

Occurrence and Knowledge about Needle Stick Injury among Nursing Students

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Abstract

A needle stick injury (NSI) is defined as an accidental skin-penetrating stab wound from a hollow-bore needle (or any sharp) containing another person's blood or body fluid. Sharps injury (SI) is defined as a skin-penetrating stab wound caused by sharp instruments and accidents in a medical setting. Globally, NSIs are the most common source of occupational exposure to blood and the primary cause of blood-borne infections of HCWs. In India, around 3–6 billion injections are given per year, of which two-third injections are unsafe (62.9%). *Aims:* The present study is aimed to measure the occurrence of needle stick injury along with post exposure measures and evaluation of the knowledge regarding needle stick injury among nursing student. Nursing students in clinical duties are at high risk. *Methods:* A cross-sectional study was conducted in the month of August to September in 2018. The study participants comprised of 80 nursing students studying in 4th year B.Sc. (N) and 3rd year General Nursing and Midwifery (GNM). Students were questioned regarding their occurrence to Needle Stick Injury throughout their clinical training and measures taken following the exposure. They were also asked to complete the Knowledge questionnaire on NSI. *Results:* The study was comprised with 80 nursing students and among them (53.75%, N=43) were GNM 3rd year and 37 (46.25%, N=37) were B.Sc. Nursing 4th year students. Out of a total 80 students, (81.25%, N=65) were females. The incidence of NSI during their course was reported by (40.0%, N=32) participants. The maximum NSI occurred during first year of course (58.75%, N=47). It was found that (54.54%, N=18) of NSIs were not reported. Among those exposed, only (18.75%, N= 6) students had undergone blood investigation and very few students took post exposure measures. It was found that, only (65.63%, N=21) students were immunized against Hepatitis B before NSI. *Conclusion:* NSIs and SIs continue to be a serious occupational hazard in the health care system. The knowledge of nursing students on NSIs was inadequate. The incidence of NSIs remains to be a major concern among this professional group. The present study indicated a high incidence of needle stick injuries among nursing students with more under-reported cases and subjects were not aware of post exposure measures. It is essential to deal above problems by regular training on real-life procedure at the entry level and reporting system should be more user-friendly platform.

KEY WORDS: Occurrence, Needlestick injury, Health care workers, Blood-borne disease.

I. Introduction

Needle stick injuries (NSI) has always been one of the most important risk factor for nursing students for transmission of various infections 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% 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. The probability of transmission varies depending on whether the exposure is with a hollow-bore needle or a solid needle due to higher fluid content and pathogen load. Compared to many other healthcare settings, nursing professionals are acquiring of infection at higher risk.

II. Materials and Methods:

A cross-sectional study was conducted from August to September in 2018 among B.Sc. nursing 4th year and GNM 3rd year students in a selected nursing college, Rajkot. Respondents included 43 GNM 3rd yr students and 37 B.Sc. nursing 4th year students. In this study, needle stick injury was defined as percutaneous injury caused by hollow-bore needles (the type of needle used for giving injection or drawing blood). Cases of needle stick injuries were respondents who had one or more experiences of needle stick injury. The episodes of needle stick injury are the total number of injuries which were experienced by the respondents within the past year. Random sampling method was used in this study. Those who refused to participate in this study were excluded. Structured questionnaire were used in this study to gain information on the respondents' experience in handling needles and the history of needle stick injury caused by hollow-bore needles in the past one year. For knowledge of the majority of the respondents (91.25%, N=73) had knowledge of blood-borne diseases. The percentage of respondents who had knowledge of Universal Precautions was slightly lower (85.0%, N=68). The mean score for knowledge of blood-borne diseases was 27.97 ± 2.54 (range 21 to 33). For the knowledge of Universal Precautions, the mean score was 9.15 ± 1.45 (range of 4 to 12). The range of scores for the perception of risk of blood-borne pathogen infection was 0 to 9 and the overall mean score was 7.32 ± 1.99 . The mean score of practice of Universal Precautions was 34.86 ± 3.46 (range of 22 to 40). There was significant association of needle stick injury with shorter tenure in one's clinical duties. Average duration of work, knowledge of blood-borne disease and Universal Precautions were not associated with needle stick injury. Meanwhile, risk of blood-borne disease were higher for nursing professionals compared to other health care settings (p0.05).

III. Results:

Total 80 respondents participated in this study. It was found that majority of the respondents (53.75%, N=43) were GNM 3rd year and (46.25%, N=37) were B.Sc. Nursing 4th year students. Majority of respondents, (81.25%, N=65) were female. The majority of subjects (90.0%, N=72) were from Hindu religion. Nearly (6.25%, N=5) were from Muslim religion and Nearly (3.75%, N=3) were from Christian religion.

The most common procedures of exposure to blood and body fluids were setting up of drips (87.8%, N=101) and giving of parenteral injections (59.1%, N=68). The needle stick injury was the most common type of exposure to blood and other body fluids among the nursing students (32.6%, N=43). The incidence of NSI during their course was reported by (40.0%, N=32) participants. The maximum NSI occurred during first year of course (58.75%, N=47). It was found that (54.54%, N=18) of NSIs were not reported. For knowledge of the majority of the respondents (91.25%, N=73) had knowledge of blood-borne diseases. The percentage of respondents who had knowledge of Universal Precautions was slightly lower (85.0%, N=68). The mean score for knowledge of blood-borne diseases was 27.97 ± 2.54 (range 21 to 33). For the knowledge of Universal Precautions, the mean score was 9.15 ± 1.45 (range of 4 to 12). The range of scores for the perception of risk of blood-borne pathogen infection was 0 to 9 and the overall mean score was 7.32 ± 1.99 . The mean score of practice of Universal Precautions was 34.86 ± 3.46 (range of 22 to 40). There was a significant association of needle stick injury with shorter tenure in one's clinical duties.

IV. Discussion:

This study shows that nursing students were exposed to the risk of needle stick injury and transmission of blood-borne diseases such as HIV, Hepatitis B and Hepatitis C. Among those exposed, only (18.75%, N= 6) students had undergone blood investigation and very few students took post exposure measures. It was found that, only (65.63%, N=21) students were immunized against Hepatitis B before NSIs. Naing et al.⁸ where the reported needle stick injury among medical students was 24.7%. Similarly, a study done by Norsayani and Noor Hassim⁶ among medical students reported a prevalence of 14.1%. Lee and Noor Hassim⁷ reported a needle stick injury prevalence rate among health care workers of 24.6%. The high prevalence of needle stick injury in this study may be because of inadequate knowledge for performing procedures by nursing students.

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