OCCUPATIONAL RISK: NEEDLE-STICK INJURIES AND ITS DETERMINANTS AMONG THE HEALTHCARE WORKERS

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ABSTRACT

INTRODUCTION:

Needle-stick injuries are common problems among the healthcare workers; it might impact significantly on workers' health and health care delivery services. Sometimes small pinch of infected needle or sharp instrument may lead to big threat in their life and it may go into mortal outcomes.

OBJECTIVE:

To explore prevalence of needle-stick injuries and it[s] determinants among the healthcare workers in Banke, Pyuthan and Palpa district of Nepal.

MATERIALS & METHODS:

A cross-sectional study was undertaken in 2015 and that focused on needle-stick injuries and its determinants. Data were collected by using an unstructured pre tested questionnaire from 359 healthcare workers. SPSS-21 windows process was used to analyze the information.

RESULTS:

Three hundred fifty-nine health care workers: Doctors (23.70%), Allied health workers (37.60%), Nurses (31.80%), and Laboratory staffs (7.00%) were involved in the study. The mean age of health workers was 32.75 ± 10.478 years. 37.60% of total healthcare workers had needle stick injuries.

CONCLUSION:

The prevalence of needle-stick injuries was associated strongly with age of healthcare workers, depression, social problems and alcohol consumer and, practice of sleep

KEY WORDS: Health care workers, needle-stick injuries, life style practices and health institutions

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INTRODUCTION:

In healthcare institutions, there are occupational hazards that a healthcare worker (HCW) is exposed to in the work place[1]. Healthcare workers are at risk of infection with blood borne pathogens and Needle stick injuries (NSIs) are major cause of blood borne infections transmitted among healthcare personnel. NSIs are common occurrence among healthcare workers and they are grossly underreported[2] .These frequently occur among healthcare workers mainly on surgeons, assistants, and nurses. These injuries are an important and common occupational injury among them [3]. According to the World Health Organization (WHO) data, 35.7 million health care workers in the world are exposed to the risk of NSIs[4].The probability (28.0%) of a needle-stick injury has to be seen in the health workers per year. The most common cause of injuries from needles was an improper handling of syringes and needles after injections (removing a needle from a syringe or placing the needle in a full container for medical waste)[5]. Infections caused by occupational exposures are costly in terms of human suffering, the social-economic impact, and the financial responsibilities[6]. Elimination of unnecessary injections, prohibition of recapping, proper disposal and careful handling of sharps instruments, to follow universal precautions strictly and use of safer needle devices are effective measures for preventing NSIs[7].

OBJECTIVES:

To explore prevalence of needle-stick injuries and its determinants among the healthcare workers in Banke, Pyuthan and Palpa districts of Nepal.

MATERIALS & METHODS:

Three hundred fifty nine (359) respondents were selected through simple random sampling from the health care workers (doctors, paramedics, Nurses, laboratory staffs) for the cross-sectional study. Mainly healthcare workers of health institutions (Teaching Hospital, Zonal Hospital, primary Health Care Centre and health post and sub health post) of Banke, Pyuthan and Palpa districts of Nepal were included. Data were collected through pre-tested unstructured interview schedule during the period between 01/2015 to 06/2015. Anonymity and secrecy of all participants and their wishes and expressions were maintained. After completing the data collection, SPSS-21 windows process was used to analyze the information.

RESULTS:

Table No.1- Descriptive analysis of healthcare workers

N=359

Demographic variables		Frequency (Percent)
Age Group (in years)	Below 21	17(4.700%)
	21 and above	342(95.30%)
	Mean=32.75/Std. Deviation=10.478	
Sex	Male	187(52.10%)
	Female	172(47.90%)
Marital status	Married	224(62.40%)
	Unmarried	135(37.60%)
Types of Profession	Medical doctors	85(23.70%)
	Allied health workers	135(37.60%)
	Nurses	114(31.80%)
	Laboratory staffs	25(7.00%)
Organizational nature	Government	161(44.80%)
	Private	198(55.20%)
Alcohol intake	Yes	146(40.70%)
	No	213(59.30%)
Sleep at night	Yes	19(53.80%)
	No	166(46.20%)
Depressions	Yes	88(24.50%)
	No	271(75.50%)
Social problem	Yes	134(37.30%)
	No	225(62.70%)

Table No. 2 - Prevalence of needle stick Injuries among the healthcare workers

N=359

variables		Frequency(Percent)
Needle-stick injuries	No injury	224(62.40%)
	Injured	135(37.60%)

Table No.3:Distribution of Needle-stick injuries by profession N=359

		Needle stick injuries	
		No injury	injured
Profession	Doctors	64 (28.6%)	21 (15.6%)
	Allied health workers	82 (36.6%)	53 (39.2%)
	Nurses	63 (28.1%)	51 (37.8%)
	Lab technicians	15 (6.7%)	10 (7.4%)
Pearson Chi-Square=8.717/df=3/p=0.033			

Table No. 4 – Determinants of needle stick injurie

N=359

Variables		Needle stick injuries		Association CI=95%/ df=1
		Yes	No	
Age (in years)	<21	9(52.9%)	8(47.1%)	P = 0.410
	>21	215(62.9%)	127(37.1%)	
Sex	Male	119 (63.6%)	68 (36.4%)	P = 0. 613
	Female	105 (61.0%)	67 (39.0%)	
Depressions	Yes	38(43.2%)	50(56.8%)	P = 0.000
	No	186(68.6%)	85(31.4%)	
Social problem	Yes	66(49.3%)	68(50.7%)	P = 0. 000
	No	158(70.2%)	67(29.8%)	
Alcohol consume	Yes	102(69.9%)	44(30.1%)	P = 0. 016
	No	122(57.3%)	91(42.7%)	
Sound sleep	Yes	141(73.1%)	52(26.9%)	P = 0. 000
	No	83(50.0%)	83 (50.0%)	

DISCUSSION:

The cross-sectional study conducted to explore the prevalence of needle-stick injuries and its determinants among the healthcare workers in Banke, Palpa and Pyuthan district of Nepal. Three hundred fifty- nine health care workers: Doctors (23.70%), Allied health workers (37.60%), Nurses (31.80%), and Laboratory staffs (7.00%) were involved in the study. The mean age of healthcare workers was 32.75 ± 10.478 years. Most of them (52.10%) were male, 62.40% were married. More than fifty- five percent (55.20%) health workers were working in private sectors. More than one third (40.70%) were used to drink alcohol and 46.20% respondents could not sleep soundly at night. Near about twenty five percent (24.50%) HCWs were depressed and 37.30% had experience of faced social problems.

NSIs have been widely recognized as a source of exposure to blood borne pathogens for workers in healthcare occupations[8]. A study from the Australia, the rate of reported needle-stick injuries was1 in 5 occupied beds per year which equates to an annual sharps-related injuries incidence of 47,000[9]. A cross-sectional study of 645 health workers (nurses, physicians and ancillary staffs) at University of Alexandria teaching hospitals in 2007 revealed that around two-thirds of workers (67.9%) had suffered at least 1 NSI in the last 12 months[10]. In Indian study, 57% of the healthcare workers of a tertiary care rural hospital in south India had at least one episode of NSI[11]. D.L. Gurubacharya et al[12] also found that 74% had a history of needle stick injuries among the health care workers in their working place. 70.8% HCWs had NSIs in a tertiary care teaching hospital of Pokhara in Nepal.[7]

In the study, prevalence (37.60%) of needle stick injuries was documented among the healthcare workers compared to 38.4% health care workers had Needle stick and sharps injuries (NSSIs) during the previous 3 months at public tertiary hospitals in an urban community in Mongolia[13]. The prevalence of needle-stick injuries was found to be in doctors (15.6%), allied health workers (39.3%), nurses (37.8%) and lab technicians (7.4%) in this study areas. Statistical analysis from table no. 3 shows that there was significant association ($p<0.05$) between Prevalence of NSIs and types of profession. Slightly similar findings were observed in study of tertiary care hospital in India showed that the prevalence of NSIs among the healthcare workers was doctors (21.6%), medical interns (15.9%), nurses (28.4%), nursing interns (9.1%), lab technicians (8.1%), and cleaning staff (21.6%)[14].

Prevalence of NSIs was found to be high (62.9%) in age group 21 years and above compare to age group below 21 years. By sex group, sixty one percent (61.0%) health workers among the females had got NSIs which was slightly less compared to prevalence of NSIs (63.6%) among the male HCWs. NSIs were observed 69.9% and 57.3% in alcohol users and non users respectively. The analysis of variables in table no.4 concluded that the prevalence of needle-stick injuries was associated strongly with depression (df=1/p=0.000), social problems (df=1/p=0. 000), alcohol consumer (df=1/p=0. 016, practice of sound sleep (df=1/p=0. 000).

CONCLUSION:

Near about forty percent of healthcare workers had needle-stick injuries. The prevalence of needle stick injuries was high in allied health workers and nurses as compared to doctors and laboratory staffs. Age, sex and occupation of health workers played vital role for getting incidence of NSIs.

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