

Prevalence and Response to Needle Stick Injuries

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ABSTRACT

Aim: To study the prevalence and response to needle-stick injuries in a tertiary care hospital.

Study design: Cross-sectional study

Place and duration of study: Dept. of Gen. Surgery, Hayatabad Medical Complex Peshawar from 01-06-2020 to 30-06-2022.

Methodology: One hundred and ninety three healthcare workers were recruited, including doctors, medical students, nurses, student nurses and paramedics.

Results: There were 60(31.1%) healthcare workers reported needle stick injury. Majority of the injuries 51(85%) occurred during contact with patients who were assessed as not high-risk and 9(15%) when exposed to high-risk patients. Most of responders 49(81.7%) reported that the injury was self-inflicted and 11(18.3%) reported that it was caused by someone else. About 45(75%) injuries were caused by hollow bore needle and 15(25%) by a solid needle. Most of the needle stick injuries occurred at the bedside 50(83.4%), 8(13.4%) in the operating theatre and 2(3.4%) were at other locations.

Conclusion: Needle stick injury is a significant cause of physical and psychological morbidity among healthcare personnel. Proper training and strict protocol for following the standard precaution can minimize its incidence. To improve its reporting the procedures of reporting a needle stick injury could be simplified.

Keywords: Needle, injury, health care professional.

INTRODUCTION

Healthcare workers face a serious occupational risk from blood-borne infections. The main method of transmission is through contact with body fluids like blood^{1,2} According to a WHO study, the annual estimated percentages of health care workers (HCW) exposed to blood-borne viruses worldwide were 2.6% for HCV, 5.9% for HBV, and 0.5% for HIV, translating to approximately 16,000 HCV infections and 66,000 HBV infections in Health care workers globally³. In a study conducted by Jayanth et al⁴, the majority of needle-stick injuries were reported by nurses and doctors, with 84(28.4%) nurses, 27(9.1%) nursing interns, 45(21.6%) cleaning staff, 64(21.6%) doctors, 47(15.9%) medical interns, and 24(8.1%) technicians reporting needle stick injuries. Needle-stick injuries were found to be common in the United States among surgeons in training.⁵ This shows that risk of needle-stick injuries is closely related to number of exposure-prone procedures conducted by doctors and nurses, especially among the surgeons⁶.

It is thought that regardless of the experience or nature of healthcare provision, the risk of exposure to blood-borne infection of healthcare workers through needle stick injury is a major cause of serious health consequences and psychological stress.⁷ Furthermore, the prevalence of blood-borne infections such as HIV, HBV and HCV put the healthcare workers at risk of acquiring the infection^{8,9}. Guidelines for practice were introduced by the Viral Hepatitis Prevention Board (VHPB) and were proved to be effective in reducing the prevalence of needle-stick injuries in many countries^{10,11}.

However, the implementation of the guideline in clinical practice among healthcare workers in Pakistan is not reported. Thus, the research aim of this study was to assess the prevalence and response to needle-stick injuries in a tertiary care hospital.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of General Surgery Hayatabad Medical Complex, Peshawar between June 2020 and June 2021. A total of 193 healthcare professionals were recruited for this research. The sampling procedure was convenient sampling. The responders gave their informed consent.

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Registrars, medical officers, faculty members, paramedics, staff nurses, student nurses, and medical assistants were all included in the study, as were community nurses and medical assistants. Faculty and medical personnel who refused to take part in the study were excluded. Data was gathered via a pre-planned proforma. The hospital's ethical review board granted permission. The SPSS 23.0 statistical analysis program was used. Statistical significance was defined as a P value 0.05.

RESULTS

There were 73(37.8%) males and 120(62.2%) females. Healthcare workers consisting of 30(15.5%) registrars, 45(23.3%) medical officers, 23(11.9%) faculty members, 50(25.9%) staff nurses, 25 (12.9%) nursing students and 20(10.4%) medical technician (Table 1).

Sixty (31.1%) healthcare workers reported needle stick injury. Majority of the injuries 51(85%) occurred during contact with patients who were assessed as not high-risk and 9(15%) when exposed to high-risk patients. Most of responders 49(81.7%) reported that the injury was self-inflicted and 11(18.3%) reported that it was caused by someone else. About 45(75%) injuries were caused by hollow bore needle and 15(25%) by a solid needle. Most of the needle stick injuries occurred at the bedside 50(83.4%), 8(13.4%) in the operating theatre and 2(3.4%) were at other locations (Table 2).

Most common cause of injury was cleaning of needle 15(25%), recapping 13(21.6%), passing of needle 11(18.3%), loading of needle 8(13.4%), suturing 7(11.7%) and 6(10%) cause needle stick injury due to other reasons. Majority of reported injuries 33(55%) were due to rush, 13(21.7%) due to fatigue, 10(16.6%) due to lack of assistance and 4(6.7%) due to lack of skills (Table3).

Table 1: Details of health care workers

Designation	No.	%
Registrars	30	15.5
Medical officers	45	23.3
Faculty members	23	11.9
Staff nurses	50	25.9
Student nurses	25	12.9
Medical technician	20	10.4

Table 2: Mode and occurrence of injury

Variable	No.	%
Mode of injury		
Hollow bore needle	45	75.0
Solid needle	15	25.0
Occurrence of injury		
Bedside	50	83.4
Operating theatre	8	13.4
Other	2	3.4

Table 3: Causes and reason of injury

Variable	No.	%
Causes		
Cleaning of needle	15	25.0
Recapping	13	21.7
Passing of needle	11	18.3
Loading of needle	8	13.4
Suturing	7	11.7
Other reasons	6	10.0
Reasons		
Rush	33	55.0
Fatigue	13	21.7
Lack of assistance	10	16.6
Lack of skills	4	6.7

DISCUSSION

The majority of healthcare professionals said they had ever gotten a needle stick injury (NSI). According to a study by Fitz-Simon et al¹², 73% of people will experience NSI at some point in their working lives. Numerous further research have also regularly discovered that a sizable number of healthcare personnel have sustained needle stick injuries while carrying out their duties¹³. There were 60 NSI incidences in our study involving the 193 healthcare professionals. The average number of injuries per healthcare worker was estimated by a major, international WHO research on the worldwide burden of sharps injuries to be between 0.2 and 4.7 per year¹⁴. Gloves are known to be an essential line of defense, however many healthcare professionals with larger percentages among nurses and technicians weren't wearing them when they were hurt. According to the majority of the injuries, self-error was to blame, which is consistent with past findings.¹⁵ As was also previously noted, the majority of the injuries in the current study (75%) were caused by hollow-bore needles.¹⁶ The training sessions on handling needles and sharps typically go quickly from safety measures during usage to safety measures during needle disposal. It should be highlighted in safety training courses that extreme caution and care must also be used when handling objects in between.

In this study, rushing was the main factor in 55% of needle stick incidents among medical personnel. They must remember that hurrying endangers the patients as well as themselves. A healthcare practitioner must conduct their duties professionally and without rushing, despite the burden. Before their most recent injury, the healthcare staff had likewise been working nonstop. In actuality, 21.7% of healthcare workers who suffered an NSI blamed fatigue for their injury. Another key risk factor for NSI has been identified as long work hours¹⁷. Long duty hours are typical in the hectic and stressful healthcare environment seen in tertiary care hospitals. People who work long shifts regularly need to be sure they have frequent breaks to rest and refresh. Recapping is a significant contributor to NSI, according to a number of studies¹⁸.

The prohibition against recapping used needles is emphasized in every training program. Still, the majority of the injuries (21.7%) in our study also happened during recapping. Safety training must be a routine practice with occasional reinforcement. IEC materials should be conspicuously displayed at workplaces, highlighting the prohibition against recapping. According to the study's findings, 9(15%) healthcare professionals were aware that their NSI came from a "high risk" patient. Only a small percentage of NSIs are reported to the healthcare system. Only about one-fourth of the healthcare workers in our study

reported their injuries to a senior or supervisor. Previous research has also demonstrated that the most recent needle stick injury's root cause was a lack of assistance, fatigue and rushed¹⁹.

In contrast to research that relied solely on healthcare professionals who self-reported to the institute, Kakizaki et al²⁰ reported a significant difference in the incidence rate of needle stick injuries (NSI) among health workers. Needle stick injuries are a common occupational risk that hospital employees deal with on a regular basis. While no NSI can be said to be "could not have been stopped" in the sense of approximately 11%, it might not be realistically possible to prevent them from happening at all. However, their prevalence may unquestionably be greatly reduced. The greatest strategy to protect health care workers from several diseases is to prevent NSI. It should be a crucial component of workplace prevention initiatives, and the hospital must to continue to teach its staff members in safety procedures. Every hospital should create a multifaceted strategy to deal with needle stick injury is advised. Along with health promotion, every large hospital should put up a sufficient surveillance system and provide facilities for quick reaction and needle stick injury treatment²¹.

CONCLUSION

Healthcare professionals experienced a significant prevalence of needle stick injuries when combined. Therefore, measures to lower the likelihood of injury should be taken. For the healthcare personnel, adequate protective gear and safety-engineered devices should be provided. It might be more efficient to limit the factors causing greater exposures by allocating enough healthcare workers in sufficient numbers and implementing in-service training.

Conflict of interest: Nil

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