

# A study to assess the knowledge of first year nursing students on Needle Stick Injuries at selected colleges of Puducherry.

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**ABSTRACT:** A descriptive study was carried out to assess the knowledge of first year nursing students on needle stick injuries. The samples were selected by convenient sampling technique. The sample size was 107 and the study was conducted in selected colleges of Puducherry. Data on needle stick injuries was collected by using structured knowledge questionnaires. The collected data were analyzed by using descriptive statistics & inferential statistics. The findings of this study showed that 88(82.2%) of the student had poor knowledge and 18(16.82%) student had average level of knowledge and 1(0.3%) student had good knowledge on needle stick injuries. There was a significant association found between level of knowledge with income of father at  $P < 0.05$  level. The study concludes that it is the need of the hour to educate the nursing students on the prevention and the consequences of needle stick injuries.

**Key Words:** needle stick injuries, nursing students, prevention.

## Introduction

Needle stick injuries has always been one of the most important risk factor for healthcare workers [HCWs] for transmission of various infection such as hepatitis B, hepatitis C, and human immunodeficiency virus [HIV]. As per the 2008-2009 HIV estimates, there are an estimated 23.9 lakh people currently living with HIV/AIDS in India with an adult prevalence of 0.31 percentage in 2009. Variety of procedures like needle recapping, injuries sustained in the operating room, blood collection or intravenous line administration, suturing and checking blood sugar can lead to accidental NSI (Ramandeep Singh Gambhir, et. Al 2009).

Every year, about 16 billion injections are administered in developing and transitional nations and approximately 3 million individuals are injured due to needle stick and sharp injuries. These types of blood-borne exposures can be career and life-ending. There is gross under reporting of NSI and, therefore, the incidence of NSI is higher than the current estimates. Study reported a high incidence of needle stick and sharp injuries among HCWs in Jordan. In South Africa, 91 percentage of junior doctors reported sustaining a NSI in the previous year. Result of another cross-sectional study conducted in Iran among medical and dental students showed that 74.3 percentage had experienced NSIs (Vinod Kapoor 2009).

In a country like India, inspite of large number of awareness programs, it is not possible to estimate the annual incidence of NSI in different occupations because of the scarcity of data (Simarpreet Singh 2009).

World wide, three million HCW's experience percutaneous exposure to blood – borne viruses each year 20,00,000 hepatitis B; 9,00,000 hepatitis C and 3,00,000 human immuno deficiency virus). Exposure to BBI can occur through a percutaneous injury (needle stick injury, NSI) or mucocutaneous incident (BBI splash). (Arazoo 2015)

Medical students & Nursing students are prone to accidental exposure to Blood Borne Pathogens and body fluids because of multitude of reasons such as, nature of their work, which invest extensive contact with the sick patients, specimen handling, lack of experience & skill, eagerness to learn new things and material, lack of awareness about policies and procedures to avoid the same.

In turn, a NSI may also pose a risk for a patient if the injured health professional carries HBV, HCV or HIV. Despite their seriousness as a medical event, NSI have been neglected and under reported. Nurses are most common health care professionals who encounter NSI in these day to day work.

Numerous studies have found nurses to be the commonest group of health care workers experiencing needle stick injuries. Needle pricks sharps injuries represent a significant hazard in professional nursing. Researches also have shown that, between all health care workers, nurses are the ones who sustain a high needle pricks injuries burden. (Theresa Lawson 2015).

**Need for the study:**

Findings from a research revealed that 52.9% (73 of 132) respondents had sustained one or more NSIs during the past year. Although it is higher than that reported elsewhere, the true magnitude of NSI is difficult to assess in the absence of an integrated and careful monitoring system. In such a condition, information has not been gathered completely on the frequency of injuries among health care personnel working in hospital settings. The incidence of repeated NSI was significantly higher in nurses of surgery ward (NavidMohammodi 2011).

The study showed that from the past 5 years of distinct increase in 2006. During the period from July 2006 to June 2007, 296 HCWs sustained NSIs of them, 84 (28.4%) were nurses. 27 (9.1%) were students/intern nurses, 45(15%) were class IV or cleaning staff, 64 (21.6%) were doctors. 47(15.9%) were interns, 24 (8.1%) were technicians and five (1.7%) were other categories of staff (Kang G 2009).

The study of MaanasiYalamalli(2002) reported that 69% practiced and followed one-handed needle recapping technique (scoop technique) and 28.5% practiced two-handed needle recapping. Muralidhar et al. and Rais et al. stated most of the HCWs used both hands while recapping the needle, which is a wrong technique (59% and 42%, respectively)

The researchers felt that nursing students are most suitable candidates for training of prevention & management of NSI as they are likely to come across such situations future. This study aims at assessing knowledge of prevention & management of NSI of nursing students. (Yadara 2014)

**objectives of study**

- ✓ To assess the level of knowledge on needle stick injury among first year nursing students.
- ✓ To find the association between the knowledge on needle stick injury among first year nursing student with their selected demographic variables such as education religion etc.,

**Review of literature**

**Panel Mehdi Jahangiri. et. al., [2015]**, in their study on Needle stick injuries and their related safety measures among nurses in a university hospital, Shiraz, Iran, found that hollow-bore needle were the most common devices involved in the injuries [85.5%]. The majority of NSIs occurred in the morning shift [57.8%] and the most common activity leading to NSIs was recapping needles [41.4%]. The rate of underreporting NSIs was [60.2%] and the major reasons for not reporting the NSIs were heavy clinical schedule [46.7%] and perception of low risk of infection [37.7%]. A statistically significant relationship was found between the occurrence of NSIs and sex, hours worked/week, and frequency of shifts/months.

**Prasima J, Sharma R, et. al., [2015]**, conducted a study among 83 nursing students included 43 (51.81%) GNM 3<sup>rd</sup> year and 40 (48.19%) B.sc nursing students. Out of a total 83 students, 75 (90.36%) were females. The occurrence of NSI during their course was reported by 33 (39.76%) participants. The maximum NSI occurred during first year of course (57.57%). It was found that 18 (54.54%) of NSIs were not reported. Among those exposed, only 5 (15.15%) students had undergone blood investigation and very few students took post exposure measures. It was found that, only 32 (69.69%) students were immunized against Hepatitis B before NSI.

**Nirmala Devi N. et. al., [ 2014]**, in their study on awareness on needle stick injury among the paramedical and housekeeping staff found that 73% of the staff was aware, 24% were unaware and 3% did not answer to the questions regarding NSI. About 25% and 37% of ward boys, male nurse assistants and housekeeping staffs were unaware regarding NSI. Disposal procedures for needles were unknown to 7 staff nurse. 48 staff and 19 laboratory staff were unaware regarding the reporting of NSI. Findings of the study shows that the level of awareness among the staff is inadequate.

**Methodology**

Quantitative research approach with non experimental descriptive survey research design was adopted for the study. The samples were first year nursing students in selected College of Nursing at Puducherry. Convenient sampling technique was used to select the sample. Assurance was given for confidentiality of information. The students were gathered in a class room and the data was collected using structured questionnaire on knowledge on prevention and management of needle stick injuries. Nursing students took 30 minutes to fill the questionnaire. The completed data sheets were collected and the data was compiled for data analysis.

Findings of the study

Table 1:Frequency& percentage distribution of level of knowledge of first year nursing students on needle stick injuries.

N = 107			
SL. NO	KNOWLEDGE	FREQUENCY	PERCENTAGE
1	Good	1	0.93%
2	Average	18	16.82%
3	Poor	88	82.24%

The level of knowledge of first year nursing students on needle stick injuries showed that 1 (0.93%) had good knowledge, 18 (16.82%) had average knowledge and 88 (82.24%) had poor knowledge.

This study findings is consistent with the results of Shanthibala K (2018) reported that only 25.4% of the nurses had adequate knowledge. The nurses who experienced needle stick injuries in the past one year were 67.3%. By giving I.Vinjections(42.2%) was the frequent mode of NSI acquired among the nurses. Disposable syringe needle (64.1%) was the most common device involved in the injuries. The frequent cause of NSI was due to rush (47.3%). Majority (64.1%) washed the NSI injured site with water and soap soon after the injury. 65% of the participants performed blood test after injury. The nurses who received post exposure after NSI injury were only 27.5%. Most of them (57.8%) reported the NSI to their higher officials.

Table .2: Mean and mean percentage and standard deviation of knowledge of first year nursing students on needle stick injuries.

N = 107				
SL. NO	NEEDLE STICK INJURIES	MEAN		STANDARD DEVIATION
		VALUE	PERCENTAGE	
1	Knowledge of first year nursing students (B.SC Nursing and DGNM)	8.13	40.65%	5.2431

The level of needle stick injuries on first year nursing students showed that mean value was 8.13 and mean percentage was 40.65% with the standard deviation of 5.2431.

Association of level of knowledge of first year nursing students on needle stick injuries with selected demographic variables showed that there was a significant association found between level of knowledge with income of father at P<0.05 level. But there was no significant association between age, occupation of the father and source of information with level of knowledge at P<0.05 level. The findings of this study is similar to the results obtained by Abdulla Karim (2011) reported that there are no significant relationship between nurses knowledge and the demographic data.

CONCLUSION:

The study was conducted with the to assess the knowledge of first year nursing students regarding needle stick injury. The following conclusion were drawn out of the study.

- 82.24% of the student had poor knowledge regarding needle stick injuries.
- 16.82% of the student had average level of knowledge regarding needle stick injuries.
- 0.93% of the students had good knowledge regarding needle stick injuries.
- There is no significance association between knowledge &demographic data like source of information, occupation of the father and age of the nursing students.

IMPLICATION:  
Nursing Practice:

Supporting measures such as improving injection practices, modification of working schedule, planning training programs targeted at using personal protective equipment and providing adequate number of safety facilities such as puncture resistant disposal containers and engineered safe devices are essential for the effective prevention of NSI incidents among the student.

Nursing education:

- Awareness of occupational safety with handling needle stick injuries in nursing students must be emphasized and integrated into their educational curriculum
- Annual education about the incidence, risk and polices regarding needle stick should be provided to both clinical instructors and nursing students.

- ✚ Students should be educated at the beginning of the nursing program that sleep is an important part of safe patient care as lack of sleep induces more incidence of needle stick injuries.

### Nursing administration:

The findings of the study will help the nurse administrator to organize more work shops, panel discussion, short term refresher courses and health education program for student nurses

### Nursing research:

Proper curriculum reform and training are required to protect the health care workers and patient.

### RECOMMENDATION

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

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

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