

# A Pre-Experimental Study to Assess the Effectiveness of Structured Teaching Programme Regarding Knowledge of Needle Stick Injury and Its Prevention among Nursing Students in Selected Nursing Institutes Faridabad, Haryana

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## ABSTRACT

Injuries caused due to needles are very common in hospital. A needle stick injury is major cause that responsible to blood born infection to the health care worker in the hospital setting. Needlestick injuries are percutaneous wound caused by needles that accidentally puncture the skin. These needles are such as hypodermic needles, blood collection needles, intravenous (IV) stylets, and needles used to connect parts of IV delivery systems. The purpose of this study was to determine awareness of needle stick injury among the nursing students. Objective of the study is to assess the effectiveness of structured teaching programme regarding knowledge of needlestick injury and its prevention among nursing students. Sample size of 60 was chosen from selected nursing institute using non probability convenient sample technique and data collection was done by using self - administered questionnaire. And results were found pre - test overall mean score was 5.41 with the SD of 3.29 and in post - test the overall mean score was increased 14.10 with the SD of 3.71. The mean difference of pre - test and post - test was 8.69. The calculated 't' value was 35.58 which is significant at  $p < 0.05$  level. This indicates that structured teaching programme was effective in increasing the level of knowledge among nursing students.

**Keywords:** Needle stick injury, nursing students, structured teaching programme.

## INTRODUCTION

**Needle stick injury - "Sleeping threat to health care worker"**

Each day thousands of health workers around the world suffer accidental occupational exposures during the course of their role of caring for nursing students. These injuries can result in a variety of serious and chronic illness. A needle stick injury is major cause that responsible to blood born infection to the health care worker in the hospital setting. It is found that 30 to 50% of all needle stick injuries occur during clinical procedures.<sup>01</sup> Needlestick injuries (NSIs) as defined by the United States National Institute of Occupational Safety and Health. It is Percutaneous wound caused by needles that accidentally puncture the skin.<sup>02</sup> Percutaneous injury and splashes of fluids have been recognized as a source of exposure to blood-borne pathogens such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) for HCWs and responsible for a significant proportion of HBV, HCV, and HIV infections.<sup>03</sup> Unsafe injection is one of the major risk factors in the occurrence of needle stick and other sharps related injuries in both HCWs and the general public.<sup>04</sup> Most sharps-related injuries involve nurses, physicians, laboratory staff, and other healthcare workers. They are typically a result of fatigue, using improper procedures,

dangerous equipment, limited staff experience, and stressful work conditions in a fast-paced environment. Injuries can occur when employees dispose of needles, collect materials used in medical procedures, draw blood, or handle trash or dirty linens.<sup>05</sup>

Effective measures to prevent infections from occupational exposure of HCWs to blood include immunization, eliminating useless injections, implementing Universal Precautions, eliminating needle recapping and disposing of the sharp into a sharp's container immediately after use, provision and use of personal protective equipment, and training workers in the risks and prevention of transmission. Employees avoid recapping needles, plan for safe handling and proper disposal. Help your employer select and evaluate devices with safety features Use devices with safety features.<sup>06</sup>

#### **Need of Study:**

According to The Centres for Disease Control and Prevention (CDC), there are nearly 385,000 sharps-related injuries that occur annually in the US healthcare industry, which is an average of 1,000 per day.<sup>07</sup>

According to WHO two million Health care worker exposure per year in which 40% hepatitis- B and 40% hepatitis- C and 4.4% HIV. And due to NSI 50% infection HCWs taken by patient and risk of infection of HBV 6-30 out of 100 people in HCWs and for HCV 3-10 % out of 100 HCWs and HIV 1 out of 300 people.<sup>08</sup>

This study was undertaken to determine the risk factor of NSI and potential intervention for prevention in our health care setup and also awareness regarding universal precaution and creating a safe working place for student nurse hence in this study an attempt has been to assess the awareness among student nurse regarding NSI and prevention.

#### **OBJECTIVE OF THE STUDY:**

- To assess the pre-test level of knowledge regarding Needlestick injury and its prevention among nursing

students in selected Nursing institute Faridabad, Haryana.

- To administer structured teaching programme on knowledge of Needlestick injury and its prevention among nursing students in selected Nursing institute Faridabad, Haryana.
- To assess the post-test level of knowledge regarding of Needlestick injury and its prevention.
- To compare the pre-test level of knowledge with post-test level of knowledge regarding Needlestick injury and its prevention among nursing students in selected nursing institute. Faridabad, Haryana.
- To evaluate the effectiveness of structured teaching programme on knowledge regarding Needlestick injury and its prevention among nursing students in selected nursing institute. Faridabad, Haryana.
- To determine association between the pre-test knowledge score with selected demographic variables among nursing students in selected nursing institute Faridabad, Haryana

#### **Hypothesis**

- **H1** : There will be significant difference between pre-test and post-test level of knowledge of student nurse regarding Needlestick injury and its prevention.
- **H2** : There will be a significant association between the pre - test level of knowledge and selected demographic variables.

#### **CONCEPTUAL FRAME WORK**

Based on Ludwig Von Bertalanffy's (1968) General system Theory.

#### **METHODOLOGY**

**Research approach:** - A quantitative research approach.

**Research design:** - A pre- experimental one group pre-test, post-test research design.

**Independents variable:-** S.T.P. on knowledge on needlestick injury and its prevention

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**Dependent variable:** - The level of knowledge of nursing students.

**Sample Technique:** - Non-probability convenient sampling technique.

**Sample Size:** - 60 nursing students (Male and Female)

**Plan for Data Analysis:**

It is planned to analysis and interprets data with the help of descriptive and inferential statistics.

**The following method and planned to analysis the data**

- Frequencies and percentages were used to summarize the sample characteristic and item wise analysis.
- Mean, standard deviation and paired ‘t’ test were used to calculate the effectiveness of individual teaching programme
- Chi- Square values were computed to find out the relationship between the level of knowledge and selected variables.

**Data collection tool:**

A structured questionnaire on knowledge on regarding needlestick injury and its prevention.

**Part – A:** Demographic Variable

**Part – B:** Structured questionnaire containing 20 multiple choice questions.

**Content validity and reliability:** The tool was validated by 9 experts from the medical surgical nursing. The reliability was tested by split- half method and reliability is (r = .83). The reliability of 4-point Likert Scale was tested and alpha value found reliable.

**Ethical Consideration:** Written consent was obtained from Lingaya’s institute of health sciences and formal approval of data collection from selected nursing institutes in Faridabad.

**Data Collection process:**

Pre – test was conducted by distribution of information booklet to the nursing students. The post- test was conducted after 7 days.

**RESULTS**

Table 01. Finding related to frequency and percentage distribution of samples according to socio demographic variables:

Sr. No.	Demographic variable	Frequency	Percentages
<b>01.</b>	<b>AGE</b>		
A	18-20	12	20%
B	20-22	15	25%
C	22-24	18	30%
d	Above 24	15	25%
<b>02.</b>	<b>GENDER</b>		
A	Male	35	58.33%
B	Female	25	41.66%
<b>03.</b>	<b>EDUCATION</b>		
A	G.N.M	10	16.66%
B	Post-Basic Nursing	20	33.33%
C	B.Sc. Nursing	30	50%
<b>04.</b>	<b>RESIDENTIAL AREA</b>		
A	Urban area	42	70%
B	Rural area	18	30%
<b>05.</b>	<b>TYPE OF FAMILY</b>		
A	Joint family	15	25
B	Nuclear family	45	75
<b>06.</b>	<b>RELIGION</b>		
A	Hindu	40	66.66%
B	Muslim	10	16.66%
C	Sikh	5	8.33%
D	Christian	5	8.33%
<b>07.</b>	<b>PREVIOUS KNOWLEDGE OF NSIs</b>		
A	YES	15	25%
B	NO	45	75%
<b>08.</b>	<b>INFORMATION SOURCES</b>		
A	Books and Journals	05	33.33%
B	Seminar and Workshop	00	00%
C	Practical knowledge	03	20%
D	Theory classes	07	46.66
<b>09.</b>	<b>HISTORY OF NSIs</b>		
A	YES	18	30%
B	NO	42	70%

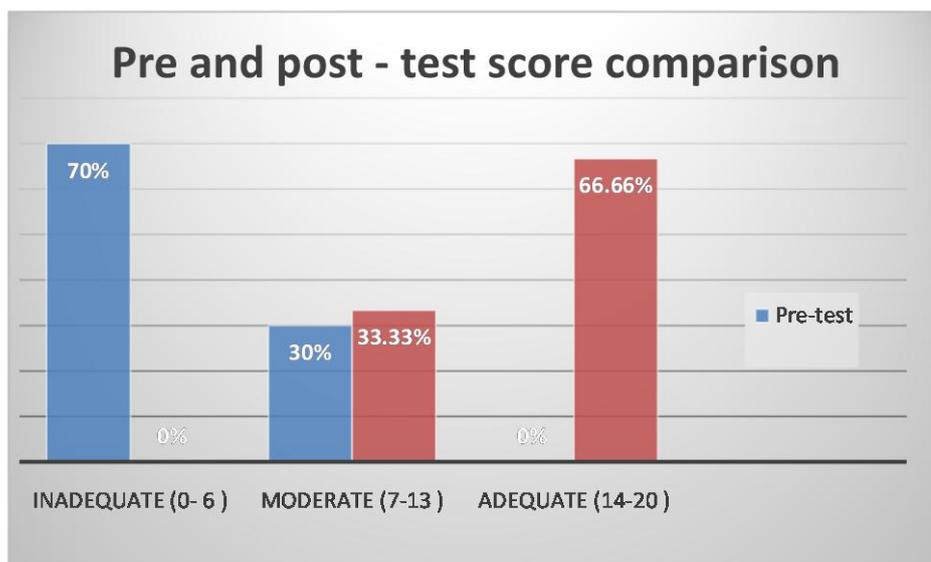


Fig 01.Column diagram showing Pre and post - test score comparison

**Fig 01.** Revealed by pre- test score and it is reflected that most of the Nursing students 42(70%) were in inadequate (0-6), 18 (30%) nursing students were in moderate category (7-13) and none of them having adequate (0%) category (0-6). In post test score it is reflected that most of the Nursing students 40 (66.66%) were in adequate (13-20) and having adequate knowledge regarding Needlestick injury and its prevention .20 (33.33%) nursing students were in moderate category (7-13 none of them having inadequate 00 (0%) category (0-6).

Table 02. Mean score, standard deviation, mean difference and paired 't'- test of pre and post – test:

Knowledge score	Mean score	Standard deviation	Mean difference	't' value
Pre test	5.41	3.29	8.69	35.58
Post test	14.10	3.71		

This table revealed that in pre - test overall mean score was 5.41 with the SD of 3.29 and in post - test, the overall mean score was increased to 14.10 with SD of 3.71. The mean difference of pre and post - test was 8.69 The calculated 't' value was 35.58 , which is significant at  $p < 0.05$  level. This indicates that structured Teaching Programme on knowledge regarding Needlestick injury and its prevention among Nursing students was highly effective in improving the level of knowledge. Hence the stated research hypothesis  $H_1$  was accepted.

**The association of pre- test score of students with selected demographic variable:**

The finding reveals that there was significant association between pre-test knowledge score and selected demographic

variable as calculated p value was  $0.4 < p < 0.05$ . There was mostly no significant association found between the level of knowledge and selected demographic variable but it associates with past history of NSIs and previous knowledge. Hence the stated hypothesis  $H_2$  was rejected but with these two-demographic variable  $H_2$  was accepted.

**DISCUSSION**

First objective :The study finding revealed that, in pre-test, out of 60 sample, most of them 42 (70%) had Inadequate, 18(30%) had moderately and none of them had adequate level of knowledge,

The second objective was to administer structured teaching programme regarding Needlestick injury and its prevention among nursing students.

The third objective: The study finding revealed that in post - test, out of 60 sample most of them 40(66.66%) had adequate and 20 (33.33%) had moderate level of knowledge and none of them had Inadequate level of knowledge.

The fourth objective; In pre - test most of them, 42 (70 %) had Inadequate, 18(33.33%) had moderate and none of them had adequate level of knowledge. In post - test, out of 60 sample most of them 40(66.66%) had adequate and 20 (33.33%) had moderate level of knowledge and none of them had Inadequate level of knowledge.

The fifth objective: The result revealed that in that in pre - test overall mean score was 5.41 with the SD of 3.29 and in post - test, the overall mean score was increased to 14.10 with SD of 3.71. The mean difference of pre and post - test was 8.69 The calculated 't' value was 35.58, which is significant at  $p < 0.05$  level. This indicates that structured Teaching Programme was effective . Hence the stated research hypothesis  $H_1$  was accepted.

The sixth objective was no significant association found between the level of knowledge. Hence, the stated hypothesis  $H_2$  was rejected but previous knowledge and previous history of needle stick injury is highly significant association found Hence the stated hypothesis  $H_2$  was partially accepted.

#### **Recommendation:**

On the basis of the finding of the study, it is recommended that-

- The similar study can be conducted among the other population as it is important for all the group in the community.
- The same study can be replicate using large sample.
- The same study can be conducted in different setting.
- The comparative study can be conducted between nurses and laboratory worker in hospital.
- Each hospital should develop standards of care regarding Needlestick injury and its preventions

## **CONCLUSION**

This study was conducted to evaluate the effectiveness of structured teaching programme regarding Needlestick injury and its prevention among nursing students in selected nursing institutes in Faridabad. And of the implementation of the structured teaching programme there were statistically significant improvement in student knowledge. And measure the knowledge from pre - test and post - test and calculate 't' value show that the demographic variable not affect the knowledge. Continuous education about Needlestick injury and its prevention among nursing students that's helpful in reducing the morbidity and mortality rate of blood born disease.

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