

Common occupational health hazards amongst Health care workers in a Tertiary Health Institution in Bida, North-central Nigeria

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Abstract

Background: Health care workers are continually exposed to occupational health hazards. The study aimed to assess the prevalence of some occupational health hazards and their reporting behavior.

Methods: A hospital based cross-sectional study was conducted in August 2014 among health care workers in a tertiary health institution in Bida, North-central Nigeria. A total of 200 health care workers from all the departments were included using the multi-staged random sampling technique. Relevant quantitative and qualitative data were collected using semi-structured self-administered questionnaire. The participants were divided into clinical health care workers and non-clinical health care workers. The frequency distribution of the variables were calculated and presented in the form of frequency tables and figures.

Results: The overall prevalence of occupational health hazard was 56.8% (n = 108). The most common occupational health hazard among clinical health care workers were needle stick injury (40.7%) and infections with hepatitis B and C viruses (13.9%) and among the non-clinical health care workers were stress (32.8%) and back pain (10.3%). Majority of the health care workers who had occupational health hazards reported appropriately to the committee concerned.

Conclusions: Occupational health hazards are common among hospital health care workers and were adequately reported. Training of the health care workers on measures to mitigate these hazards may also enhance the reporting behavior and its management when it occurs.

Keywords: Occupation, Health care workers, Hazards, Nigeria.

1. Introduction

Hospital environment is known to be one of the most hazardous settings to work [1,2]. In a report by World Health Organization (WHO), health care facilities employs about 59.8 million health care workers Worldwide with two-thirds providing health services while the remaining are management and supporting staff [3]. Health care workers are exposed to several biological, chemical, physical and psychosocial hazards from their day to day activities which may in some instances be life threatening. The WHO

worldwide comparative risk assessment of the morbidity and mortality in 2000 of some selected occupational hazards reported that about 24 million years of healthy life is lost with resultant 850,000 deaths worldwide [4]. Additionally, 3 million percutaneous exposures occur annually among 35 million health care workers globally, with more than 90% of these occurring in countries with limited resources [5].

Health care workers (HCWs) are at risk of occupational health hazards (OHH) at workplace like other

workers in large facility operations and maintenance, including heavy metals, and solvents as well as those hazards that are unique to caring for ill patients [6]. The likelihood of exposure to these hazardous agents by the health care workers depends on the job category and the work environment [6,7]. A cross-sectional study of health care workers in a southwestern Nigerian teaching hospital found work-related stress (83.3%), needle-stick injuries (76%), blood stains on skin (73.1%), sleep disturbances and hepatitis (8.9%) to be some of the commonly encountered OHH[8]. The resultant morbidity and mortality among health care workers often impact adversely on their productivity. Thus, protecting the health and safety of HCWs cannot be overemphasized. However, despite the knowledge of the enormity of these problems by management, occupational health and safety of health care workers is patchy and in some instances totally neglected [8,9].

There are various studies on OHH in other parts of the country [8,10-12], however there is dearth of data on commonly encountered health hazards as well as the reporting behavior of the HCWs in North-central Nigeria, particularly in our hospital. Knowing some of these occupational health hazards and the reporting behavior of those afflicted is vital to understanding the extent of the problem and may be useful in designing intervention strategies that would help to promote and uphold good health and safety standards. This study therefore assessed some of the common occupational health hazards and the reporting behavior of the health care workers in a tertiary health institution in Bida, North-central Nigeria.

2. Methods

This was a cross-sectional hospital based study that was carried out among hospital staff including contract staff in Federal Medical Centre, the only federal government owned tertiary health institution in Bida, Northcentral Nigeria. The sample size of 200 was determined using the multistage stratified random sampling. They were divided into clinical and non-clinical HCWs. One out of every five member of the clinical and one out of half of the total non-clinical health care worker were recruited making a total of 202 but was rounded up to 200. Half of the non-clinical health care workers were recruited because of their minimal perceived susceptibility to occupational hazards. The clinical HCWs included medical doctors, nurses and midwives, ward attendants, ventures and laboratory

technologists and the non-clinical HCWs were made up of other cleaners (Jigbodo), technicians/biomedical engineers, pharmacists and administrators.

A standardized structured questionnaire that is made up of both closed and open ended questions was used for data collection. The data collected include the age, marital status, and highest level of education as well as the duration of appointment. Others include the safety practices of the staff and the hazards they had experienced and the cause of the hazards. The questionnaires which were serially numbered and had the respective department clearly written on them were administered by the researchers. Upon consenting, all participants were encouraged to answer the questionnaire in the presence of the researcher so as to be able to reduce items misinterpretation, and maximize the return rate. The completed questionnaires were thoroughly checked to ensure completeness.

The data was analyzed using Statistical Package for Social Sciences software (version 16 SPSS). The responses were coded, classified, summarized and presented as figures, tables. Continuous variables were expressed as mean \pm standard deviation and categorical variables expressed as percentages. For comparison of categorical variables, the Chi-square test was used and independent student's *t*-test for continuous variables. A *P* value < 0.05 was considered statistically significant.

3. Results

A total of two hundred (200) questionnaires were administered. However, 196 were filled and returned, giving a response rate of 98%. Six (6) of them had missing data like age, sex and department. Finally, 190 that were made up of 132 clinical staff and 58 non-clinical staff were included in the analysis. The staff in the clinical department, mean age 36.89 ± 7.32 year were older than those in the non-clinical departments 32.14 ± 6.70 years, *p* value = 0.000. The clinical staff comprised of 56 doctors (42.4%), 49 nurses (37.1%), 10 laboratory staff (7.6%), 7 ward attendants (5.3%), 5 ventures (3.8%) and 5(3.8%) in the radiography and physiotherapy departments. Respondents in the clinical departments had higher level of education compared to those in the non-clinical departments; degree/higher national diploma 79 (59.8%) versus 28 (48.3%) and national certificate of education/diploma 45 (34.1%) versus 15 (25.9%). None of the staff in the clinical departments had only primary school certificate (Table 1).

Table 1: Demographic characteristics of the Respondents based on the Department

Variable	Clinical n=132	Non-clinical n=58	P value
Age (years)	36.89±7.32#	32.14±6.70#	0.000
Sex			
Male	73 (55.3*)	32 (55.2*)	0.004
Female	59 (44.7*)	26 (44.8*)	0.009
Highest level of Education			
Primary	0	1(1.17*)	
Secondary	8 (6.1*)	14 (24.1*)	0.45
NCE/Diploma/RN/RM	45 (34.1*)	15 (25.9*)	0.042
HND/Degree	79 (59.8*)	28 (48.3*)	0.005

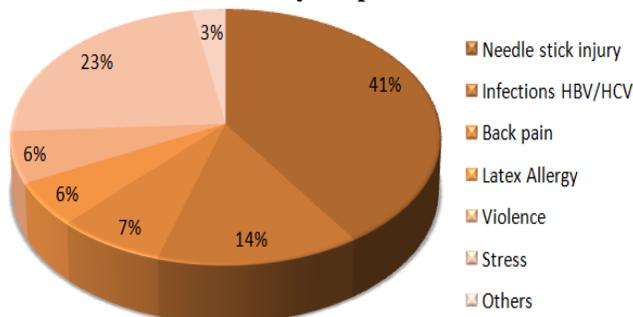
Source: Author’s data analysis, (2014)

#= standard deviation *=Percentage HND=higher national diploma, RN/RM= registered nurse/registered midwife.

3.1 Occupational health hazards suffered by the health care workers

Among the clinical staff, needle stick injury occurred in 23.2%, infections with either HBV and/ or HCV was reported by 13.9%. Others included back pain in 4.2%, latex allergy in 3.2% and violence in 3.2%. Work related stress occurred in 13.2% of the respondents. The commonest occupational health hazard among the non-clinical staff was stress (32.8%) and only 1 (1.7%) of the venture staff reported infection with any of these pathogens (Figure 1).

Figure 1: Nature of Occupational Health Hazard Suffered by Respondents



3.2 Causes of occupational health hazards

The causes of occupational health hazards include non-availability of personal protective wears (21.3%) and lack of adequate training on safety measures in 17.6%. Other causes include ignorance of safety measures in 15 (13.9%) of the staff and accidental in 12 (12.0%) of them (Figure 2).

Figure 2: Cause(s) of Occupational Health Hazard



3.3 Reporting of occupational health hazards by the respondents

Out of the 108 respondents that sustained various occupational health hazards, 57.4% (62) of them reported to the management while 32% did not report to the committee. Six of the respondents felt there was no need to let the committee know about it (Table 2).

Table 2: Reporting of Occupational Health Hazard

Variables	Frequency	Percentage (%)
Yes	62	57.4
No	42	37.0
No need	6	5.6
Total	108	100.0

4. Discussion

The main findings of the study include the following; occupational health hazard is common amongst staff in both the clinical and non-clinical departments and most of the staff that were afflicted reported to the appropriate committee in the hospital. In our study, more than half (56.8%) of the respondents had experienced one or more occupational health hazards since employed [14].The result was similar to findings by Lee *et al* among emergency medicine residents in the USA (56%) [15]. Our finding was slightly different and less than the number of healthcare workers affected in selected health institutions in Debre Berhan Town, Ethiopia (88.6%), University hospital of West Indies (87%), and by Chauvin et al among emergency residents in France (72%) [16-18]. However, studies in a Kenyan rift Valley Provincial hospital, among health care workers in Nigeria and in Kampala found fewer patients (25%, 51% and 50.0%) respectively with exposures to occupational health hazards [19-21]. The differences noted between studies could be due to the inclusion criteria of the study population, method of data collection and conditions at workplace.

Some of the common occupational health hazards reported by the respondents in the clinical department included needle stick injury (NSI) 40.7% (n = 44), infections with blood borne organisms like hepatitis B and

C viruses 13.9% (15), back pain 7.4% (8), latex allergy 5.6% (6), violence 6.5% (7), stress in 23.1% (25) and others (2.7%). However, those reported by staff in the non-clinical departments included stress of work (32.8%), violence (3.4%), back pain (10.3%) and infection by hepatitis B in one respondent (1.7%) [14]. This was adduced by the respondents to lack of adequate training on safety measures, non-availability of personal protective wears and ignorance among others. The rates of OHH were higher among the clinical health care workers than non-clinical health care workers probably because the former are always in contact with the patients and equally handle their effluents on daily basis.

The prevalence rate of 41% of needle stick injury (NSI) in our study is slightly higher than 31.2% that was reported among hospital care workers in Ilorin by Akeem *et al*, 24.5% among dialysis staffin Lagos by Amira *et al*, 30.6% in emergency medicine residents by Lee *et al*, and 19% in United Arab Emirate by Jacob *et al* [11,12,15,22]. It is however lower than 76% in health workers in a teaching hospital in Nigeria by Orji *et al*, 57% by Nsubuga *et al* among Uganda healthcare workers and 71.3% that was reported by Chen *et al* in Chinese healthcare workers [8,23,24]. In this study, NSI occurred in 63.2% of doctors compared to 50% of nurses while there were 2 cases each of NSIs among the laboratory workers and ward attendants. Our findings are similar to the study by Amira *et al*, Lee *et al*, Isara *et al* and Wicker *et al* where more doctors experienced NSI than other health care workers [12,15,20,25]. This contrasted with a higher prevalence of 66% among nurses in a report by Ruben *et al*, and 71.3% by Tadesse *et al* [26,27]. Among the various possibilities, this could be due to the fact that in teaching/research hospitals in Nigeria, doctors perform procedures like setting of intravenous lines, administering of parenteral medications and placement of central venous catheters among others that frequently involves the use of sharp objects. This underscores the need to provide training on preventive measures for workers in health-care facilities.

Occupational contraction of blood-borne pathogens such as hepatitis B and C viruses were also reported by our respondents. However, none of the staff reported infection with Human immunodeficiency virus. Infections with these pathogens occurred either from NSIs or contact with blood and blood products. Needle stick injury accounted for these infections in 14 (31.8%) of the respondents (6 nurses, 5 doctors, 2 ward attendants and 1 laboratory worker). According to WHO estimate in 2005, sharp injuries caused 16 000 hepatitis C virus, 66 000 hepatitis B virus and 1000 HIV infections in health care workers worldwide [28]. Reduction of exposure to sharps, vaccination of health care workers against hepatitis B virus, education and training of

health care workers on the risks and precautions, as well as provision of sharp object containers are some simple interventions that were suggested by the respondents for prevention.

Back pain is particularly common among health care workers especially those who are frequently involved in moving and transporting patients either between wards or for investigations. In this study, back pain was reported by 7.4% of the health care workers, half of them were nurses. This high prevalence among the nursing staff might not be unconnected to the facts that the nurses move patients from one place to the other for investigations, transfers between wards and for operations among others.

The prevalence of 3.2% workplace violence was more among Nurses in our study [14]. This was lower than 31.9% by Azodo *et al* among dental professionals in Southern Nigeria Azodo *et al* and 24.3% of health care workers by Orji *et al* in an Obstetrics and Gynaecology unit of a Nigerian University Teaching Hospital Orji *et al* [8,13]. The restriction of access by care givers to patients during working hours and the enforcement of the visiting time by the management may be responsible for the low level of violence reported in this survey.

About 57.4% (62) of the respondents who has had one form of OHH or the other reported to the authorities concerned. Our finding differs from the study by Akeem *et al* in primary care workers in Ilorin, among health workers in the haemodialysis unit in Lagos by Amira *et al* and among healthcare workers in two Tanzanian hospitals by Mashoto *et al* [11,12,28]. In all these studies, only one third of participants reported any form of occupational exposure. The reasons for under-reporting in their series included perceived low risk of transmission of infection or contact, lack of laid down process of reporting, in-action by management and lack of follow-up and workers' compensation. The high rate of reporting in this study may be due to the selection process and the attention received when such cases are reported to the infection prevention and control unit of the hospital.

Our study should be interpreted within the context of its limitations. First, the study site was a tertiary health institution, a supposedly ideal condition; hence some safety measures would have been put up. Second, since it was a cross-sectional study, the findings cannot be used to study variables over periods of time or used to deduce causal relationships. Lastly, since it was a self-reported and questionnaire based study, the issues of respondent's bias cannot be completely ruled out.

In conclusion, this study showed that occupational health hazards are common occurrence amongst health care workers and they exhibited high rate of reporting of the cases. Therefore, more rigorous occupational hazards

prevention and control programs needed to be put in place to help reduce this menace. In addition, provision of safety trainings and enforcement of appropriate workplace safety regulation would go a long way in promoting decent and safe work throughout the health facilities.

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Declarations

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