NURSES' KNOWLEDGE ABOUT NEEDLE STICK INJURY IN AL-NAJAF AL-ASHRAF PEDIATRIC HOSPITALS

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Abstract

Background: Needle1stick injury (NSI)1is a no intentional penetration1of the skin by a needle. Several1studies revealed that nurses1among all other health care workers1are most predominantly1affected primarily due to the nature1of their job.

Objectives: The1aims of the study are to assess nurses' knowledge about needle stick injury and measure the effect of sociodemographic characteristics1of nurses on the knowledge1about needle stick1injury

Methods: Cross-sectional1Descriptive study design carried1out in 3 Hospitals; the study sample1is 100 nurses selected by convenience1sample. the data collected from the1sample by self-report1questionnaire.

Results: among1of 100 nurses (57%) of sample at1age (26-30) years, (55%) of sample1are females, (46%) of them were institute1graduated, (62%) of them had1more than 10 years of service. (82%)1of sample has high level of1knowledge.

The sample1age, education, and years1of service have significant1effect on the level of knowledge

Conclusion: nurses have good knowledge1about1NSI. It is necessary to follow1up the nursing staff and improve1their practice about infection control1and standard precaution

Keywords: Nurses, Knowledge, Needle Stick Injury.

Introduction

In hospitals, nurses are the first level of the staff whom contact with risk of infection from unsafe practices related to needles and sharps. They are expected to undertake activities related to patient care with the beginning of their clinical years. Being amateurs, they lack experience and skill, therefore; at a higher risk of infection from unsafe practices related to needles and sharps (Lachowicz & Mathews, 2009)

Needle stick injury (NSI) is a nonintentional penetration of the skin by a needle. Several studies revealed that nurses among all other health care workers are most predominantly affected primarily due to the nature of their job. Interestingly, the incidence of NSI is higher among nurses who had low level of knowledge on the prevention of NSI and did not receive the relevant training or education which they mostly gained during their undergrdaute study (Lin et al., 2013; Al Qadire et al., 2021).

Needle Stick Injury (NSI) is a serious hazard in any healthcare etting. It is defined as accidental skin penetration by a needle containing another person's blood or body fluid. Exposure to contaminated needles may expose the recipient to blood that contains pathogens which pose a

potential risk. The primary threat pathogens are Hepatitis B (HBV), Hepatitis C (HCV) and Human Immunodeficiency Virus (HIV). The risks of post-exposure transmission of those diseases are 30%, 5-10% and 0.4% respectively (Suliman et al., 2017)

Knowledge is usually acquired through education; nurses who do not attend training on prevention and management of NSIs are at a greater risk of sustaining injuries as compared to nurses who attended training. When knowledge is applied correctly during practice, it safeguards nurses from injury and from contracting blood borne diseases. Conversely, it is possible that the highest levels of knowledge may not be adequate to protect newly registered nurses from NSIs (Kwanzaa et al., 2020).

Nursing is a practical profession which is why nursing education comprises both classroom teaching and clinical practice. Performing an intervention in a safe and proper way in patient care has a major role in the safety of health professionals, including nursing students. In their clinical placement, nursing students are expected to practice, under supervision, all nursing skills performed by registered nurses, including giving injections via various routes and measuring patient blood glucose using the glucometer (Fičko et al., 2020)

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 yringe, utilizing sterile procedure by an all-around prepared individual and disposes of it appropriately (Zia et al., 2017)

Needle stick injuries have significant indirect consequences in health care delivery especially so in the developing countries, where already the qualified work force is limited with respect to the disease burden in the population. 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 (Lakshmi, 2018)

There are more than 20 blood borne diseases, but those of primary significance to health care workers are hepatitis due to either the hepatitis B virus or hepatitis C virus and acquired immune deficiency syndrome (AIDS) due to human immunodeficiency virus (HIV).6 The transmission rate of infection per injury is between 6-30% for hepatitis B, 3% for hepatitis C and 0.3% for HIV (Gupta et al., 2019).

The routine uses of sharp instruments in dental treatment, the presence of blood and saliva, and the diverse bacterial flora in the oral cavity all contribute to the hazardous nature of the dental workplace for blood-borne infections. Preventing NSIs is a challenge faced in virtually every medical work place (Pavithran et al., 2015)

These injuries are a major source of infections with blood-borne diseases like Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV). The risk of transmission of this infection after exposure to percutaneous injuries with infected blood is 2–40% for HBV, 2.7–10% for HCV, and 0.3% for HIV (Alsabaani et al., 2022)

According to the World Health Report 2002, out of 35 million healthcare workers (HCWs), 2 million experience percutaneous exposure to infectious diseases each year. It further notes that 37.6% of hepatitis B, 39% of hepatitis C, and 4.4% of Human Immunodeficiency Virus (HIV)/AIDS among HCWs around the world are due to NSIs. Globally, NSIs are the most common source of occupational exposure to blood and the primary cause of blood-borne infections of HCWs (Pavithran et al., 2015)

According to the World Health Organization, of the 35 million HCWs in the world, annually, there are 3 million people exposed to blood borne pathogens, including HBV 37.6%, HCV 39% and 4.4% infection with HIV/AIDS (Quynh, & Einhellig, 2017).

Globally, it is estimated that 3 million health care workers worldwide experience NSI every year; of those, up to 50% of all NSI are being sustained by nurses. Previous works of literature conducted in South Korea (70.4%), Pakistan (67%), Thailand (55.5%), India (33.3%), Nepal (74%), Iran (41%, 54%), The World Health Organization (WHO) reports that the number of needlestick injuries per person among health care staff is 4 per year in Africa, Western Mediterranean, and Asia. Developing countries, especially those in sub-Saharan Africa, account for the highest prevalence of HIV-infected patients, and more than 90% of occupational exposure occurs in these countries (Liyew et al., 2020)

Objectives of the study:
The aims of the study are:
1. To assess nurses' knowledge about needle stick injury
2. To measure the effect of the sociodemographic characteristics on nurses' knowledge about needle stick injury.

Research questions:
1. What is the nurses' knowledge about needle stick injury?
2. Is there effect of the sociodemographic characteristics on nurses' knowledge about needle stick injury?

Methods:
Study design:
Descriptive (Cross-sectional) study design conducted at the period of 1st of November 2021 to 1st March 2022 to assess the nurses' knowledge about needle stick injury. The study conducted at 3 hospitals in Al-Najaf AL-Ashraf Governorate.

Sampling:
The study sample is 100 nurses selected by non-probability sampling (convenience sample).

Instrument:
The study tool is a questionnaire composed from 2 parts. first part related to the socio demographic characteristics of the nurses (age, gender, education years of service). The second part is the scale measure the level of knowledge. It is included of 10 items.

Rating and scoring:
The instrument rating by determined by 3 Likert scale from 3 points for true, 2 points for I do not know, and 1 point for false.
Low level of knowledge = (1-1.66)
Moderate level of knowledge = (1.67-2.33)
High level of knowledge = (2.34-3)
Validity and Reliability:

The validity of the instrument done by content validity (panel of experts). Internal consistency of the questionnaire done by Cronbach's alpha coefficient. There is acceptable level of Cronbach's alpha coefficient (0.85).

Ethical consideration:

The researcher explains the study and the objectives to the sample then ask them for verbal agreement to participate in the study. The investigator collects the data through use of self-report method.

Data analysis:

The statistical data analysis done by (SPSS) version 20 through use of descriptive and inferential statistical data analysis

Results:

Table (I) distribution of demographic characteristics of the sample

| Variables		Frequency	Percent
Age	20-25	13	13.0
	26-30	57	57.0
	31-35	13	13.0
	36-40	2	2.0
	40 and more	15	15.0
	Total	100	100.0
Gender	Male	45	45.0
	Female	55	55.0
	Total	100	100.0
Education	Secondary nursing school	16	16.0
	Institute	46	46.0
	College	20	20.0
	Postgraduate	18	18.0
	Total	100	100.0
Years of service	Less than 10 years	38	38.0
	More than 10 years	62	62.0
	Total	100	100.0

The study result in table (I) shows that (57%) of sample at age (26-30) years, (55%) of sample are females, (46%) of them were institute graduated, (62%) of them had more than 10 years of service

Table (II) distribution of nurses' level of knowledge about needle stick injury

Level of knowledge	Frequency	Percent
Low (1-1.66)	12	12.0
Moderate (1.67-2.33)	6	6.0
High (2.34-3)	82	82.0
Total	100	100.0
Mean and standard deviation	2.51 ± 0.43	

This finding indicated that (12%) of sample has low level of knowledge, (6%) of sample has moderate level of knowledge, and (82%) of sample has high level of knowledge.
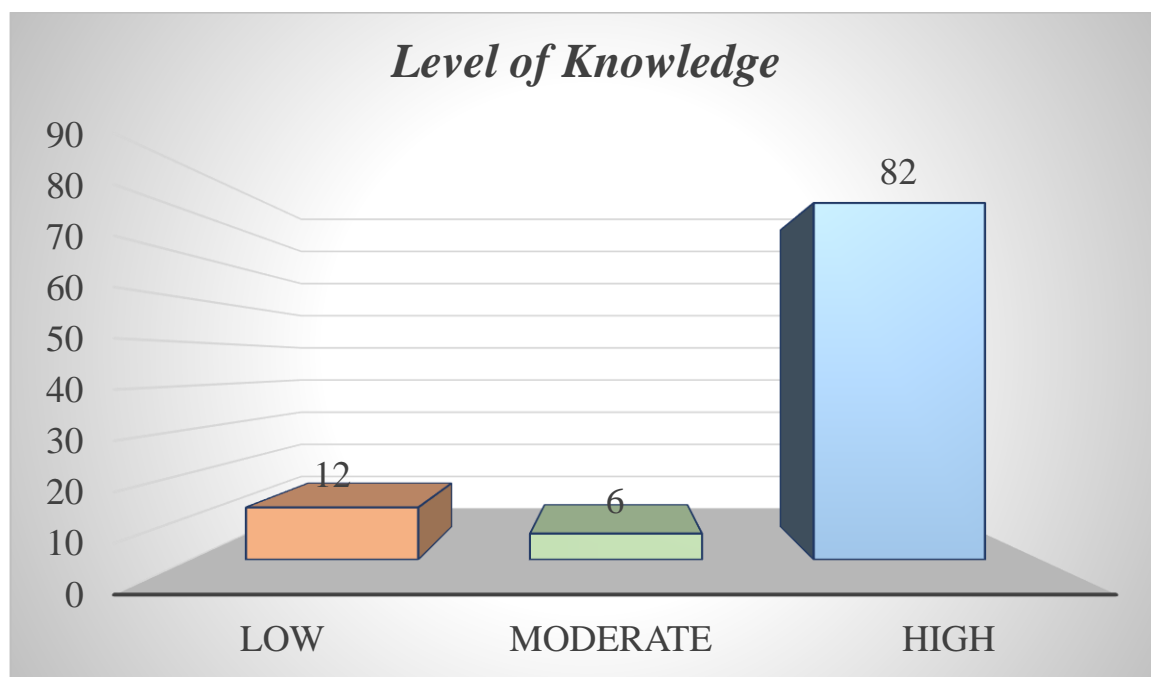
Figure (I) distribution of study sample level of knowledge

Table (III) multiple regression between nurses' knowledge about needle stick injury and demographic characteristics

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.016	.244		8.277	.000
Age	-.077	.030	-.215	-2.593	.011
Gender	-.033	.073	-.038	-.454	.651
Education	-.086	.038	-.190	-2.257	.026
Years of service	.582	.075	.654	7.744	.000

Dependent variable is knowledge about needle stick injury

The finding indicates that the nurses age, education, years of service have significant effect on their knowledge regarding needle stick injury at p value (0.011, 0.026, 0.000) respectively.

Conclusion:
The study findings concluded that nurses staff have satisfactory level of knowledge about needle stick injury. Level of knowledge effected by nurses age, education years of service. It is important to improve their practice, attitude, and belief, about standard precaution.

Recommendation:
Regular training session for teach the staff about chain of infection. Educate them about how to use of the standard precaution. Teach the staff about the personal protective equipment

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