

Prevalence and Associated Factors of Occupational Injury and Disease among Workers in Nekemte Referral Hospital, East Wollega Zone, Oromia, Ethiopia

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Abstract

Objectives: Globally, poor occupational health and safety results in 271 million work related injuries. In countries like Ethiopia, the risk of having work-related injury is 10 to 20 times higher than developed countries. The aim of this study was to determine the prevalence and associated factors of occupational injury/disease among workers in Nekemte Referral Hospital. Cross-sectional study was conducted on 165 samples from December 2015 to January 2016. Data was analyzed using SPSS version 20. Adjusted odds ratio with 95% CI was used to measure associations in multivariate logistic regression analysis.

Results: A total of 161 study subject studied with response rate of 97.58%. Occupational injury prevalence rate in the last 12 months was 66% and respondents infected with different type of disease were 51%. Injury was associated with hand washing practices and scalpel cut. Nasocomial infection was associated with gender (AOR=2.679, 95% CI: 1.159-6.193), service years (AOR=4.272, 95% CI: 1.448-12.607) and working hours (AOR=4.791, 95% CI: 1.710-13.424). This high injury and nasocomial infection implies a need for due attention safety and infection prevention the study area and hospitals.

Keywords: Occupational injury; Nekemte; Hospital; Ethiopia

Abbreviations HCW: Health Care Workers; HBV: Hepatitis B Virus; HCV: Hepatitis C Virus, WHO: World Health Organization.

Introduction

Occupational injury and diseases are dangers or illnesses that are associated with doing a particular job. A health care sector is complex and characterized by variety of professions and work places with different occupational health injury and diseases. Health Care Workers (HCW) are potentially exposed to infectious materials such as blood, tissue, body fluids, medical supplies, equipment and contaminated environments [1-3].

Biological injury and diseases are mainly infectious agents such as bacteria, viruses, fungi and parasites which cause diseases such as HIV/AIDS, tuberculosis, hepatitis and other blood borne infections. Biohazards are injury and disease that occur associated with handling of biological agents/processes like surgery, autopsy, contaminated discharges, blood, pipettes, laboratory specimens and others. Physical injury and diseases like radiation, exposure to slippery floors, exposure to body fluids and assault by some patients are common in health facilities. Mechanical injury and disease such as back pain and injury are also associated with lifting of patients and handling of equipments [4,5].

Occupational injuries pose a major public health and development problems in work places. The World Health Organization (WHO) global burden of disease estimate ranks occupational injury among the

top ten leading causes of death, with an estimated 5 million deaths annually of which men in Africa have the highest injury-related mortality rates in the world.

Annually, an estimated 160 million new cases of work-related diseases occur worldwide, including respiratory and cardiovascular diseases, cancer, hearing loss, musculoskeletal and reproductive disorders, mental and neurological illnesses [6].

Healthcare providers and patients would be at an increased risk of acquiring most serious infections like human immunodeficiency virus, hepatitis B virus, hepatitis C virus, multidrug-resistant tuberculosis and other emerging and re-emerging bacterial or viral infections. Hence, this study was designed to determine prevalence and associated factors of occupational injury and disease among workers in Nekemte Referral Hospital, East Wollega Zone; Oromia Regional state, Ethiopia.

Materials and Methods

Study setting

The study was conducted in Nekemte Referral hospital, which is located in Nekemte town, Ethiopia. The hospital had a total of 304 healthcare workers. Of this, health profession account 203 and the supportive staff 101. The hospital provides preventive, curative, and rehabilitative services for populations of more than 3.5 million from

the adjacent zones of Horo Guduru, West Wollega and Qelam Wollega [7,8].

Study design and period

Cross-sectional study design was conducted from December 2014-January 2015.

Population

The source population is all employees who were working in the hospital and the study population was the sampled the 163 sampled individuals from all job categories.

Sampling procedure

The hospital was stratified into clinical services and supportive staff. The required sample size for each stratum of hospital was allocated using probability proportional to size. Then, interviewees who directly engaged in the collection process from each stratum were selected using simple random sampling. The data was collected using self-administered questionnaire. The data collectors were 4 Bsc nurses.

The data was entered in to epidata version 3.1 and analyzed with SPSS version 20 and descriptive and inferential statistics were reported. The result is presented in multiple approaches; frequency tables, figures and narrative explanations. Associations were examined using binary and multiple logistic regressions. P-value 0.2 as a cut-off point was taken as a reference to go to the multivariate analysis. To fit final model, 95% confidence interval and P-value less than 0.05 was used in multinomial logistic regression analysis [9-11].

Results

A total of 161 hospital workers with a response rate of 97.58% were included in the study. Among these, health professional account for 110 (68.32%) and the supportive staff account for 51 (31.68%). The mean age of the respondents was 31.59 (SD+7.7) years. Female constitute 84 (52.2%) of the respondents. On marital status, majority 115 (71.4) were married and 46 (28.6%) were single. As to the educational status, 131 (81.4%) have attended college or university. Regarding to work load, 99 (61.5%) worked greater than 40 hrs per week. Regarding to the occupation, the highest number of respondents observed were from nursing, followed by health officer and cleaners. (Table 1).

Characteristics of respondents		Frequency	Percent (%)
Gender	Male	77	47.8
	Female	84	52.2
Educational status	01-06	8	5
	07-12	22	13.7
	College and university	131	81.4
Marital status	Single	46	28.6
	Married	115	71.4
Ethnicity	Oromo	153	95

	Amhara	8	5
No of family size	< 2	47	29.2
	03-04	75	46.6
	> 5	39	24.2
Religions	protestant	114	70.8
	orthodox	37	23
	Muslim	5	3.1
	wakefata	3	1.9
	other specify	2	1.2
Service year	< 3	35	21.7
	03-06	51	31.7
	> 7	75	46.6
working hours per day	8 hr	126	78.3
	>8 hr	35	21.7
working hours per week	<40 hr	3	1.9
	40 hr	59	36.6
	>40 hr	99	61.5

Table 1: Sociodemographic distribution of study subjects at Nekemte referral hospital, Dec 2014 to Jan 16, 2015.

Occupational injury and illness among the respondents

Among the respondents, 107 (66%) of the respondent had injury of which 67 (62.6%) were health professionals. Similarly, 82 (51%) of the respondents have reported illness of which 43 (52.4%) of them were health professionals. Among the injured, about 71 (66.4) have reported injury more than two times. The common types of injury that were scalpel cut 20 (18.7%), cut from drug ampoules 52 (48.6%), needle prick 69 (64.5%), blood splashes 100 (93.4%). Regarding to the use of protective equipment among Nekemte Referral hospital workers, 116 (72%) did not use PPE regularly [11-13].

Regarding to history of vaccination among the 161 HCW, only 107 (66.5%) were vaccinated of which, 28 (17.4%) were vaccinated for meningococcal, 59 (36.6%) were vaccinated for tetanus and 20 (12.4%) were vaccinated for HBV. From the respondents, only 47 (29.2%) of the HCW were trained on prevention methods to minimize exposure to HIV, HBV and other blood born disease. From the total respondents, only 50 (31.1%) of the HCW had got on job training about safety and many of them 143 (88.8%) agreed up on training needed in connection with new employment and new equipments. The occupational injury in the last 12 months was cross tabulated with the type of professionals. Among the total 56 nursing professionals participated, 39 (69.6%) had incident of injury making 36% of the total injury incident [14,15].

Discussion

The overall occupational injury prevalence rate in the last 12 months was 66% and respondents infected with different type of disease were 51%. This result is in agreement to the study done in

Addis Ababa Hospitals in which 66.6% Health Professionals sustained sharp injury.

Regarding to different type of diseases; 51% were revealed from this study which is significantly higher than prevalence studies on hospital-wide in some African countries (Mali 18.9%, Tanzania 14.8%, Algeria 9.8%). This difference may be due to set up variation and occupational service status in each country. This can also be attributed to high workload, and shortage of PPE, poor waste disposal system in the study area.

Twelve months prevalence of back pain accounts for 114 (70.8%). This is slightly lower than studies from Nigeria; 73.53 and 73%-76% in Switzerland. This result was also little higher compared to the study done in Addis Ababa; 60.9%.

Concerning the scalpel cut in clinical area, 20 (12.4%)of the respondents have got scalpel cut and this result was almost the same as the study conducted in Addis Ababa 9.2% [20]. In present study, blood splashes 100 (62.1%) was occurred among the respondents. This result was in line with the study conducted in University of Gondar hospital, Northwest of Ethiopia in which occupational exposures to Blood and Body Fluids (BBFS) was 62.9% among health care workers and medical students. This is a significant risk for transmission of HIV and other blood borne pathogens such as HBV, HCV, and other emerging and re-emerging bacterial or viral infections.

Regarding to risk for hepatitis, factors like hospital admission 25 (15.5%), needle prick 69 (42.9%), blood splashes 100 (62.1%) and unvaccinated status of 141 (87.6%) is observed from the study. Direct contact with blood and other body fluids is the most common or frequent risk healthcare workers encounter while caring for patients. Seven (4.3%) HCW respond as splash to the conjunctiva which is very significant. This result is also agreement to the study done in Bulle Hora Woreda which was 7.3% of diseases. This is in agreement with previous study in which an accidental splash in the eye of as little as 10 ml-8 ml of infected blood can transmit HBV to a susceptible host.

The severity of work related injury of Nekemte Referral hospital workers were related to number of HCW hospitalized as result of injury and number of days lost due to injury and number of HCW exposed to chronic diseases. Accordingly 25 (15.5%) health care workers were hospitalized as result of injury in the last 12 months and 48 (29.3%) of the respondents were lost greater than 1 days from work. From the respondents, 30 (18.6%) had major injuries which leads to communicable diseases such as TB and HIV/AIDS. This result is also agreement to the study done in other areas.

Conclusion

This study revealed that there is high prevalence of occupational injury and diseases (66% of the respondent had incident at job that resulted in an injury and 51% of them were diseased). Implementation of basic occupational health and safety services are highly advisable. The study had high response rate (97.58%) and almost all professionals and technical staff groups were included in the study. Adequate sample size and pre-tested and standardized questionnaires were used.

Limitation of the Study

Recall bias cannot be ruled out. Qualitative data were also not obtained.

Ethics Approval and Consent to Participate

Ethical clearance was obtained from Wollega University ethical clearance committee. Written consent was obtained from the respondents to participate in the study and confidentiality was kept along all process of this research work.

Consent for Publication

Not applicable.

Availability of Data and Material

The data sets during and/or analyzed during the current study available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interests.

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Authors Contributions

All authors have participated in the research work and have read and approved the manuscript.

Soboka Chewaka: Involved in the conception, literature search, design, securing fund, data collection, analysis and drafting of the manuscript

Regea Dabsu: Involved in the conception and design, research ethical approval, questionnaire translation, collection, analysis, final write up, drafting of the manuscript

Melese Chego: Involved in the conception and design, analysis, final write up and manuscript edition.

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