

Prevalence of Needle Stick Injuries Among Nurses Review

Ali Mohammed Ahmed Bosrour¹, Hassan Ali Mohammed Albutayan², Fatimh Abdulaziz Aljumah³, Salma Nassir Alquraish³, Hadeer Habib Alshwaikhath³, Khadijah Abdullah Altemawi⁴, Hussain Ahmed Albannay⁵, Mariam Abdullah Alamal⁴, Aminah Abduljalil Alethan⁴, Fathyah Ali Alqatifi⁴, Zainab Mohammed Saed Abuabdullah⁶, Rayhana Abdullah Almnasif⁷, Eman Saeed Subiti⁸, Mayada Abdulazeem Al-Sadeq⁹, Areej Ahmed Almoosa¹⁰, Huda Kadeem Reda Mohammadali¹¹, Bushra Ahmed Aljubarah¹², Ibrahim Saad Alawadh¹³, Maymona Mohammed Alswed¹⁴

-
1. King Faisal General Hospital In Hofuf, Saudi Arabia.
 2. Maternity And Children's Hospital, Al-Ahsa, Saudi Arabia.
 3. Prince Saud Bin Jalawi Hospital, Saudi Arabia.
 4. Alfudool Phc, Saudi Arabia.
 5. Aljubail Phc, Saudi Arabia.
 6. Nursing Technician, Awamia Phc, Saudi Arabia.
 7. X-Ray Technician, Safwa General Hospital, Saudi Arabia.
 8. Jubail General Hospital, Saudi Arabia.
 9. DMC, Saudi Arabia.
 10. King Fahad(DMC), Saudi Arabia.
 11. Alromalaphc, Saudi Arabia.
 12. Aljafer General Hospital, Saudi Arabia.
 13. King Fahad Hospital In ALHofuf, Saudi Arabia.
 14. Maternity and Children Hospital, Saudi Arabia.
-

ABSTRACT

Needlestick injuries (NSIs) are a significant occupational hazard for nurses, posing risks of exposure to bloodborne pathogens such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). This review aims to provide an overview of the prevalence of needlestick injuries among nurses, associated risk factors, and preventive strategies.

Introduction

Needle stick and sharps injuries refer to medical equipment that can cause skin penetration injuries, such as needles, injectors, intravenous cannulas, ampules, and lancets(1). It is the most risky and serious occupational health hazard among nurses and other healthcare workers(2). In addition, more than 20 unsafe blood-borne pathogens are transmitted by contaminated needles, such as the human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV)(3). According to Laishram et al. The World Health Organization (WHO) reported that millions of health workers out of 35 occupations worldwide were exposed to infection as a result of needle stick injuries (NSIs) every year, the largest percentage was hepatitis B (37.6%) and C (39%), and the lowest percentage was HIV (4.4%)(4).

NSIs are a serious risk and a common phenomenon in any healthcare environment(5)

. Healthcare workers are dealing with contaminated needles and other types of sharps that expose them to blood that may contain pathogens that can pose a serious risk(6). According to El-Hazmi and Al-Majid (2008), in a 2-year period of

2002–2003, a total of 73 NSIs were reported to the department of infection control, and the nurses were the group of workers most commonly injured, which accounted for 65.8% of all reported incidences. In a 5 years duration, a total of 133 NSIs have been reported to the department of infection control (2001–2005). The majority of NSIs reported included nursing staff (45.1%), followed by other healthcare workers(7). Another study done by Jahangiri et al. In Iran aimed to assess the prevalence and factors related to NSIs among nurses found that the prevalence of NSIs was 76%. Mostly was caused by Hollow-bore needles (85.5%) and occurred in the morning shift (57.8%). In addition, it was found that (41.4%) of the NSIs was caused by recapping the needles and that the percentage of not reporting NSIs was 60.2%. Moreover, their study showed that there is a significant relationship between the prevalence NSIs and working hours and sex(8). It is also important to identify the factors associated with NSIs and reduce them due to a large number of injuries(9). A study conducted in Ethiopia showed that the prevalence of NSIs at the Dessie referral hospitals among nurses was 43%. The findings of that study showed that applying universal precaution and training related to NSIs of sharp objects and needle extraction had a great association with the reduction of needle stick and sharps injuries(10). Moreover, another study showed that the maximum occurrence of NSIs has been evident in healthcare providers. It also showed that age, educational status, number of shifts monthly, and history of factors associated with training were all relevant to NSIs.

Preparation, injecting, and repacking of used needles were also associated with the highest rate of NSIs(11).

Risk Factors for Needlestick Injuries Among Nurses

Several factors contribute to the risk of needlestick injuries among nurses:

1. Inadequate Training:

Lack of proper training in safe needle handling techniques and standard precautions increases the risk of needlestick injuries.

2. High Workload

Heavy workload and time pressure can lead to rushed and unsafe practices, increasing the risk of needlestick injuries.

3. Inadequate Safety Measures

Lack of access to safety-engineered devices, such as safety needles and needleless systems, increases the risk of needlestick injuries.

4. Fatigue and Stress

Fatigue and stress can impair concentration and increase the likelihood of accidental needlestick injuries.

Preventive Strategies

Preventive measures are essential for reducing the risk of needlestick injuries among nurses:

1. Use of Safety Devices

Implementing safety-engineered devices, such as retractable needles, needleless systems, and sharps disposal containers, can significantly reduce the risk of needlestick injuries.

2. Training and Education:

Providing comprehensive training on safe needle handling techniques, standard precautions, and the proper use of safety devices is essential.

3. Workplace Policies

Establishing clear workplace policies and protocols for safe needle handling, reporting of injuries, and post-exposure management is crucial.

4. Safety Culture

Fostering a culture of safety and open communication in the workplace encourages reporting of needlestick injuries and promotes a safer working environment.

Conclusion

Needlestick injuries are a significant occupational hazard for nurses, with a high prevalence reported globally. Implementing preventive measures, including the use of safety devices, comprehensive training, workplace policies, and a safety culture, is essential for reducing the risk of needlestick injuries among nurses and ensuring a safer work environment.

References:

1. Alamneh YM, Wondifraw AZ, Negesse A, Negesse A, Ketema DB, Akalu TY. The prevalence of occupational injury and its associated factors in Ethiopia: A systematic review and meta-analysis. *J Occup Med Toxicol*. 2020;15(1).
2. Jończyk A, Szczypa A, Talaga-Ćwiertnia K. Injuries as exposure events in providing medical services by nursing staff. *Przegl Epidemiol*. 2018;72(3).

3. Afridi AAK, Kumar A, Sayani R. Needle stick injuries--risk and preventive factors: a study among health care workers in tertiary care hospitals in Pakistan. *Glob J Health Sci*. 2013;5(4).
4. Devi Hs, Laishram J, Keisam A, Phesao E, Tarao Ms, Laloo V. Prevalence of needle stick injuries among nurses in a tertiary care hospital and their immediate response. *Int J Med Public Heal*. 2013;3(4).
5. A bhardwaj, N S, MF Y, AH M, KMM S, NK S. The Prevalence of Accidental needle Stick Injury and their reporting among healthcare Workers in orthopaedic Wards in General hospital Melaka, Malaysia. *Malaysian Orthop J*. 2014;8(2).
6. Balouchi A, Shahdadi H, Ahmadidarrehsima S, Rafiemanesh H. The frequency, causes and prevention of needlestick injuries in nurses of Kerman: A cross-sectional study. *J Clin Diagnostic Res*. 2015;9(12).
7. El-Hazmi MM, Al-Majid FM. Needle stick and sharps injuries among health care workers: A 5-year surveillance in a teaching center in Saudi Arabia. *Biomed Res*. 2008;19(2).
8. 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(1).
9. Hassnain S, Hassan Z, Amjad S, Zulqarnain M, Arshad K, Zain Z. Needle stick injuries among nurses of two tertiary care hospitals of Lahore: A KAP study. *J Pak Med Assoc*. 2017;67(12).
10. Abebe AM, Kassaw MW, Shewangashaw NE. Prevalence of needle-stick and sharp object injuries and its associated factors among staff nurses in Dessie referral hospital Amhara region, Ethiopia, 2018. *BMC Res Notes*. 2018;11(1).
11. Motaarefi H, Mahmoudi H, Mohammadi E, Hasanpour-Dehkordi A. Factors associated with needlestick injuries in health care occupations: A systematic review. Vol. 10, *Journal of Clinical and Diagnostic Research*. 2016.