

# A Descriptive Study To Assess The Knowledge Of Undergraduate Students Regarding The Needle Stick Injury And Its Prevention In Smt. Lakshmi Bai Batra College Of Nursing, New Delhi.

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## Abstract:

**Background:** A needle stick injury (NSI) is an accidental skin-penetrating stab wound from a hollow-bore needle containing another person's blood or body fluid. Healthcare workers are at an occupational risk of exposure to blood-borne pathogens following needle stick injuries and sharp injuries.

**Objective:** To assess the knowledge of undergraduate students regarding needle stick injuries and its prevention in Smt. Lakshmi Bai Batra College of Nursing.

**Method and material:** The research was conducted from December 22nd, 2022 on 62 students of Smt. Lakshmi Bai Batra College of Nursing, Delhi. A purposive sampling technique was used to select the sample and data was collected through questionnaire for accessing the knowledge regarding needle stick injuries and its prevention.

**Result:** 62 students of Smt. Lakshmi Bai Batra College of Nursing were taken as sample using purposive sampling technique and the finding of the study indicates that knowledge regarding needle stick injury is average among 61 students and poor among 1 student and good among 0 student.

**Conclusion:** The study indicates that poor to average knowledge regarding needle stick injury & its prevention among undergraduate students of Smt. Lakshmi Bai Batra College of Nursing.

**Keywords:** Needle stick injury, knowledge

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## I. Introduction

Needle stick injuries are most common occupational hazards among health care worker worldwide that need to be addressed and represent the most common sources of infection.<sup>1</sup> Needle stick injury means the partial introduction of blood or other potentially infectious material by a hollow-bore needle or sharp instrument into the body of the undergraduate student, during the performance of his or her duties. Sharp instrument including needle, lancets, scalpels, and contaminated broken glass. Undergraduate students who have occupational exposure to blood and other potentially infectious material are at risk for acquiring blood borne infection.<sup>2</sup>

Needle stick injuries result in at least 1000 new cases of undergraduate student worker diagnosed with HIV, HCV every year in India. Infection with each of the pathogens named above are potentially life threatening and preventable, because of needle stick injuries are often under reported, health care institution should not interpret low reporting rate as low injury rate.<sup>3</sup>

Today, at least 20 different pathogens are transmitted by needle stick injuries such as hepatitis B virus, hepatitis C virus and human immunodeficiency virus.<sup>4</sup> Annually, hundreds of thousands of health care workers are at high risk of work-related infections as a result of exposure to contaminated needle sticks and sharp injuries.<sup>5</sup>

Worldwide, about three million of health care workers were exposed to blood pathogens through percutaneous, of which two million were exposed to Hepatitis B virus, 0.9 million were exposed to hepatitis C virus and 170,000 exposed to Human Immunodeficiency virus of which more than 90% occurred in developing countries.<sup>6</sup>

Centers of disease control and prevention (CDC) estimates that each year approximately 3,85,000 needle stick injuries and other sharp injuries are sustained by hospital-based health care personnel. Needle -stick injuries is a major and most important occupational health and safety issue faced by healthcare professionals globally with alarming high rates.<sup>7</sup>

Study of the needle stick injury is important as in the developing countries like India where there is expansion of the new hospitals and new student nurses with a less experience student nurses who are at a greater

risk for the transmission of blood borne disease to themselves and to other patients. The two most common causes of needle stick injury in the workplace are two- handed recapping, and the unsafe collection and disposal of sharp waste. Transferring blood between containers (sample transfer) can also be a hazardous practice for needle stick.<sup>3</sup>

NASH (Nonalcoholic steatohepatitis) data show that most injuries occur during or immediately after use; 15% occur during or after disposal. Injuries often occur when the devices are being inserted or withdrawn and/or the patient moves. Prevention can be to avoid recapping of needle, planning for safe handling and disposal of needle before using them. Promptly disposing the used needles and conveniently placing to appropriate sharps disposal containers to prevent needle stick injuries and reporting all needle stick and sharp-related injuries promptly to ensure that you receive appropriate follow-up care.<sup>3</sup>

### Objectives

To find the knowledge of undergraduate students regarding Needle stick injury and its prevention.

## II. Methods And Material

A Non-experimental descriptive research design was used to accomplish the objectives. Study was undertaken on 62 undergraduate students. Patients were selected based on purposive sampling technique. Participants were selected based on inclusion criteria. Socio-demographic variables and structured questionnaire were used to know the knowledge of undergraduate students regarding needle stick injury and its prevention.

### Tool

The data was collected by using socio-demographic variables and 20 structured questionnaires

### Description of the Tool

In order to meet the objectives of the study, the tool were constructed which consist of two sections:

Section A: It consisted of 9 questions of demographic data, i.e., age, gender, qualification, year of experience, present work area, marital status, religion, exposure to needle stick injury, knowledge of undergraduate students regarding the prevention of needle stick injury and source of information.

Section B: It consisted of 20 knowledge related question which were multiple choice answer- type questions. Each question had one correct response. Score of '1' was awarded for each correct answer and '0' for each wrong answer. The maximum total score is 20.

### Data Collections

For conducting the main study, the data collections period was scheduled January 2014 in Smt. Lakshmi Bai Batra College of Nursing, New Delhi. After getting ethical clearance from the ethical committee of Smt. Lakshmi Bai Batra college of nursing, New Delhi, New Delhi.

## III. Result

### Findings related to demographic characteristics of the Undergraduate students

**Table- 1:** Frequency and Percentage distribution of knowledge regarding needle stick injury and its prevention among undergraduate students of selected demographic profile.

n=62

S.NO	DEMOGRAPHIC CHARACTERISTICS	FREQUENCY	PERCENTAGE
1	<b>Age (in years)</b>	33	53.2%
	a) 18-20	27	43.6%
	b) 21-23	1	1.6%
	c) 23-25	1	1.6%
	d) Above 25		
2	<b>Gender</b>	0	0%
	a) Male	62	100%
	b) Female	0	0%
	c) Others		
3	<b>Religion</b>	58	93.5%
	a) Hindu	0	0%
	b) Christian	3	4.8%
	c) Muslim	1	1.7%
	d) Sikh	0	0%
	e) Others		
4	<b>Training on needle and sharp safety</b>	58	93.5%
	a) Yes	4	6.5%
	b) No		

5	<b>Previous knowledge regarding needle stick injury</b>	53	85.5%
	a) Yes b) No	9	14.5%
6	<b>Exposed to needle stick injury</b>	11	17.8%
	a) Yes b) No	51	82.2%
7	<b>Number of incidences of exposure with needle stick injury</b>	11	17.8%
	a) 1-3 times	0	0%
	b) 4-6 times	0	0%
	c) 7-9 times	0	0%
	d) >9 times	51	82.2%
	e) None		

Table no 1 show that, among of 62 undergraduate students, 33 students (53.2%) belong to the age group 18-20 years of age, 27 students (43.6%) belong to the age group of 21-23 years of age, 1 student (1.6%) belong to 23-25 years of age and 1 student (1.6%) belong to above 25 years of age. In total 62 undergraduate students, all 62(100%) were females and have no male students and others. Most of the undergraduate students i.e. 58 students (93.5%) were Hindu, 3 student (4.8%) Muslim, 1 student (1.7%) belong to others religion and no student belong to Christian and Sick religion. Most of the undergraduate students were taken training on needle and sharp safety i.e. 58 student (93.5%) and 4 students (6.5%) were not taken training on the needle-sharp injury. Most of undergraduate students had previous knowledge regarding needle stick injury among 47 students (76%) from health care sector, 4 students (6%) from media, 2(3%) from friends, 0 student (0%) from friends and 9 students (15%) had no previous knowledge regarding needle strict injury. Only 11(17.8%) students were exposed to Needle stick injury and 51(82.2%) students were not exposed to needle strict injury. And also 11(17.8%) students were exposure with needle stick injury 1-3 times, 51(82.2%) were not exposed to needle stick injury.

**Table 2: Frequency and percentage distribution table according to category of knowledge level among undergraduate students.**

n=62

S.No	Category of knowledge level	Frequency (%)
1	Poor	1.6%
2	Average	98.4%
3	Good	0%

Table no 2 shows that out of 62 undergraduate students in which 98.4% students were having average knowledge, 1.6% were having poor knowledge and 0 (0%) student were having good knowledge of needle stick injury.

**TABLE 3: Mean, median, mode, standard deviation and range of knowledge score obtained by undergraduate students regarding needle stick injury**

Variable	Possible Range Of Scores	Range Of Obtained Score	Mean	Median	Mode	Standard Deviation
Knowledge	0-20	6-13	10.56	11	12	1.69
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**Table 3** shows that mean knowledge score of undergraduate students were 10.56, the Median was 11 and the Mode was 12 with the Standard deviation of 1.69.

#### IV. Conclusion

This chapter deals with summary on needle stick injury on undergraduate students in Smt. Lakshmi Bai Batra College of Nursing it including conclusions drawn from the findings and possible applications of the result in the Nursing professionals and limitations of the study findings recommendations for future results are also presented.

**1. Finding related to demographic variables revealed that:**

- Nearly half of the students in the study (53.2) were from age group of 18-20, all were female (100%), belongs to Hindu religion (93.5%), whereas 93.5% of students have taken training on needle stick injury and sharp safety, also had previous knowledge (85.5%)
- Most of the students in the study (81.2%) were not exposed to needle stick injury.

• Majority of the students in the study (81.2%) have not reported any incidences of exposure with needle stick injury.

2. Finding related to questionnaire revealed that:

• Overall prevalence of knowledge regarding needle stick injury and its prevention among students shows majority of the students (98.6%) were having average knowledge (1.6%) were having below average knowledge and (0%) were having poor knowledge regarding needle stick injury and its prevention

### Reference

- [1] S. Bouya, A. Balouchi, H. Rifiemanesh, M. Amirshahi, M. Amirshahi, M. Dastress, A.M.P. Moghadam, Behnamfar Et Al, "Global Prevalence And Device Related Cause Of Needle Stick Injuries Among Health Care Workers," Systematic Review And Meta-Analysis, *Annals Of Global Health*, Vol: 8, No.1 Pp 1-8, 2020
- [2] Anjana Ap, Gisha Joseph, Revathy A Valsan, Study To Determine The Knowledge Regarding Post Exposure Prophylaxis(Pep) Following Needle Stick Injury Among B.Sc. Nursing Students. *Indian Journal Of Public Health Research And Development* 9 (4),2018.
- [3] Archana Lakshmi Pa, Raja A, Meriton Stanly A, Paul Cm, Gladius Jennifer H. A Cross Sectional Study On Needle Stick And Sharp Injuries Among Health Care Providers In Tertiary Centers, Tamil Nadu. *International Journal Of Community Medicine And Public Health*. 2018 Mar;5(3):982
- [4] C.H. Stein, T.P. Makharawo, And M.F.R. Ahmad, 'A Survey Of Doctor And D.A. Kennedy, 'Microbiologica Hazards Occupational Needlestick And "Sharps" Injuries,' *Journal Of Applied Microbiology*, Vol. 62, No. 1, Pp. 68-73, 2003.
- [5] Y.Nagao, H. Baba, K. Torii Et Al., "A Long Term Study Of Sharps Injuries Among Health Care Workers In Japan," *American Journal Of Infection Control*, Vol.35, No. 6, Pp 407-411, 2007.
- [6] Central For Disease Control And Prevention, Stop Sticks Campaign-Sharps Injuries, 2019, [Http://Www.Cdc.Gov/Niosh/%20stopsticks/Sharpinjuries.html](http://www.cdc.gov/niosh/%20stopsticks/Sharpinjuries.html).
- [7] H. Himmelreich, Hf. Rabenau, M. Rindermann Et Al., " The Management Of Needlestick Injuries." *Deutsches Arzteblatt International*, Vol.110, Pp 61, 2013
- [8] Longo, Fauci, Kasper, Hauser, Jameson, Loscalzo, *Principle Of Internal Medicine: 18' Ed(2015)*, Mcgraw Hill Education (P)Ltd, America, Pp 2137-2141.