

## A study to assess the factors leading to the incidences of Needle Stick and Sharp Injuries among the nursing students and to seek association among selected factors with incidences of needle stick and sharp injury in selected Colleges of Nursing in New Delhi

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### ABSTRACT

Needle stick injuries are wounds caused by needles that accidentally puncture the skin. Needle stick 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 become concealed in linen or garbage and injure other workers who encounter them unexpectedly. Occupational needle stick injuries primarily affect healthcare workers, especially the students of various disciplines who make up 80% of needle stick injuries worldwide. [1,2] Various other occupations are also at increased risk of needle stick injury, including law enforcement, labourers, tattoo artists, food preparers, and agricultural workers. Among these group the most vulnerable groups is freshly admitted nursing students. Hence assessing the factors leading to the incidences of needle stick and sharp injury and their avoidance is needed. The descriptive study with a sample of 60 first year nursing student was conducted by using structured Questioner. The study result showed that women have neutral attitude on syndrome and its management. And few demographic variables showed association with level of attitude.

**Key words:** Blood borne pathogens, HIV, Needle stick, Nurse safety, Occupational health and safety, Occupational injury and illness, Safety, Sharps, Universal precautions, Work practice Controls

### INTRODUCTION

The needle stick injuries transmit infectious diseases, especially blood-borne viruses. Concern includes the Human Immunodeficiency Virus (HIV) which leads to AIDS (Acquired Immune Deficiency Syndrome), hepatitis B, and hepatitis C. Accidental punctures by contaminated needles can inject hazardous fluids into the body through the skin. There is potential for injection of hazardous drugs, but contact with infectious fluids, especially blood, is by far the greatest concern. Even small amounts of infectious fluid can spread certain diseases effectively. Sharps can create a cut in the skin which allows contact between blood or fluids. The major blood-borne pathogens of concern associated with needle stick injury are hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV.

According to the national institute of occupational safety and health study the design of device can increase the risk of injury such as devices with hollow bore needles, needle devices that need to be taken apart or manipulated by the health care worker like blood drawing devices that need to be detached after use, syringes that retain an exposed needle after use. [3]

The activities that expose nurses to NSSIs includes recapping after use, handling specimens, collision between health care workers or sharps during clean up manipulating needles in patient line related work, passing handling devices or

failure to dispose of the needle in puncture proof containers. [4]

So the researcher felt a strong need to assess the factors leading to needle stick injuries among the nursing students in order to educate them in this direction to avoid the mishandling of needle and sharps and furthermore to avoid the unwanted life threatening situations.

### OBJECTIVE OF THE STUDY

- To assess the factors leading to the incidences of Needle Stick and Sharp Injuries among the freshly admitted nursing students.
- To establish the co relation among the selected factors with incidences of workplace violence in selected hospitals of Delhi.

### METHODOLOGY

**Research approach and design-** The research approach used for this study is Quantitative approach. A descriptive non experimental study design was adopted to assess the factors leading to the incidences of needle stick and sharp injury

**Setting of the study** -The study was conducted in selected nursing colleges of New Delhi

**Target Population** – Students of selected nursing colleges of New Delhi

**Sample size** -The sample comprises of 60 nursing students of different disciplines

**Sampling technique** - Purposive non random sampling technique was adopted to select subjects from the target population.

**Development of the tool** - Structured questioner was developed after adequate retrieval of research studies and under the guidance of nursing and medical experts.

**Description of the tool** - The instrument used for data collection Structured-Questionnaire which consists of two sections. Section A: Demographic data Section B: multiple choice questionnaire was used, 10 items.

**Reliability** - The reliability was established by assessing the stability of the tool by test–retest method using a correlation coefficient

method. The reliability was found to be significant **Validity** - The content validity of the tool was assessed by obtaining opinion from three experts in the field of nursing and medicine. The experts suggested reorganization and deletion of certain items. Appropriate modifications were made accordingly and the tool was finalized.

**Ethical clearance** - Informed Consent were obtained from the participants and explained about the purpose of the study

**Data collection procedure-** Data was collected from 12.04.2017 to 15.04.2017. A total of 60 samples were selected using purposive non random sampling method. The practice related factors were accessed by giving a structured questionnaire for 30 minutes.

### RESULT & DISCUSSION

A total of 60 study subjects participated in the study. All study subjects were included in the final analyses giving a response rate of 100%.

#### Demographic Variable

From the total respondents 54 (90%) were female nurses while 06 (10%) were male nurses and 36 (60%) were between age of 17-19 years with the mean age of 19.56 years. 30 students (50%) were from GNM and 30(50%) were from B.Sc. curriculum. In the context of ethnicity 60 (100%) were Indian. In the marital status condition of nurse, 60 (100%) were single. 30 (50%) nurse students have work experience of 1-4 years and 30 students have work experience of 1-3 years with the mean work.

#### Envoirmental Charcterstics:-

- Majority to the study subjects 60 (100 %) were exposed to all clinical area i.e medical, surgical, emergency. Out of the total nurses working in nursing institutions, majority 20 (33%) were working in surgical/OR unit and 15 (25%) working in medical units followed by ICU unit which accounts 15 (25%) and 10(16%) were working in other unit (i.e pediatric, gynecology wards).

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From the total respondents, 22(36%) had night shift work in the hospital oftenly, rest 38(63%) nursing students had general shift. Only 39 (65%) were having knowledge and information about prevention of sharp and needle stick injury and patient safety. 38 (63.33%) had been supervised by the concerned body on prevention of needle stick injury. All respondent 60 (100%) were having safety box in their working rooms to dispose

infectious wastes including needle stick and sharp materials and 42 (70%) of the respondents had exposed to contaminated needle stick and sharp materials around their working area. 30(50%) had seeked information and training session in the last one year prior to the study and (Table 1). Among all area, 10(16.6%) of safety boxes were empty and in good condition and 40 (66.6%) were overfilled with sharps and needle.

TABLE 1

S.R	VARIABLES	RESPONSE	FREQUENCY	PERCENTAGE
1.	Needle stick injury occurred in which shift duty	Night	18	30%
		All	42	70%
2.	Knowledge about needle stick and sharp injury.	Yes	39	65%
		No	21	35%
3.	Supervision by seniors in working room?	Yes	38	63.33%
		No	22	36.6%
4.	Exposure with needle stick injury and sharps materials in the working area	Yes	42	70%
		No	18	30%
5.	Use of sharp disposing box to discard the sharps and needles	Yes	60	100%
		No	00	00
6.	Training on needle and sharp safety.	Yes	30	50%
		No	30	50%
7.	Condition of safety box in the working unit	Overfilled	40	66.6%
		Tornout	10	16.6%
		Empty	10	16.6%

Table 2

S.R	VARIABLES	RESPONSE	FREQUENCY	%
1.	Belief on preventability of Needle stick/sharp injuries?	Yes	60	100%
		No	00	00
2.	Practice leaded to needle stick injury	Accidental movement of patient.	05	8%
		Recapping of needle after use.	28	46.6%
		Negligence by student	08	13.3%
		Accidental prick of sharps/needle by self or others	02	3.3%
3.	Use personal protective equipments during working with needles/sharps?.	All the time	08	13.3%
		Most of the time	12	20%
		Sometimes	28	46.6%
		Never	10	16.6%
4.	Practice of recapping of needle during the procedure	All the time	17	28.3%
		Most of the time	08	13.3%
		Sometimes	10	16.6%
		Never	42	70%
5.	Number of incidences of exposure with needle stick injury?	1-2 times	32	53.3%
		2-4 times	10	16.6%
		5-7 times	01	1.6%
		>7 times	00	00
6.	Type of injury sustained during needle prick,	Deep	02	3.3%
		Slight skin penetration	30	50%
		Superficial.	13	21.6%
		None	17	28.3%
7.	Type of needle/sharp had caused you the needle stick injury?	Intravascular needle	33	55%
		Intramuscular needle	12	20%
		Suturing needle	03	5%
		Lancet	05	8.33%
		Surgical blade	02	3.3%
8.	Measures did you take after exposure to needle stick injury	Other	05	8.33%
		Reported to the concerned authority	54	90%
		Ignored	00	00
		Self treated	06	10%
		Unreported and untreated	00	00

• **STUDENTS BEHAVIOUR RELATED ATTRIBUTES**

Among respondent all 60(100%) were having a belief that needle stick and sharp injuries is a preventable problem. Majority of activity and practice 28(46.6%) which led to the needle stick injury was recapping of needle. Related to PPE uses majority 38(63.3%) were using PPE most of the time before handling the needle and sharps. About recapping of needle after use 28 (46.6%) of respondent recap the needle and 10(16.6%) never recapped the needle. Regarding the frequency of needle stick injury majority 32(53%) were 1-2 times in last one year. Concerning the type of injury after needle prick and sharp majority 30(50%) were having the slight skin penetration and in majority 33(55%) of cases the type of needle or sharp was intravenous needle. In most of the incidences of needle stick and sharp injury the student nurses reported it to the concerning authority (Table 2)

The present study reveals that the one year of prevalence of needle stick and

sharp injury among the nursing student posted in various areas was 70%.

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