5%), with a mean difference of 9.88 (32.93%). The calculated paired t-test value (t = 38.591) was greater than the table value (1.671) at $p < 0.05$, indicating statistical significance. Similarly, the mean post-test attitude score (82.65; 82.65%) was higher than the pre-test score (66.15; 66.15%), with a mean difference of 16.5 (16.5%). The paired t-test value for attitude (t = 28.738) was also statistically significant at $p < 0.05$.

Thus, hypotheses H1 and H2 were accepted.

5. Association between Selected Demographic Variables and Pre Test Knowledge And Attitude Scores

The fourth objective was to determine the association between pre-test knowledge and attitude scores and selected socio-demographic variables. The findings indicated a significant association between pre-test knowledge and variables such as professional qualification and current working department, and between pre-test attitude and variables such as age and work experience ($p < 0.05$). No significant association was found with variables such as gender and religion. Therefore, the hypothesis was partially accepted.

Overall, the study demonstrated a significant improvement in both knowledge and attitude following the intervention, confirming the effectiveness of the planned teaching programme.

Discussion

The present study showed a significant improvement in both knowledge and attitude of staff nurses regarding post-exposure prophylaxis (PEP) for HIV following a planned teaching programme. These findings are consistent with previous studies demonstrating that structured educational interventions effectively enhance healthcare workers' knowledge and attitudes toward HIV prevention and occupational safety. Similar to earlier research, baseline knowledge was inadequate, likely due to limited training, lack of updated guidelines, and insufficient emphasis on PEP in routine practice.

Differences in results compared to other studies may be due to variations in sample size, study design, duration of the intervention, and prior training of participants. Institutional support and availability of PEP resources can also affect outcomes. These factors indicate the need for long-term studies to evaluate knowledge retention.

The study has limitations, including a one-group pre-experimental design, small sample size, convenience sampling, short follow-up period, and reliance on self-reported data, which may limit generalizability and introduce bias.

Implications and Recommendations

While this study has its limitations, the findings clearly show that ongoing education cannot be an afterthought in nursing; it is a necessity. Introduction of PEP training directly into regular staff development programs can dramatically improve workplace safety and the overall quality of patient care (Alsalom, 2025; Cheetham *et al*., 2016) [2, 3]. When nurses feel confident and informed, they are far less likely to suffer from the anxiety and risks associated with accidental exposures.

While our data aligns with and reinforces what we already know about clinical safety, it also highlights where we need to go next. Future research should move toward larger sample sizes, randomized control groups, and longer follow-up periods to truly see how well nurses retain this knowledge over time. Likewise, integrating creative, hands-on learning—like digital modules and high-fidelity simulation training—will better prepare nurses to make split-second, correct decisions when an accidental exposure happens (Maqsood, 2025) [7].

Conclusion

The study concluded that the planned teaching programme was effective in improving knowledge and attitude regarding PEP for HIV among staff nurses. Educational interventions play a crucial role in reducing occupational risk and enhancing safe practices among healthcare workers. By empowering healthcare workers with the right information and a proactive attitude, we can directly cut down occupational risks and build a safer, more work resilient environment for health care professionals.

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Conflict of Interest

The authors declare no conflict of interest.

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