



STUDY OF PREVALENCE OF NEEDLE STICK INJURIES AND AWARENESS OF SAFETY PROTOCOLS FOR THE PREVENTION OF NEEDLE STICK INJURIES IN HEALTH CARE WORKERS AT A TEACHING HOSPITAL IN HYDERABAD.

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ABSTRACT

Background and Aim: Needlestick injuries (NSIs) exposing workers to blood borne pathogens pose a major risk to healthcare workers. These injuries can transmit many blood-borne infectious diseases like hepatitis B, hepatitis C and human immunodeficiency virus. This survey was done to assess the prevalence of NSI and awareness of safety protocols for its prevention amongst the HCWs in our hospital. **Methods:** A well structured prevalidated 16 item anonymous questionnaire was used as a tool for data collection. Then the data was tabulated and coded in Microsoft Excel and data analysis was done by comparing the prevalence of NSI based on gender, period of experience and type of profession. **Results:** The prevalence of NSI among HCW's was 19%. NSI prevalence increased with years of exposure, female gender and years of experience. Nurses sustained NSIs more than doctors. 80% of our health workers were aware of the preventive protocols and management of NSI's. Most of our HCWs knew that recapping of needles after use should not be done. 50% responders in our study reported that antiseptic can be used as an immediate measure after NSI. **Conclusion:** Constant training programmes to HCW's have resulted in low prevalence of NSI's in our hospital area. However there is a need to create more awareness among HCWs about what should not be done after encountering NSIs.

KEYWORDS : Needle stick injuries, awareness, safety protocols**INTRODUCTION:**

Needle stick and sharps injuries (NSIs) are one of the recognized Occupational hazards to health care workers [1]. They have a serious risk of transmission of various blood borne pathogens. These injuries not only potentiate health consequences but also cause emotional distress in health care workers which results in missed workdays and directly affects the health care services and resources.[2]. Hence knowledge of NSIs and their prevention is very essential for health workers in hospitals. This study was conducted to know the prevalence of NSI and to understand the awareness of health care workers about safety protocols required to prevent NSIs.

MATERIALS AND METHODS:

This cross-sectional study was conducted between June 2022 and August 2022 in a teaching hospital in Hyderabad involving 100 doctors and 100 nurses of the hospital. The study was conducted to assess the prevalence of NSI in health care workers and the healthcare worker's awareness of safety protocols for the prevention of Needle stick and sharps injuries (NSIs) in our hospital area.

A well structured prevalidated 16 item anonymous questionnaire was used as a tool for data collection from the doctors and nurses in our hospital. The items in the questionnaire included information on the safety protocols and immediate measures after NSI, knowledge of immunization and safety practices followed in routine practice. The questionnaire was distributed to healthcare workers and collected from them on the same day. Then the data was tabulated and coded in Microsoft Excel and data analysis was done by comparing the prevalence of NSI based on gender, period of experience and type of profession.

RESULTS:

The prevalence of NSI among HCW's was 19% with a female preponderance(55%).

The NSI prevalence was higher in those with more than 10 years of experience.

Our study reveals that nurses sustain NSIs more when compared to doctors.

80% of the health workers were aware of the preventive protocols of NSI's and are aware of the management of NSI's

98% of our study responders reported that they will report the NSI.

90% of our HCWs had good awareness about HIV & HBV testing after post-exposure prophylaxis.

90% of doctors and 86% of nurses in our study reported that the needles should not be recapped after use.

50% responders reported that antiseptic can be used as an immediate measure after NSI

Table 1: Responses of HCW's

ITEM	NO	PERCENTAGE
1. Have you encountered a needle stick injury (NSI)?	38	19%
2. How many NSI have you encountered?		60%
3. Do you know that pathogens get transmitted by NSIs?	164	82%
4. Do you know that needles should not be left on patient beds or tables after giving injections?	178	89%
5. Do you know that needles should not be recapped after use?	191	95.5%
6. Do you discard used needles into the white bin ?	186	93%
7. Do you discard used needles when the bin is more than 3/4th full ?	199	99.5%
8. Do you report any NSI you encounter?	196	98%
9. Do you fill in an incident form after an NSI?	196	98%
10. Are you aware that NSI site should be washed with soap and water thoroughly?	160	80%
11. Do you apply antiseptic over the site of NSI?	100	50%
12. Do you know that wound should not be squeezed to bleed ?	184	92%
13. Do you know that the squeezed finger should not be kept in mouth after you encounter an NSI?	199	99.5%
14. Are you aware that you should be tested for HIV & HBV after a NSI?	180	90%
15. Do you help your colleagues who has encountered an NSI?	198	94%
16. Does the institution run any training programme on NSI's?	199	99.5%

Table -2: Profile of Responders

	NSI encountered	
	No.	%
Male	90	45%
Female	110	55%
Experience		
1-10 years	17	8.5%

>10 years	28	14%
Profession		
Doctors	12	12%
Nurses	54	54%

DISCUSSION

The present study was conducted to assess the prevalence of NSI among HCW's which revealed a prevalence of 19%. Bashir *et al.* from Tamil Nadu and Rampal *et al.* [3,4] from Malaysia also reported NSI prevalence of 28.0% and 23.5% respectively in healthcare workers which was in accordance with our study. However a study from Delhi reported a prevalence of 73.7% [5]. The lower prevalence of NSIs in our hospital could be due to continuous training on NSIs to the newly recruited staff as well as to the already trained staff.

In our study, NSI was higher in females but not significant statistically which was in contrast to the findings of Goel *et al.* [5], who reported 59.9% predominance amongst males.

We found greater NSI prevalence amongst HCW's having longer duration of practice. However, Rampal *et al.*'s study reported higher prevalence in HCW's with >10 years of experience (23.1%) when compared to 25.4% prevalence in <10 years of experience [3]. Mondal *et al.* [6] reported higher prevalence (41%) in HCW's >10 years of experience which was in accordance with our study. The reason could be that the more the number of times the sharps are handled, the more the number of NSIs.

The present study reports more number of NSI's in nurses (54%) compared to doctors (12%). This is comparable to other studies. Studies showed that nurses are most affected job category for Needlestick injuries with prevalence ranging from 36 to 72.7% [7,8,9,10]

We have observed 80% of the participants are aware about correct, immediate measures to be taken after NSI. Other studies report different awareness amongst healthcare professionals with a 10% awareness reported by Motavaf *et al.* [11] and 70% by Jahangiri [12]. Thus, the awareness of HCW's is more compared to other studies. 80% responders in our study reported that after NSI the wound should be washed thoroughly with soap and water. This contrasts with the findings of Motavaf *et al.* [11] who reported that only 10.2% of participants agreed that washing with soap and water is the first step after contact with infective materials.

Motavaf *et al.* [11] reported that 32.2% people with NSI report NSI to the concerned authority, whereas 98% of our study responders reported that they will report the NSI.

Our study results show that our HCW's had good awareness (90%) about HIV testing after post-exposure prophylaxis. Awareness about HIV testing after post-exposure prophylaxis was higher compared to Khan *et al.* [13] study who reported it as 49.0%.

In the Kotwal *et al.* [14] study 60% doctors and 38% nurses reported that the needles should not be recapped after use, whereas 90% of doctors and 86% of nurses in our study reported the same. This supports that fact that awareness about prevention of NSIs is more in our hospital area.

In our survey, 50% responders reported use of antiseptic as an immediate measure after NSI. Jahangiri *et al.* [12] reported that only 6.2% professionals report use of disinfectants after NSIs. This practice has to be stopped by effective training of our HCW's.

CONCLUSION

The prevalence of NSIs is less compared to other studies due to constant training programmes to HCW's. Nursing profession remains the most affected job category encountering NSIs. There is increased awareness of HCW's regarding measures to be taken after NSIs and safety protocols to be followed in routine practice while dealing with sharps. However there is a need to create awareness about not using disinfectants on the injury site after NSIs.

REFERENCES:

- Muralidhar S, Singh PK, Jain RK, Malhotra M, Bala M. Needlestick injuries among health care workers in a tertiary care hospital of India. *Indian J Med Res* 2010;131:405-10.
- Abdullah A, Norah Saeed S, Sarah Saeed S. Incidence, Knowledge, Attitude and Practice Toward Needle Stick Injury Among Health Care Workers in Abha City, Saudi Arabia.

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- Bashir H, Qadri SS. A study on needle stick injuries among health care workers in a tertiary care hospital in India. *Int J Res Med Sci* 2019;7:1032-8.
- Rampal L, Zakaria A, Whye Sook L, Md Zain A. Needle stick and sharps injuries and factors associated among health care workers in a Malaysian hospital. *Eur J Soc Sci* 2010;13:354-62.
- Goel V, Kumar D, Lingaiah R, Singh S. Occurrence of needlestick and injuries among health-care workers of a Tertiary care teaching hospital in North India. *J Lab Physicians* 2017;9:20-5.
- Mondal J. NSI: A major occupational hazards among the health care workers in Nepal. *Int J Occup Safety Health* 2013;39:22-5.
- Kevitt F, Hayes B. Sharps injuries in a teaching hospital: changes over a decade. *Occup Med (Oxford, England)*. 2015;65:135-8.
- Omar AA, Abdo NM, Salama MF, Al-Mousa HH. Occupational injuries prone to infectious risks amongst healthcare personnel in Kuwait: a retrospective study. *Med Princ Pract*. 2015;24(2):123-8.
- Zhang P, Wang L, Bao H, Gao Z, Chen X, Zhang D, et al. Incidence of needlestick and other sharp object injuries in a Chinese hospital. *Am J Infect Control*. 2014;42(2):213-4.
- Markovic-Denic L, Maksimovic N, Marusic V, Vucicevic J, Ostric I, Djuric D. Occupational exposure to blood and body fluids among health-care workers in Serbia. *Med Princ Pract*. 2015;24(1):36-41.
- Motavaf M, Mohaghegh Dolatabadi MR, Ghodrati MR, Siamdoust SA, Safari S, Mohseni M. Anaesthesia personnel's knowledge of, attitudes toward, and practice to prevent needlestick injuries. *Workplace Health Saf*. 2014;6:250-5.
- Jahangiri M, Rostamabadi A, Hoboubi N, Tadayon N, Soleimani A. Needle stick injuries and their related safety measures among nurses in a university hospital, Shiraz, Iran. *Saf. Health Work* 2016;7:72-7.
- Khan AZ, Duncan KM, Escofet X, Miles WF. Do we need to improve awareness about HIV post exposure prophylaxis? *Ann R Coll Surg Engl* 2002;84:72-3.
- Anupam Kotwal A, Taneja DK. Health care workers and universal precautions: Perceptions and determinants of non-compliance. *Indian J Community Med* 2010;35:526-8.