

A Study to Evaluate the Effectiveness of Structured Teaching Program on Prevention of Needle Stick Injuries in Terms of Knowledge among B.Sc Nursing 2nd Year Students in SGT University Gurugram

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Abstract: A needle stick injury is a percutaneous piercing wound typically set by a needle point, but possibly also by other sharp instruments or objects. Commonly encountered by people handling needles in the medical setting, such injuries are an occupational hazard in the medical community. These events are of concern because of the risk to transmit blood-borne diseases through the passage of the hepatitis B virus (HBV), the hepatitis C virus (HCV), and the Human Immunodeficiency Virus (HIV), the virus which causes AIDS. Despite their seriousness as a medical event, needle stick injuries have been neglected: most go unreported. The current study was undertaken. To evaluate the Effectiveness of Structured Teaching Program on Prevention Of Needle Stick Injuries in terms of knowledge Among B.Sc Nursing 2nd year Students In SGT University Gurugram. The objectives were to assess the knowledge regarding prevention of needle stick injuries in term of pre test score and post test score and to evaluate the effectiveness of planned teaching program by comparing pre test and post test level of knowledge score and the association between post test knowledge score and socio demographic variables. The pre experimental one group pre testpost test design was adopted. Convenient sampling technique was used to select the 30 student nurses as sample. Pretest was conducted using questionnaire. After pretest Structured teaching program was conducted for the post test. Score was calculated of both pretest and post test. The data obtained were analysed and interpreted in the terms of objectives and hypothesis of the study. Descriptive and inferential statistics were used for data analysis; the level of significance was set at 0.05 level. It was found that majority(87%) of student nurses had average knowledge and (13.3%) had poor knowledge regarding needle stick injury. None of the student nurses had good knowledge(0%) in pretest. After the intervention, 40% of the sample had average knowledge, 17% had poor knowledge and 43.3% had good knowledge regarding needle stick injury in post test. The mean knowledge score for pretest is 14 with median 13, SD 2.98 and a range of 7-18., while in post test there is a significant increase in mean, median, SD and range with values of 19.9, 19, 4.54 and 10-28 respectively. Further *t* value for pretest and posttest is 6.64 which is significant at 0.05 level of significance, this shows a significant increase in knowledge of student nurses regarding Needle Stick Injury. The *t* and *f* value of age is 0.91, gender 0.000, religion 0.85, type of family 0.22, family income 0.49, area of residence 0.00. This shows that *t* and *f* value is significant for Gender and Area of Residence at 0.05 level of significance. It was concluded Selected group of the student nurses had deficit knowledge on prevention of needle stick injury. Structured Teaching Program was an effective method in enhancing the knowledge of student nurses regarding prevention of needle stick injury.

Keywords: structured teaching programme, structured knowledge questionnaire

1. Introduction

A safe injection is one that does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous to the community. Each day thousands of health worker around the world, suffer accidental occupational exposures during the course of their role of caring for patients.

These injuries can result in a variety of serious and distressing consequence ranging from extreme anxiety to chronic illness and premature death. The health care workforce, 35 million people worldwide, represents 12% of the working population. The misconception exists that health care industry is without hazards, but in fact blood borne exposures encountered can be career and life-ending¹.

2. Need of the Study

Based on various studies, researchers have documented that needle stick injuries are under reported by health care workers and the number of exposures could potentially be much higher (Hamory, 1983). Chiarello (1992) cites several studies that found rates of under-reporting between 40.4% and 53% for nurses and 92% for laboratory personnel.

Physicians under reported needle stick injuries by 70% to 95%. All the above studies shows that needle stick injury is common. so there is need to teach the students regarding prevention of needle stick injury and its management.²

It is estimated that sharp injuries cause about 66,000 HBV, 16000 HCV and 200- 5000 HIV infections among health care workers every year. For health care workers worldwide the attributable fractions for percutaneous occupational exposure to hepatitis B, hepatitis C and human immunodeficiency virus are 37%, 39% and 44% respectively. These blood borne diseases have serious consequences, including long term illness, disability and death. In addition care workers by sharp injury including those that cause tuberculosis, diphtheria, herpes and malaria³.

2.1 Problem Statement

A Study To evaluate The Effectiveness Of Structured Teaching Program on Prevention Of Needle Stick Injuries in terms of knowledge Among B.Sc Nursing 2nd year Students In SGT University Gurugram.

2.2 Objectives

- 1) To assess the knowledge regarding prevention of needle stick injuries in term of pre test score.
- 2) To assess the knowledge regarding prevention of needle stick injury in term of post test score.
- 3) To assess the effectiveness of planned teaching program by comparing pre test and post test level of knowledge score.
- 4) To determine the association between post test knowledge score and socio demographic variables such as, gender, religion.

2.3 Hypothesis

H₁ The mean post test knowledge score on prevention of needle stick injuries is significantly higher than the mean pre test knowledge score by paired 't' test at 0.05 level of significance.

H₂. There is significant association between the knowledge with selected demographic variables at 0.05 level of significance.

2.4 Assumption

- 1) The B.Sc nursing 2nd year students may have some knowledge regarding needle stick injury.
- 2) B.Sc nursing 2nd year students knowledge may improve after SIM.

2.5 Delimitation

The study is delimited to B.Sc nursing 2nd year students in SGT University Gurugram.

3. Methodology

3.1 Research Approach

The research approach involves the description of the plan to investigate the phenomenon under study³³. The approach helps to decide about the presence and absence as well as manipulation and control over variables. The choice of approach depends upon the purpose of study. In the present study a pre experimental research approach is considered more appropriate to accomplish the objectives of the study.

3.2 Research Design

The research design is the master plan specifying the methods and procedures for collecting and analysing the needed information in the research study⁴. The research design selected for the study is experimental research design.

3.3 Study Design

A pre-experimental research approach with pre test and post test design which includes manipulation and randomization.

Group	Pre test	Treatment	Post test
Students of B.Sc Nursing 2 nd year	0 ₁	X	0 ₂

Key;

0₁- Pretest on knowledge of student nurses regarding needle stick injury to experimental group.

X- Implementation of planned teaching program on needle stick injury to experimental group.

0₂- Post test on knowledge of student nurses regarding needle stick injury to experimental group.

3.4 Variables Under Study

Research Variables

Planned Teaching Program regarding prevention of needle stick injuries.

Dependent Variables:

Knowledge regarding needle stick injury

Demographic Variables

Demographic variables include their age in years, religion, type of family, family income per month, previous exposure to any information.

Setting of the Study:

The setting is the physical location and condition in which data collection take place. The study was conducted in Faculty of Nursing, SGT University, Gurugram.

Population:

In the present study, the population selected for the study is the Bsc 2nd year nursing students.

Sample and Sample Size:

Sample comprised of 30Bsc 2nd year nursing students

Sampling Technique:

Convenient sampling Technique: non probability

Inclusion and Exclusion Criteria:

Inclusion Criteria:

Student nurse:

- 1) Irrespective of gender.
- 2) Studying in SGT University.
- 3) Present during the period of data collection.

Exclusion Criteria:

Student nurses who are:

- 1) Not willing to participate in the study.

4. Organization of Interpretation of Data

The data obtained during data collection was summarized in the master data sheets, analysed, tabulated and interpreted according to the objectives. The data was organized and presented under following sections:

Section I: Description of sample characteristics:

Frequency and percentage distribution of sample characteristics

Section II: Findings related to distributions of knowledge among studied sample:

Section III: Findings related to effectiveness of Structured Teaching Program on knowledge among the studied sample.

Section IV: Findings related to association of knowledge with selected factors age, gender, religion ANOVA and t are computed to establish the association between the knowledge scores and selected variables .

Section I

Description of Sample Characteristics

This section describes the characteristics of student nurses . The characteristics included in the study were age, The frequency and percentage were computed for describing the above .

Table 1: Frequency and percentage distribution of Demographical characteristics in samples by age, gender, religion, type of family, family income, community, area of residence. N=30

S.No	Demographic Variables	Frequency	Percentage
1	Age		
	18-20	26	87
	21-23	3	10
	>24	1	3.3
2	Gender		
	Male	11	37
	Female	19	63.3
3	Religion		
	Hindu	27	90
	Muslim	1	3.3
	Christian	1	3.3
	Others	1	3.3
4	Type of family		
	Nuclear	20	67
	Joint family	5	17
	Extended family	5	17
4	Family income per month		
	10,000-15,000	3	10
	16000-20,000	5	17
	21000-25,000	12	40
	26,000-30,000	10	33.3
5	Area of residence		
	Urban	13	43.3
	Rural	17	57

- Data presented in table 1 shows that majority of the sample (87%) were in the age group of 18-20 years.
- Most of the samples (63.7%) were females.
- Data in the table further shows that most of the sample (90%) were Hindus.
- Data further revealed that 67% of the samples were living in nuclear families.
- Data further reveals that majority of the sample (40%) were having family income between 21000-25000
- Majority of the sample (57%) belongs to rural community.

Table 2: Section II: Findings related to distributions of knowledge among studied sample: N=30

Categories	Pre-test, f (%)	Post test, f (%)
Poor	4 (13.3)	5 (17)
Average	26 (87)	12 (40)
Good	0 (0)	13 (43.3)

- Data presented in table 2 reveals that majority (87%) of student nurses had satisfactory knowledge and (13.3%) had poor knowledge regarding needle stick injury. None of the student nurses had good knowledge(0%) in pretest.
- After the intervention, 40% of the sample had average knowledge, 17% had poor knowledge and 43.3% had good knowledge regarding needle stick injury in post test.

Section III– Findings related to effectiveness of Structured Teaching Program on knowledge among the studied sample.

Table 3: Mean & Standard Deviation Of Pre Test

Test	Mean	Median	SD	Range
Pre-test	14	13	2.98	7-18

Table 4: Mean & Standard Deviation Of Post Test

Test	Mean	Median	SD	Range
Pre-test	19.9	19	4.54	10-28

Data in table 3 and table 4 shows that mean knowledge score for pretest is 14 with median 13, SD 2.98 and a range of 7-18, while in post test there is a significant increase in mean, median, SD and range with values of 19.9, 19, 4.54 and 10-28 respectively.

Table 5: ‘t’ Showing the Effectiveness of Structured Teaching Program

Test	Mean	SD	SE _{MD}	‘t’ test	p value
Pre-test	14	2.98	0.54	6.64	0.001*
Post -test	19.9	4.54	0.83		

Data in table 5 shows that t value for pretest and posttest is 6.64 which is significant at 0.05 level of significance, this shows a significant increase in knowledge of student nurses regarding Needle Stick Injury.

Table 6: Section III. Findings related to association of knowledge with selected factors age, education, family income, community, number of children and previous knowledge.

ANOVA and t are computed to establish the association between the knowledge scores and selected variables.

Table 6: Association of knowledge with demographic variables

S.no	Variables	t/f value	p value
1	Age	0.08	0.91
	18-20		
	21-23		
	>24		
2	Gender	17	0.000*
	Male		
	Female		
3	Religion	0.26	0.85
	Hindu		

	Muslim Christian Others		
4	Type of family Nuclear Joint family Extended family	1.53	0.22
4	Family income per month 10,000-15,000 16000-20,000 21000-25,000 26,000-30,000	0.82	0.49
5	Area of residence Urban Rural	15.3	0.000*

Data presented in Table 6 shows that t and f value of age is 0.91, gender 0.000, religion 0.85, type of family 0.22, family income 0.49, area of residence 0.00.

This shows that t and f value is significant for Gender and Area of Residence at 0.05 level of significance.

5. Conclusion

The following conclusions are drawn from the findings of the study:

- 1) Selected group of the student nurses had deficit knowledge on prevention of needle stick injury.
- 2) Structured Teaching Program was an effective method in enhancing the knowledge of student nurses regarding prevention of needle stick injury.

6. Discussion

Needle Stick Injury is a potential public health problem and is a major risk factor for transmission of various blood borne infections among the nurses. The present study is aimed to assess the knowledge of student nurses regarding Needle Stick Injury and effectiveness of Structured teaching program. This study showed that the mean percentage score of post test (19.9) in experiment group was higher than the mean percentage score of pre test (14) this means Structured teaching program was effective to increase the knowledge among student nurses. The findings is similar to the study to assess the level of knowledge about Post Exposure Prophylaxis (PEP) among health personnel. The findings revealed that the knowledge in pre test session was poor. The study concluded that knowledge on all the aspects improved in the post test session after the administration of SIM related to prevention of HIV AIDS. The increase in knowledge was statistically significant.⁵

In this study majority of the student nurses had poor knowledge which is consistent with the study conducted among dental professionals revealed that 42% had poor knowledge and 58% of dental professionals had good knowledge about the Universal Precaution Guidelines.³⁵ However, it is incompatible with the results obtained from the previous studies. A study conducted in Southeast Nigeria in Tertiary Health Institutions revealed that 92% of the nurses had good knowledge, although 75% of them had good practice for universal precautions measures.⁶

A study conducted in Pakistan at Holy Family Hospital revealed that 73.3% of the nurses had good knowledge about a definition of needlestick injuries and the diseases caused by them.⁷ Another study conducted in Pakistan at a Tertiary Care Hospital revealed that 86% of the nurses had good knowledge about needlestick injury preventive measures.⁸ In this study, the results reflect that there is a significant relationship between nurses' gender and their knowledge. This result might relate to a difference of interest to raise knowledge about needlestick injury preventive measures with nurses' gender. This result disagreed with the results obtained from a previous study done in Iraq indicated that there is no relation between nurses' gender and their knowledge of needlestick injury preventive measures.⁹

This study result showed an insignificant relationship with nurses' age and their knowledge this result might relate to inadequate training for the nurses about needle stick injury preventive measures. This result agreed with the results obtained from a previous study done in Iraq indicated that there is no relation between nurses' age and their knowledge of needlestick injury preventive measures.⁹

Health care providers should get training to fill the skill gap, apply universal precaution and never recap needles after use. It is recommended that every hospital should develop a multi-pronged strategy to deal with Needle Stick Injury. Besides health promotion, an adequate surveillance mechanism should be set up in every large hospital and also, facilities for prompt response and treatment of Needle Stick Injury should be provided.

7. Limitations

The study has certain limitation that need to be acknowledged in the interpretation of the results

- 1) Convenient sampling was applied in data collection process whereas the Probability sampling method can enhance the induction of different strata of the participants.
- 2) Time duration was short for this study. Convenience sampling technique was also a limitation.
- 3) Population was only selected from one nursing college.

8. Recommendation

On the basis of findings of the study it is recommended that

- 1) Similar study can be conducted for a large sample to generalize the findings.
- 2) A comparative study can be done to evaluate the knowledge of needle stick injuries among B.Sc Nursing students and GNM courses.
- 3) A study can be done to assess the practice of students on universal precaution.
- 4) A similar study can be done among health care workers.
- 5) A study can be done on reporting procedure of needle stick injuries among nursing students.

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