



A STUDY ON NEEDLE STICK INJURY AMONG NURSING STAFF & NURSING STUDENTS IN A MEDICAL COLLEGE

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ABSTRACT

Introduction: Needlestick injuries are wounds caused by needles that accidentally puncture the skin. Needlestick injuries are a hazard for people who work with hypodermic syringes and other needle equipment.

Aims & Objectives:

- To assess the prevalence of NSIs among nurses in Private Medical College.
- To recommend the preventive measure to control the injuries.

Materials & Methodology: This is a hospital-based cross-sectional study conducted in Jan 2017 to Apr 2017 among the nursing staff and nursing students of Varun Arjun Medical College and Rohilkhand Hospital (VAMC&RH), Banthra, Shahjahanpur, which involves the simple interviewing technique using a semi-open questionnaire that was filled by the interviewer.

Inclusion criteria: Both male and female including those professionals who normally deal with needles among nursing health care works.

Exclusion criteria: Those who did not give their consent to participate in the study

Result: The prevalence of NSIs among nurses was 40%. The majority of NSIs occurred in the ward (46%) followed by Laboratory (20%) and emergency (19%).

Conclusion: An effective system for disposing of used needles and sharps is crucial to preventing injuries. Have disposal containers readily available. Workers should place needles in wide-mouth, puncture-proof containers.

KEYWORDS :

INTRODUCTION:

Needlestick injuries are wounds caused by needles that accidentally puncture the skin. Needlestick injuries are a hazard for people who work with hypodermic syringes and other needle equipment. These injuries can occur at any time when people use, disassemble, or dispose of needles. When not disposed of properly, needles can hide in linen or garbage and injure other workers who encounter them unexpectedly. The Centre for Communicable Diseases and Infection Control at the Public Health Agency of Canada (PHAC) reviews, publishes, and updates guidelines to protect staff from exposure to all infection causing agents in healthcare settings. The current guideline is titled "Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings". NSIs are the single greatest occupational hazard to medical personnel¹. After stress, NSIs are the top health and safety concern of nurses worldwide². Nurses have the highest rate of NSIs among healthcare workers due to their maximum exposure to the needles and other sharp instruments while as many as twenty bloodborne pathogens can be transmitted through accidental needle sticks³.

A report⁴ from the Centers for Disease Control and Prevention (CDC) in the United States lists the following percentages for injury rates from a study with data collected from 1995 to 2007 **Injuries involving**

hollow-bore needles: During or after disposal: 22% , After use, before disposal: 19%, During use: 52%

Injuries involving solid sharps: During or after disposal: 3%, After use, before disposal: 15%, During use of the item: 70%

AIMS AND OBJECTIVES:

- To assess the prevalence of NSIs among nurses in Private Medical College.
- To recommend the preventive measure to control the injuries.

MATERIALS & METHODOLOGY:

The survey was conducted in Jan 2017 to Apr 2017 among the nursing staff and nursing students of Varun Arjun Medical College and Rohilkhand Hospital (VAMC&RH), Banthra, Shahjahanpur. This is a hospital-based cross-sectional study.

The sample size was calculated by assuming the prevalence of NSI as 79.5%⁵ in a previous study with 5% absolute error. By using the formula $N = Z^2PQ/L^2$. Assuming a 10% non-response rate the sample size comes to be 287.

This was a cross-sectional study among the nursing staff and nursing

students on details of needle stick injury. Permission for carrying out the study was taken in advance. Data collection involved the simple interviewing technique using a semi-open questionnaire that was filled by the interviewer.

The health care workers were contacted in person and told about the purpose of the study and that their responses shall be kept anonymous. Informed consent was taken from each respondent before conducting the interview.

Inclusion criteria: Both male and female including those professionals who normally deal with needles among nursing health care works.

Exclusion criteria: Those who did not give their consent to participate in the study

Data analysis: Data was entered in MS Excel and analyzed using SPSS 20. The statistical tests applied included proportions and Chi-square tests for significance of associations.

RESULT:

Table 1 illustrates the demographic characteristics of health care workers. According to which 32% of males and 68% of females were from nursing staff and 32% males and 68% of females were from nursing students. With respect to age distribution, 52% of the nursing staff was revealed in the age group 25-32 years, while 58% of nursing students were from the age group 18-25 years. Table 2 shows that the prevalence of NSIs among nurses was 40%. Among these, nursing students had suffered more NSIs (58%) compared to the nursing staff (42%). As per Table 3, the injury among female staff was 71% while among students 73% injury occurred by females and no association was found among gender and injury occurred by nursing staff or students. Table 4 shows that 64% injury occurred who has work experience less than 2 years followed by 28% who had experience 2-5 years. And the association between work experience and needlestick injury occurred by Nursing staff & Nursing student was found significant (p-value <0.05).

As per table 5, the majority of NSIs occurred in the ward (46%) followed by Laboratory (20%) and emergency (19%). Association between Location of duty at the time of injury and needlestick injury occurred by Nursing staff & Nursing student was found significant (p-value <0.05).

Table 1: Demographic characteristic

	Nursing Staff		Nursing Student	
Gender	No.	%	No.	%

Male	57	32%	39	35%
Female	121	68%	74	65%
Age				
18-25	41	23%	65	58%
25-32	93	52%	31	27%
32-39	23	13%	17	15%
39 and above	21	12%	0	0%
Education Level				
Intermediate	33	19%	87	77%
Graduate	124	70%	26	23%
Post Graduate	21	12%	0	0%
Period of service				
0-1 years	84	47%	113	100%
2-4 years	53	30%	0	0%
5 years and more	41	23%	0	0%
Location of posting				
ICU	23	13%	16	14%
OT	18	10%	8	7%
Emergency	22	12%	21	19%
Ward	91	51%	47	42%
Laboratory	24	13%	21	19%

Table 2: Prevalence of needle stick injury among the nursing staff and nursing students

HCWs	Injury present	Injury absent	Total
Nursing staff	49(42%)	129(74%)	178
Nursing student	67(58%)	46(26%)	113
Total	116	175	291

Figure 1 showing NSIs present among health care workers

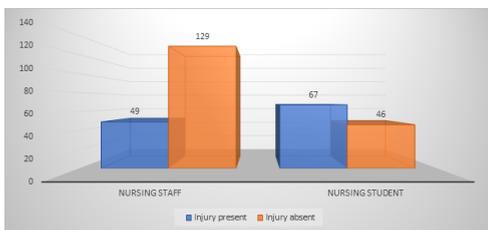


Table 3: Association between gender and needlestick injury occurred by Nursing staff & Nursing student

Gender	Nursing Staff	Nursing Student	Total	Statistical findings
Male	14(29%)	18(27%)	32(28%)	Chi-square=0.41
Female	35(71%)	49(73%)	84(72%)	p-value=0.839
Total	49	67	116	d.f.=1

Table 4: Association between work experience and needlestick injury occurred by Nursing staff & Nursing student

Work Experience	Nursing Staff	Nursing Student	Total	Statistical findings
0-2	28(57%)	46(69%)	74(64%)	Chi-square=13.362 p-value=0.001 d.f.=2
2-5	12(25%)	21(31%)	33(28%)	
>=5	9(18%)	0(0%)	9(8%)	
Total	49	67	116	

Table 5: Association between Location of duty at the time of injury and needlestick injury occurred by Nursing staff & Nursing student

Location of duty	Nursing Staff	Nursing Student	Total	Statistical findings
ICU	6(12%)	2(3%)	8(7%)	Chi-square=10.211 p-value=0.037 d.f.=4
OT	4(8%)	6(9%)	10(8%)	
Emergency	13(27%)	9(13%)	22(19%)	
Ward	21(43%)	32(48%)	53(46%)	
Laboratory	5(10%)	18(27%)	23(20%)	
Total	49	67	116	

RECOMMENDATIONS:

Avoid recapping or bending needles that might be contaminated. Plan for the safe handling and disposal of needles before use. Store sharps containers out of the reach of children, pets, and others not needing access. Secure used sharps containers during transport to prevent spilling. Follow standard precautions, infection prevention, and general hygiene practices consistently. Participate in your employer's bloodborne pathogens training program if available. Help your

employer select and evaluate devices with safety features. Use devices with safety features provided by your employer. Report any needlestick and other sharps injury immediately to the concerned department.

CONCLUSION:

An effective system for disposing of used needles and sharps is crucial to preventing injuries. Have disposal containers readily available. Workers should place needles in wide-mouth, puncture-proof containers. Locate disposal containers specifically where needles and sharps are used to make safe disposal possible. Replace the containers before they are completely filled - sharps containers should be removed and replaced when they are three-quarters full. Make sure they are sealed, collected, and disposed of in accordance with local regulations for biomedical waste.

All staff should report every incident in which they find needles or sharps left at the bedside or thrown into the regular garbage.

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