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Assessment of the knowledge regarding needle stick injuries and its prevention among nursing students

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Abstract

Introduction: Needle stick injuries are wounds caused by needles that accidentally harm the skin. Needle stick wounds are risky for health care providers, who work in clinical setting with hypodermic syringes and other sharp equipment's. Needle stick and sharp injuries can result in the transmission of serious disease to nursing students such as HIV, hepatitis B and hepatitis C from contacts with deep body fluids and blood

Materials and Method: A quantitative approach with descriptive design was adapted. The study was conducted in tertiary care hospital. 100 nursing students were selected by using convenient sampling technique. The data was collected by using a Performa of sample characteristics and structured knowledge questionnaire.

Results: The majority of Staff Nurses had average knowledge (40%) regarding prevention of Needle Stick Injuries followed by good knowledge (31%). The mean knowledge score of staff nurses is 18.09+-4.57 regarding the prevention of Needle Stick Injuries. Findings related to association between level of knowledge score and selected sample characteristics: There was no significant association of knowledge score with age, gender, qualification, working experience, area of work, previous history of Needle Stick Injury, attended any health education programme.

Conclusion: This study revealed that undergraduate nursing students had poor knowledge and practice regarding needle stick and sharp injuries during clinical. The most effective means of preventing transmission of blood-borne pathogens is to prevent exposure to NSIs. Primary prevention of NSIs is achieved through the elimination of unnecessary injections and elimination of unnecessary needles. Educational intervention had a positive impact on knowledge and practice of undergraduate nursing students' toward needle stick and sharp injuries.

Keywords: Needle stick injuries, clinical setting, hypodermic syringes and other sharp equipment's

Introduction

Needle stick injuries are wounds caused by needles that accidentally harm the skin. Needle stick wounds are risky for health care providers, who work in clinical setting with hypodermic syringes and other sharp equipment's ^[1]. Needle stick and sharp injuries can result in the transmission of serious disease to nursing students ^[2] such as HIV, hepatitis B and hepatitis C from contacts with deep body fluids and blood. The risk of being infected following a single needle stick from a source-patient with blood borne infection ranges from as low as 0.3% for human immunodeficiency virus (HIV), and 3% to 10% for hepatitis C to as high as 40% for hepatitis B ^[3,4].

Injection safety is an important component to keep away from disease which is transmitted by unsafe practice. Safe infusion practices are one that does not harm the supplier, does not expose the supplier to any avoidable hazard. This is accomplished by giving an infusion utilizing a sterile syringe, utilizing sterile procedure by an all-around prepared individual and disposes of it appropriately ^[5]. Utilization of injections is accomplished for corrective and preventive purposes. Regardless of the way there are different strategies for taking medications, infusion will be supported by some prescribers and clients as the full impacts of the medication are experienced rapidly. In India, it is accounted for that more than 93% of injections are unsafe and about 60% of cases of HBV contamination are brought by such practices ^[6]. Nursing Students as other health care workers who come into contact with patients' blood and body fluids may be exposed to fatal infections when they perform their clinical activities in the hospital ^[7,8]. According to data from the World Health Organization has estimated that in developing regions, 40%–65% of Hepatitis B virus and Hepatitis C virus infections in health care workers are attributable to per-cutaneous occupational

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exposure, nurses experienced needle stick and sharp injuries more frequently than other healthcare workers [9].

Nursing students are most suitable candidates for educational training about prevention of NSSIs as they are likely to come across such critical situations in the future, this training strategies include; safety education to improve personal universal precautions, elimination of needle recapping and use of sharp containers for safe disposal which reduced needle stick injuries with additional reductions possible through the use of safer needle devices [10] and reduce patients' risk of exposure to the blood of injured personnel [11]. Thus, it is critically important to conduct this study on nursing students because they have less knowledge and clinical experience and are more at risk of unsafe injection practices.

Materials and Method

A quantitative approach with descriptive design was adapted. The study was conducted in tertiary care hospital, 100 nursing students were selected by using convenient sampling technique. The data was collected by using a Performa of sample characteristics and structured knowledge questionnaire. Sample Characteristics Performa consisting of 8 items and Structured knowledge questionnaire regarding prevention of Needle Stick Injuries consisting of 30 items. Content validity of the tools was established by the suggestion of experts in the field. Internal consistency of the questionnaire was computed by using kuder Richardson and found to be reliable. Ethical consideration: Formal administrative approval was obtained from the Medical Superintendent and Nursing Superintendent and Informed written Consent was taken from the participants.

Results

The majority of Staff Nurses had average knowledge (40%) regarding prevention of Needle Stick Injuries followed by good knowledge (31%).the mean knowledge score of staff nurses is 18.09+4.57 regarding the prevention of Needle Stick Injuries. Findings related to association between level of knowledge score and selected sample characteristics: There was no significant association of knowledge score with age, gender, qualification, working experience, area of work, previous history of Needle Stick Injury, attended any health education programme.

Table 1: Frequency and percentage distribution of level of knowledge of Staff Nurses regarding prevention of Needle Stick Injuries

Level of Knowledge	Range of Score	Frequency	Percentage (%)
Very good (>75%)	23-30	14	14
Good (61-75%)	19-22	31	31
Average (51-60%)	15-18	40	40
Poor (\leq 50%)	0-14	15	15

Table 2: Range, mean, median and standard deviation of knowledge score of Staff Nurses regarding prevention of Needle Stick Injuries

Test	Range	Mean and SD	Median
Knowledge	8-20	18.09+4.57	18.09

Discussion

A needle stick and sharp injury is puncture of the skin by a needle or sharp instruments that may have been

contaminated by contact with an infected patient or fluid. All health care personnel who including emergency care providers, laboratory personnel, surgeons, interns, medical students, nursing staff and students are at risk of acquiring needle stick and sharp injuries during their routine work [12]. Present study was carried out to assess the effect of educational program on knowledge and practice of undergraduate nursing students toward prevention of needle stick and sharp injuries during clinical training. There are many misconceptions about the risk of transmission through infected needles that need to be corrected. The risk of HIV transmission through accidental needle stick injury does exist though the risk is low. Universal biosafety precautions if strictly adhered to while working in a health care setting reduces the risk further.

The findings of the present study, 40% had a average knowledge regarding needle stick injuries followed by good knowledge 31%. A similar study was conducted by Rakesh Shah, tertiary care hospital in Gujarat, to assess knowledge and awareness regarding Needle Stick Injuries among health care workers. The findings of the study revealed that 53% health care workers have good knowledge regarding Needle Stick Injuries [13]. Another study, conducted by Lekhrajampal to assess knowledge regarding Needle Stick Injury in a teaching hospital of Gujarat. The findings of study showed the health care workers have average knowledge regarding prevention of Needle Stick Injury [14]. The finding of present study shows 60.7% staff nurses were not attended any in-service education programme related to needle stick injuries. The findings of the present study was consistent With the another study, conducted by Dass D. Study to Assess the Effectiveness of SIM on Needle Stick Injuries regarding knowledge and practices of Staff Nurses which shows 61% health personnel were not attended any in-service education programme related to Needle Stick Injuries [15].

Taking everything into account, this study discovered high frequencies of exposures among the surveyed students; insufficient practices in prevention and incidence reporting; thereby leading to an increased requirement for introducing standard safety measures among nursing students in anticipation of possible NSI exposures.

Conclusion

This study revealed that undergraduate nursing students had poor knowledge and practice regarding needle stick and sharp injuries during clinical training. The most effective means of preventing transmission of blood-borne pathogens is to prevent exposure to NSIs. Primary prevention of NSIs is achieved through the elimination of unnecessary injections and elimination of unnecessary needles. Educational intervention had a positive impact on knowledge and practice of undergraduate nursing students' toward needle stick and sharp injuries. The implementation of education, Universal Precautions, elimination of needle recapping, and use of sharps containers for safe disposal have reduced NSIs by 80%, with additional reductions possible through the use of safer needle devices.

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