



QUASI-EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING PREVENTION OF NEEDLE STICK INJURIES AMONG PARAMEDICAL AND NURSING STUDENTS STUDYING IN TIPS, AGARTALA TRIPURA

Nursing

Mrs. Chandramika Deb*

Tutor, Dept. of Mental Health Nursing, TIPS *Corresponding Author

Mr. Krishanu Debbarma

Tutor, Tripura Institute of Paramedical Sciences

ABSTRACT

Introduction: Needle stick injuries (NSIs) pose a significant risk for healthcare workers, particularly among paramedical and nursing students who are often in close contact with sharp instruments in clinical settings. A quasi-experimental study was conducted to evaluate the effectiveness of a structured teaching program on preventing needle stick injuries among paramedical and nursing students. The main objectives of the study were to assess the effectiveness of a structured teaching program on preventing needle stick injuries among paramedical and nursing students. **Methodology:** A quasi-experimental study with non-randomized control group design was adopted by the researcher. In this study the sample were both male and female paramedical and nursing students from TIPS. The sample size was 60 (30 experimental & 30 control), selected by convenient sampling technique. **Results:** The pre-test results showed that 60% of students in the experimental group had moderate knowledge, while 40% had inadequate knowledge, and none had adequate knowledge. In contrast, 66.7% of students in the control group had moderate knowledge, and 33.3% had inadequate knowledge. After the structured teaching program, 50% of students in the experimental group had adequate knowledge, and 40% had moderate knowledge. The study found a significant difference in knowledge gain between the experimental and control groups ($p < 0.001$). The mean post-test knowledge score was higher in the experimental group (11.80) compared to the control group (9.01). The study also found a significant association between age and pre-test knowledge scores ($p = 0.02$). However, there was no significant association between other demographic variables and knowledge scores. The study concludes that the structured teaching program is effective in improving knowledge regarding prevention of needle stick injuries among experimental group (B.sc nursing student). The study has implicated on nursing education, nursing administration, nursing research, nursing practice. This study can be repeated with large sample in another setting with other teaching strategies.

KEYWORDS

Needle stick injuries, Structured teaching program, Nursing students, Knowledge assessment

INTRODUCTION

Needle stick injuries (NSIs) are a significant occupational hazard for healthcare professionals, especially nurses and paramedical staff, due to their frequent exposure to sharp instruments. These injuries can lead to the transmission of bloodborne pathogens, including HIV, hepatitis B, and hepatitis C. The World Health Organization (WHO) estimates that 3 million of the 35 million healthcare workers worldwide experience NSIs annually, with nurses accounting for nearly 50% of these cases. Such injuries are commonly associated with unsafe injection practices and improper handling of needles, and studies show that up to 90% of injuries among healthcare workers in developing countries involve syringe needles. Additionally, healthcare students are at high risk due to limited experience and frequent handling of sharps, emphasizing the need for preventive measures through targeted education and training.

In India, and particularly in regions like Tripura, there is limited research on NSIs among healthcare students, making this an area of concern for future healthcare practitioners. A cross-sectional study reported that 60.3% of nursing students had experienced an NSI, with many incidents involving unsafe practices such as recapping needles. Unreported injuries and insufficient training contribute to ongoing risks, highlighting the need for structured educational programs. This study thus seeks to assess the effectiveness of a structured teaching program on improving knowledge and safe practices for NSI prevention among nursing and paramedical students, ensuring a safer environment as they transition into professional roles.

OBJECTIVES OF THE STUDY:

1. To assess the pre-test knowledge regarding Prevention of needle stick injuries among both Paramedical and Nursing students studying in TIPS, Agartala, West Tripura.
2. To develop structured teaching programme on knowledge regarding Prevention of needle stick injuries.
3. To find out the effectiveness of structured teaching Programme on knowledge regarding prevention of needle stick Injuries among nursing students(experimental group) studying TIPS, Agartala West Tripura.
4. To determine the association between Pre-test knowledge score regarding Prevention of needle stick injuries among both paramedical and nursing students studying in TIPS, Agartala, West Tripura, with their selected socio demographic variables.

HYPOTHESIS:

H1: There is significant difference between the mean pre-test and post-test knowledge score regarding prevention of needle stick injury among nursing students (experimental group) studying in TIPS, Agartala, West Tripura.

H2: There is significant association between pre-test knowledge score regarding prevention of needle stick injury among both paramedical and nursing students studying in TIPS, Agartala, West Tripura.

Research Methodology:

1. Research Approach

The research employs a quantitative research approach to systematically measure the effectiveness of a structured teaching program on knowledge regarding needle stick injury prevention among paramedical and nursing students.

2. Research Design

The study utilizes a quasi-experimental design. This design involves the manipulation of an independent variable (planned teaching program) and measures its impact on a dependent variable (knowledge regarding needle stick injury prevention), though it may not use random assignment to groups.

3. Study Setting

The research is conducted at the Tripura Institute of Paramedical Sciences (TIPS), located in Agartala, West Tripura. This setting provides access to the target population of paramedical and nursing students.

4. Target Population

The study's target population consists of paramedical and nursing students studying at TIPS. This population is at a higher risk of needle stick injuries due to their frequent use of sharp medical instruments.

5. Sampling Technique

A non-probability sampling method, specifically convenience sampling, is used to select participants. This method involves selecting subjects who are readily available and willing to participate, allowing the researcher to gather data efficiently from a specific group.

6. Sample Size and Grouping

The sample size is 60 students, divided into two groups:

- Experimental Group: 30 students who receive the structured teaching program.
- Control Group: 30 students who do not receive the intervention.

7. Variables

- Independent Variable: The structured teaching program aimed at educating students on needle stick injury prevention.
- Dependent Variable: The level of knowledge regarding needle stick injuries among paramedical and nursing students.

8. Data Collection Instruments

The study uses two main instruments for data collection:

- Socio-demographic variable form: To gather demographic information about the participants.
- Structured knowledge questionnaire: To assess participants' knowledge of needle stick injuries before and after the intervention.

9. Method of Data Collection

The data collection process includes several stages:

- Informed Consent: Participants are provided with information about the study, and consent is obtained.
- Pre-test: A pre-intervention knowledge assessment is conducted.
- Structured Teaching Program: The experimental group receives an educational session on needle stick injury prevention.
- Post-test: A post-intervention knowledge assessment is conducted to evaluate any changes in knowledge.

10. Plan for Data Analysis

The data will be analyzed using descriptive and inferential statistics. Descriptive statistics will summarize demographic data and knowledge levels, while inferential statistics will assess the impact of the structured teaching program on the participants' knowledge.

Ethical Considerations:

Ethical considerations for this study included obtaining approval from the principal and the institute's ethical committee. Informed consent was obtained from all participants, who were fully informed that their participation was entirely voluntary.

RESULTS

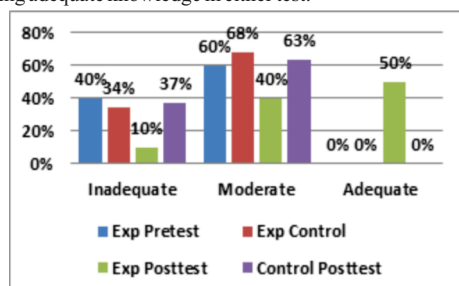
Demographic Key Findings of the Study:

The sociodemographic variables of paramedical and nursing students in the experimental and control groups were described. In terms of age, the majority of subjects in both groups were 18 years old, with 30% in the experimental group and 80% in the control group. Gender distribution was equal in both groups, with 30% male and 70% female participants. Regarding religion, the majority in both groups identified as Hindu, with 96.7% (29 participants) in the experimental group and 93.3% (28 participants) in the control group. Additionally, most students in both groups reported no prior experience of needle prick injuries, with 60% in the experimental group and 87% in the control group.

Table 1 pre-test & post-test knowledge score regarding needle stick injury among Paramedical & Nursing students

Level of Knowledge	Experimental Group				Control Group			
	Pre test		Post test		Pre test		Post test	
	f	%	f	%	f	%	f	%
Inadequate Knowledge	12	40%	3	10%	10	34	11	37
Moderate knowledge	18	60%	12	40%	20	68	19	63
Adequate Knowledge	0	0	15	50%	0	0	0	0

Table 1 presents the pre-test and post-test knowledge scores on needle stick injury among paramedical and nursing students in both experimental and control groups. In the experimental group, 40% had inadequate knowledge in the pre-test, which dropped to 10% in the post-test, while adequate knowledge increased from 0% to 50%. The control group showed minimal change, with inadequate knowledge at 34% in the pre-test and 37% in the post-test, and no participants achieving adequate knowledge in either test.



Graph 1 Level of Knowledge in pretest and posttest in Experimental and Control group.

Table 2 paired 't' test of pre-test & post-test knowledge score regarding needle stick injury among Paramedical & Nursing students

Group	Mean Enhancement Score	Paired "t" Test	Table Value	p-value
Experimental	2.79	5.4	2.04	0.009 S
Control	0.07	0.6	2.04	0.56 NS

Description: In the experimental group, the mean improvement score was 2.79, with a paired "t" test calculated value of 5.4, greater than the tabulated value of 2.04, and a p-value of less than 0.009, indicating a significant difference between pre-test and post-test knowledge. In the control group, the mean improvement score was 0.07, with a paired "t" test calculated value of 0.60, lower than the tabulated value of 2.04, and a p-value of less than 0.56, indicating no significant difference in knowledge levels.

Association Of Pre-test Knowledge Score About Needle Stick Injury Among Paramedical & Nursing Students Of Experimental & Control Group With Selected Demographic Variable

In the study, a significant association was found between the pre-test knowledge score on needle stick injuries and age in the experimental group (χ^2 value = 7.78, df = 2) at the 0.05 level, leading to the rejection of the null hypothesis (H02) and acceptance of the research hypothesis (H2). However, no significant association was observed between pre-test knowledge and other socio-demographic variables, including gender, religion, educational status, or previous experience of needle stick injuries, in either the 1st-year B.Sc. Nursing students or the control group.

CONCLUSION

This study successfully assessed the effectiveness of a structured teaching program on knowledge regarding the prevention of needle stick injuries among paramedical and nursing students at TIPS, Agartala, West Tripura. The findings revealed a significant improvement in the knowledge of the experimental group after the intervention, with a marked increase in the proportion of students with adequate knowledge. The paired "t" test results indicated a significant difference in pre-test and post-test knowledge scores for the experimental group (p-value = 0.009), whereas no significant change was observed in the control group. Additionally, a significant association was found between pre-test knowledge and age in the experimental group, while no association was noted with other socio-demographic variables. The study underscores the effectiveness of structured teaching programs in enhancing knowledge about needle stick injury prevention and highlights the importance of targeted educational interventions in healthcare education.

REFERENCES

- K. Jayaprakash, Mohanraj, S. Ramesh. P. et. al. A study to assess the practice level regarding needle stick injury among nursing students in cherraan's college of nursing at Coimbatore. JMR. Volume: 8 | Issue: 4 | April 2022 | Journal DOI: 10.36713/epra2015
- Sudha. B1 & Dr. Selvanayagi. V2. A study to assess the knowledge of first year nursing students on Needle Stick Injuries at selected colleges of Puducherry. VOLUME 6 . ISSUE 1 . JAN.- MARCH 2019 http://ijrar.com/upload_issue/ijrar_issue_20543534.pdf
- Asad Ali Khan Afridi. Needle stick injuries--risk and preventive factors: a study among health care workers in tertiary care hospitals in Pakistan. PMID: 23777725. URL: <https://pubmed.ncbi.nlm.nih.gov/23777725/>
- Mishra R, Sharma S K, Gupta PK. Study of Prevalence and Response to Needle Stick Injuries among Health Care Workers in a Tertiary Care Hospital in Delhi, India. PMID: 20606925 URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2888373/>