



Original Article



Knowledge Regarding Needle Stick Injury Among Nurses of Tertiary Care Hospitals of Lahore

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ABSTRACT

Needle Stick Injuries (NSIs) in healthcare environments represent a widespread concern globally. Such injuries involve the piercing of the skin by a sharp object. They often occur during tasks like drawing blood, administering injections, or handling other sharp instruments, posing a significant risk to healthcare workers. **Objective:** To access knowledge regarding Needle Stick Injury among Nurses of Tertiary Care Hospital of Lahore. **Methods:** A cross-sectional study was conducted at Sharif City Hospital is a tertiary care teaching hospital. A total of 100 Staff Nurses were selected to participate in this study. A structured questionnaire was administered regarding knowledge of needle stick injury. The data were entered in SPSS version 25.0 software for statistical analysis and Data Interpretation. SPSS was used for data analysis. **Results:** Out of 100, majority of participants were female (58%), senior staff nurses (41%) and work in surgery department (34%). It was found that 48% Staff Nurses have suffered from sharps injury in the past the overall knowledge among nurses regarding sharp injury showed that knowledge regarding needle stick injury among nurses 59% have good knowledge, 27% have poor knowledge and 15% have poor knowledge. 48% of them have suffered from sharp injury, 38% have known about protocols regarding needle injury and 58% know about sharp disposal protocol. **Conclusions:** It was concluded that nurses have adequate knowledge regarding sharp injury, most of the sharps injuries were accidental and due to lack of knowledge and experience.

INTRODUCTION

Needle Stick Injuries (NSIs) in healthcare settings present a worldwide concern. NSIs involve the piercing of the skin by a sharp object [1]. Typically occurring during procedures like blood drawing or administering injections. Such incidents, commonly experienced by healthcare professionals handling needles, constitute an occupational hazard [2]. Investigations suggest that approximately 3.5 million individuals globally are affected by these injuries [3]. In 2007, the World Health Organization estimated that there were 2 million Sharps/NSI-related injuries annually worldwide. Among healthcare workers, nurses and physicians are particularly exposed to NSIs [4].

Healthcare workers who are not immune to the Hepatitis B Virus (HBV) have a defined risk of contracting the infection from 2% to 40% depending on whether the source patient has the hepatitis B antigen or not [5]. NSIs stand as the most prevalent occupational risk encountered by healthcare workers. Approximately 2 million health professionals worldwide are exposed to infectious diseases through skin contact each year. About 4.4% of cases of HIV/AIDS and 37.6% of cases of Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and human immunodeficiency virus (NSIs) globally are caused by NSIs [1]. Over 90% of blood-borne infections affect healthcare



workers in developing nations. According to the Centers for Disease Control and Prevention (CDC), there are an estimated 600,000 to 1,000,000 occurrences of NSIs annually [6]. An accidental, unintended, and non-deliberate skin penetration injury in a medical setting caused by needles, catheter stylets, surgical scalpels, or shattered glass is referred to as a needle stick injury [7]. In addition to blood borne, droplet, and other communicable infections, healthcare workers, especially physicians and nurses, face significant risks of contracting infections through needle stick injuries, such as those caused by HIV, HBV and HVC viruses. The literature describes over twenty different causative agents of various diseases that can be transmitted following needle stick injuries with sharps [8]. Several factors contribute to sharps injuries, including the type and design of the needle, activities like recapping, handling and transferring specimens, collisions involving staff nurses and sharps, tasks during cleanup, manipulation of needles while working with patients, passing and handling devices, and improper disposal of needles into puncture-proof containers [9]. Evaluating risks and devising successful preventive and control measures are crucial aspects in reducing exposure among healthcare personnel. The World Health Organization (WHO) introduced a global initiative for workers' health during the 2007 World Health Assembly, emphasizing the importance for member nations to enhance occupational health standards [10]. Pakistan exhibits a moderately high prevalence of hepatitis within the general population, with hepatitis C at 4.9% and hepatitis B at 2.5%. However, the incidence of viral hepatitis C is progressively increasing in rural areas of Pakistan [11]. Similarly, studies on staff nurses exposed to the HCV by percutaneous occurrences or needle stick injuries have demonstrated an average frequency of 1.8% per injury for anti-HCV seroconversion [12].

The data indicates that a considerable portion of Staff Nurses face potential exposure to infections from blood borne pathogens following needle stick injuries. Therefore, the present research was conducted to evaluate the knowledge of Staff Nurses regarding NSI at Sharif City Hospital in Lahore.

METHODS

A cross-sectional study was conducted at Sharif City Hospital is a tertiary care teaching hospital during the period of Jan-March 2024. Ethical approval was taken from Shari college of Nursing (SCN No: 5003/24). Sample size was calculated by taking 95% confidence interval, 9% margin of error and 52.4% incidence of needle injury among nursing staff the sample of 100 nursing Staff was selected by convenient sampling technique were included in current study [13]. All the doctors, lab technician and other hospital employee were excluded from the study. A

structured questionnaire containing both open and close-ended questions was administered. The first part of questionnaire includes demographic of participants and the 2nd part consist of knowledge. The score < 50% consider as poor, 51-70 as good and >70 as excellent. The participants were thoroughly briefed about the study and Informed consent was taken. The data were entered in SPSS 25.0 software for statistical analysis and Data Interpretation. All the qualitative variables were presented by frequency and percentages and quantitative variables by Mean \pm SD. Descriptive analysis was conducted.

RESULTS

Total 100 participants were included in current study. 47% were 31-50years old and 39% were 20-30 years and 14% were above 50. Majority of participants were female (58%), senior staff nurses (41%) and work in surgery department (34%) table 1.

Table 1: Sociodemographic Characteristics of the Participants

Variables	N (%)
Age	
20-30	39 (39%)
31-50	47 (47%)
>50	14 (14%)
Gender	
Male	48 (48%)
Female	58 (58%)
Designation	
Shift Supervisors	12 (12%)
Staff Nurses	38 (38%)
Junior Staff Nurses	9 (9%)
Senior Staff Nurses	41 (41%)
Department	
Emergency Department	11 (11%)
Gynaecology	27 (27%)
Laboratory	09 (9%)
Medicine	17 (17%)
Pathology	2 (2%)
Surgery	34 (34%)

The overall knowledge among nurses regarding sharp injury showed that Knowledge regarding needle stick injury among nurses 59% were having good knowledge, 27% poor knowledge and 15% were having poor knowledge. 48% of them had suffered from sharp injury, 38% had knowledge about protocols regarding needle injury and 58% know about sharp disposal protocol table 2.

Table 2: Overall Knowledge among Nurses Regarding Sharp Injury

Variables	N (%)	N (%)
Knowledge	Yes	No
Suffered from Sharps Injury	48 (48%)	52 (52%)
Knowledge of your Hospital Protocols Regarding Needle Stick or Sharps Injury	38 (38%)	62 (62%)
Knowledge of Hospital's Sharps Disposal Protocol	58 (58%)	42 (42%)

Overall Knowledge	
Poor	15 (15%)
Good	59 (59%)
Excellent	27 (27%)

The main cause of needle injury was accidental event (71%), followed by lack of training and improper equipment's (7%), lack of awareness (5%) and 10% due to incorporated patients figure 1.

Causes of Sharp Injury

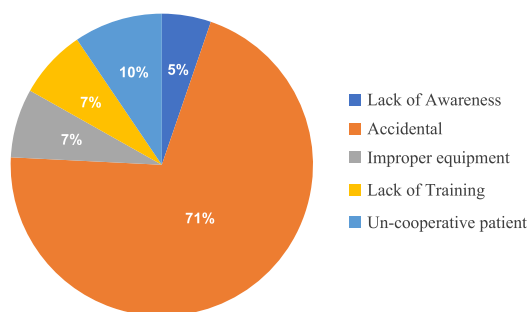


Figure 1: Causes of Sharp Injury

Figure 2 shows that 40% reported that the appropriate steps after sharp injury was to report authorities about sharp injury, 38% response that let blood ooze out, 15% reported wash the wound with distal infectant and 5% report self-medication and immunization.

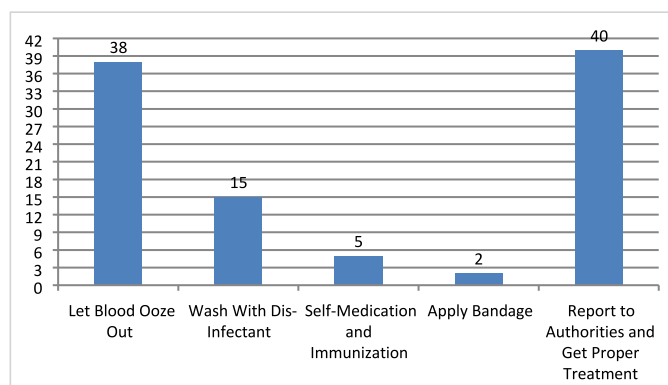


Table 2: Knowledge of Appropriate Step after Sharps Injury

DISCUSSION

The current study evaluates knowledge of health care workers about sharps injury in Sharif City Hospital, Lahore. About half of Staff Nurses (48.5%) reported to have a needle stick injury in their medical career which is less than we found in a study in rural North India to have a prevalence of NSI ever in working lifetime to be 73% but was higher than the similar study held in Karachi (26.1%) [14, 15]. In the current study, 15% of Staff Nurses recommended washing the injury site with water and soap, raising concern as 38% advised allowing blood to ooze out without taking any action following their most recent Needle Stick Injury (NSI). It is notable that only a small proportion of NSIs are reported to the healthcare system. In our study,

approximately 40% of Staff Nurses disclosed their injury to a supervisor or senior, while in the AKU Karachi study, only 26% reported their injuries [16]. Previous studies have also demonstrated a significant disparity in the incidence rate of NSIs between studies that directly questioned Staff Nurses and those that relied solely on self-reports to the institution [17, 18]. In current study overall knowledge among nurses regarding sharp injury showed that Knowledge regarding needle stick injury among nurses 59% have good knowledge, 27% have poor knowledge and 15% have poor knowledge. These findings were comparable with another study approximately 70% of participants demonstrated a high level of understanding regarding the use of standard precautions, while 19.5% possessed a good, and 12.2% had average to below-average knowledge in this area [19]. In our study, 67% of sharps injuries were accidental which is near to a study in India which had accidental injury rate of 60.9% [20].

CONCLUSIONS

Needle stick injuries represent a serious occupational hazard that people working in a hospital face daily. Overall knowledge of staff nurses regarding various aspects of sharps injury improved with experience and duration of working in the Hospital. However, the knowledge need to be improved as most cases of sharps injury were accidental and/or due to lack of knowledge of the Staff Nurses.

Authors Contribution

Conceptualization: MG

Methodology: SU, SM

Formal analysis: SS

Writing, review and editing: GR, SS, AH

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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