

A study to assess the effectiveness of structured teaching program regarding knowledge on prevention of needle stick injury among first and second year nursing students at VMCON Puducherry.

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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. Commonly encountered by people handling needles in the medical setting, such injuries are occupational hazards in the medical community. A Pre - Experimental design with one group pre and post test research design and total of 180 nursing students were selected by convenient sampling technique. The data was collected by using semi structured questionnaire. The study results revealed that the pre interventional level of knowledge about prevention of Needle stick injury among first and second year nursing students. Pre test most of them ,among first and second year nursing students 99(55%) had Moderate knowledge , 56(31.1%) had low level of knowledge and 25 (13.8%) had high level of knowledge and in the post test 154(85.5%) had high level of knowledge and 26(14.4%) had moderate level of knowledge and none of them low level of knowledge. The concluded that structured teaching program was effective in improving the knowledge on prevention of Needle stick injury among first and second year nursing students at VMCON Puducherry.

Keywords: Structured Teaching Program, Needle Stick Injury, Nursing Students, Puducherry.

1. INTRODUCTION:

Needle Stick injury is the wound or cut caused by the needle that tear or puncture the skin that may result in exposure to contaminated blood and the body fluids. Needle Stick injury is one of the most common occupational hazards experienced by the health care professionals. ⁽¹⁾

Health care workers with frequent blood exposure are nursing staffs, nursing students, interns and medical students, labour and delivery room personnel, laboratory technician, physicians, surgeons, emergency care providers, dentistis, health facility cleaning staff and clinical waste handlers. Needle stick injury is the common incident in the hospital. All health care professions are at high risk of infection because of various kind of disease such as Hepatitis B, Hepatitis C and Human immunodeficiency Virus. ⁽²⁾

Healthcare workers are aware about contact with infectious needles or exposure to communicable diseases. Besides exposure to blood borne pathogens the nurse is also at risk for about 20 others infections that can be transmitted through a needle stick, including tuberculosis, syphilis and malaria. Prevention for health care profession is the consistent application of universal precaution for all clients as recommended by the centres for disease Control and prevention. Sharps include syringe, needle, scalpels and other object contaminated with blood Needle stick injury can cause a significant risk for health care workers and are also threat to medical and nursing students. ⁽³⁾

According to the data from the world health Organization (WHO) 35.7 million health care professional in the world are exposed to the risk of needle stick injury. In various study, data shows that nurses experienced needle stick injury are more frequently than other health care profession. Medical and nursing students are an important group of health care profession particularly high risk for Needle stick injury because of their inexperience. ⁽⁴⁾

The Needle stick safety and prevention Act were signed into law in November 2000 and became effective in April 2001. The passage of this needle stick legislation was part of a plan by the American Nurses Association(ANA) and other health care profession .Advocate to achieve an amendment to the federal Occupational health and safety administration (OSHA) blood borne pathogens standard.⁽⁵⁾

According to WHO two million Health care profession exposure per year in which 40% hepatitis- B and 40% hepatitis- C and 4.4% HIV. And due to NSI 50% infection health care profession taken by patient and risk of infection of HBV 6-30 out of 100 people in Health care workers and for HCV 3-10 % out of 100 HCWs and HIV 1 out of 300 people.⁽⁶⁾

According to The Centres for Disease Control and Prevention (CDC), there are nearly 385,000 sharps-related injuries that occur annually in the US healthcare industry, which is an average of 1,000 per day. ⁽⁷⁾

As per Nursing Academy, they are not allowed to administer the injection officially in the first and second year. They are started to give injection after properly trained about safe injection Practices. The researcher reported that teaching will help the medical and nursing students to memorize and practice the safety measures regarding prevention and post exposure prophylaxis of needle stick Injury. Hence the researcher was interested to know about the knowledge of first and second year nursing students and teach them about the prevention of needle stick injury as this will help them to prevent needle stick injury in their carrier

2. MATERIALS & METHODS:

Design: A Pre - Experimental design with one group pre and post test research design was adapted for the present study.

Sample Size: 180 Nursing students were selected for the study.

Sampling Technique: Convenient sampling technique was used to select the samples.

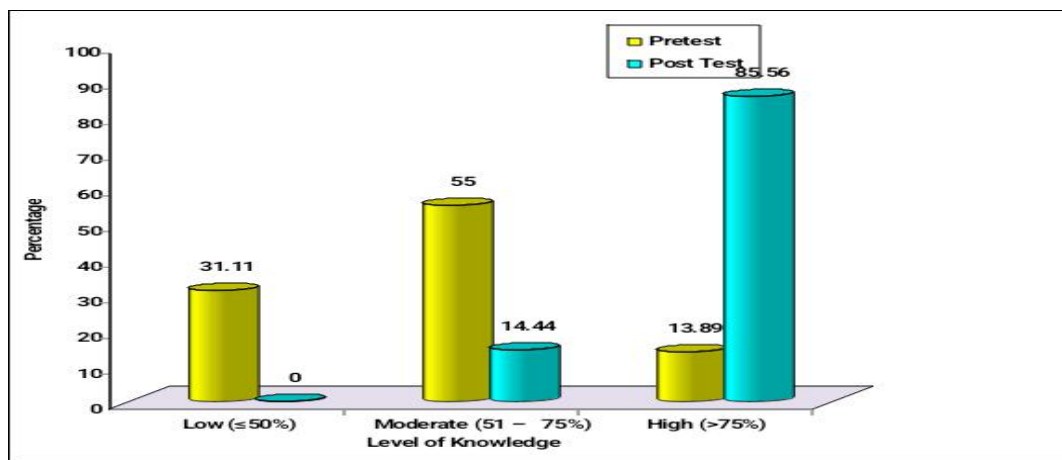
Data collection Procedure: The research proposal was submitted to the IRC and IEC for ethical clearances. Before the collection of data formal consent and permission was obtained from Head of the institution. After getting Institutional Research committee and Institutional Ethical committee clearance and written permission from concerned higher authority of the institution a brief introduction about the procedure and purpose of the study was given to the study participants .Oral and written consent were obtained from each subject and reassurance was provided that the data collected would be kept confidential .The data collection conducted for the period of 1 week .The participants were seated comfortably and the questionnaire was issued to collect the pre test data for 15 to 20 minutes from each sample by using Convenience sampling technique . After that structured teaching programme regarding knowledge on prevention of needle stick injury was conducted for 15 to 20 minutes.After 7 days the post test data was collected for 10 -15 minutes from each sample The collected data were computerized and analyzed using SPSS version 25. The data was analyzed using descriptive statistics (distribution, mean, standard deviation) and inferential statistics (chi-square value test).

3. RESULTS:

Frequency and Percentage distribution of demographic variables among nursing students. Most of the nursing students 166(92.6%) were aged between 17-19 years, 6 3.3%) were aged between 20-22 years, 8(4.4%) were aged between 23-25 years . With regard to gender , 146(81.1%) were female, 34(18.9%)were male.With regard to religion most of them 174 (96.7%) were Hindu ,6(3.3%) were Christian .With regard to educational status 92(51.1%) of participants were first year students , 88(48.9%) were second year students.With regard to e Course of participants 102(56.7%) were Bsc(Nursing),44(24.4%) were DGNM,21(11.7%) were ANM, 13 (7.2%) were Post B,s(Nursing). Regarding the Source of Knowledge on prevention of Needle stick injury of participants 70(38.9%) of students acquired knowledge from books , 74 (41.1%) from teacher/ Health care professional,, 21 (11.7%) gained knowledge from friends and relatives ,, 15 (8.3%) had acquired from media.Regarding the Exposure of Needle stick injury at clinical side of participants 165(91.7%) did not have needle stick injury and 15(8.3%) had the exposure to needle stick injury. Regarding the participants were taken the Hepatitis vaccine or not ,majority them 156(86.7%) were not taken ,only 24(13.3%) are taken .

Frequency and percentage distribution of pretest and post test level of knowledge on prevention of needle stick injury among first and second year nursing students. (**Figure 1**)

Figure 1: Percentage distribution of pretest and post test level of knowledge on prevention of needle stick injury among first and second year nursing students.



The pretest mean score of knowledge was 12.30 ± 3.0 and the post test mean score was 18.1 ± 2.1 . The mean difference score was 5.8. The calculated paired 't' test value $t=37.2$ was statistically significant at $p < 0.001$ level. This clearly infers that STP regarding knowledge on prevention of needle stick injury administered among first and second year nursing students was found to be effective in improving the level of knowledge among them in the post test. (Table 1)

Table 1: Effectiveness of STP on knowledge regarding knowledge on prevention of needle stick injury among first and second year nursing students. (N = 180)

Knowledge	Mean	S.D	Mean Difference	Paired 't' test & p-value
Pretest	12.3	3.0	5.8	$t=37.2$ $p=0.0001$ S***
Post Test	18.1	2.1		

*** $p < 0.001$, S – Significant

The demographic variables such as age ($\chi^2 = 61.293$ $p = 0.0001$), year of study ($\chi^2 = 39.655$ $p = 0.0001$), course ($\chi^2 = 62.093$ $p = 0.0001$), occupation of mother ($\chi^2 = 22.317$ $p = 0.034$), source of acquiring knowledge on prevention of needle stick injury ($\chi^2 = 24.554$ $p = 0.0001$) and have you taken hepatitis vaccine ($\chi^2 = 20.014$ $p = 0.0001$) and exposure to needle stick injury at clinical side ($\chi^2 = 6.125$ $p = 0.047$) had statistically significant association with pre test level of knowledge on prevention of needle stick injury among first and second year nursing students at $p < 0.001$ level

4. DISCUSSION:

A Pre - Experimental design with one group pre and post test research design was used to this study. Total of 180 nursing students were selected convenient sampling technique. The first objective was to assess the pre interventional level of knowledge about prevention of Needle stick injury among first and second year nursing students. Pre test most of them ,among first and second year nursing students 99(55%) had Moderate knowledge , 56(31.1%) had low level of knowledge and 25 (13.8%) had high level of knowledge and in the post test 154(85.5%) had high level of knowledge and 26(14.4%) had moderate level of knowledge and none of them low level of knowledge. Rahul sharma et.al (2020) conducted a cross sectional study of prevalence and response to needle stick injuries among health care workers in tertiary care hospital in Delhi, India. Totally 322 respondents who had ever received a needle stick injury 70(27.3%) had not been wearing gloves at the time of the incident. Staff nurses (44.7%),lab technician (32.3%), and senior residents (28.8%) were found to be most likely not to be wearing gloves.216(84.4%) attributed to needle stick injury as having

been self - caused ,with remaining 15.6% attributed to someone else . A majority (178 or 69.5%) of the needle stick injury were from a hollow - bore type of needle with solid - bore needle being involved in only 30.5% incidents of injury .In 161 (62.9%) of the needle stick injury incidents ,there was active bleeding from the wound.⁽⁸⁾

The second objective is to effectiveness of STP on knowledge regarding knowledge on prevention of needle stick injury among first and second year nursing students. The study findings revealed that thatpretest mean score of knowledge was 12.30 ± 3.0 and the post test mean score was 18.1 ± 2.1 . The mean difference score was 5.8. The calculated paired 't' test value $t=37.2$ was statistically significant at $p < 0.001$ level. This clearly infers that STP regarding knowledge on prevention of needle stick injury administered among first and second year nursing students was found to be effective in improving the level of knowledge among them in the post test. Shil R, Upashe SP(2021) conducted a Quasi experimental study to assess the nursing students knowledge regarding needle stick injury :Effectiveness of structured teaching plan. A Probability for needle stick injury will result 3-5 people have chances in 1000 people for HIV, 300 chances in 1000 people for Hepatitis B,20-50 chances in 1000 for Hepatitis C was statistically significant at $p < 0.001$ level⁽⁹⁾

5. CONCLUSION:

The study concluded that structured teaching program was effective in improving the knowledge on prevention of Needle stick injury among first and second year nursing students at VMCON Puducherry. The nursing students to understand the prevention of Needle stick injury. The nursing students to be educated continuously on prevention of needle stick injury.

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