

Knowledge and Practice of Occupational Health Hazard among Healthcare Workers in Kogi State Specialist Hospital

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Abstract

The study was done to investigate the knowledge and practice of occupational health hazard among two hundred and thirty two (232) healthcare workers in Kogi State Specialist Hospital (KSSH). The healthcare workers were selected through a multistage sampling technique, and the instrument used was self-administered semi-structured, closed ended questionnaire that assessed the health workers knowledge and practice of occupational health hazard as well as the relationship and factors that influences practice of occupational health hazard. Result from the findings of the study showed that 67.7% majority of the healthcare workers had good knowledge on occupational health hazard, and 92.2% majority of the healthcare workers had good practice towards occupational health hazard. More findings from the study showed that there is a significant relationship between the healthcare workers gender (Sig. values = 0.045 < 0.05), and knowledge (Sig. values = 0.007 < 0.05) on the practice of occupational health hazard. Finally from the study, female healthcare workers [AOR = 1.932; CI = 1.456 – 2.562], those within 30 – 39 years [AOR = 1.482; CI = 2.708 – 7.150], married [AOR = 14.308; CI = 8.154 – 25.105], Christians [AOR = 1.111; CI = 2.227 – 4.143], hospital attendants [AOR = 4.450; CI = 2.740 – 7.228], and healthcare workers with good knowledge [AOR = 2.334; CI = 1.749 – 3.141] are significant likely to practice good occupational health hazard prevention compared to their counterparts.

Keywords: Knowledge; Practice; Healthcare workers; Occupational health hazard.

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1.0 INTRODUCTION

Occupational hazard is defined as the “potential risk to the health of a person emerging from an unhealthy environment” which is a significant public health issue (Kassaneh and Tadesse, 2019). It can also be referred to as any activity, materials, processes or situation that is likely to cause an accident or disease at the work place (Owie and Apanga, 2016). Health care workers are challenged by an imposing group of occupational hazards. These hazards include exposure to ionizing radiation, stress, injury, infectious agents, and chemicals (Che Huei *et al.*, 2020). Occupational hazard can also be referred to as any activity, materials, processes or situation that is likely to cause an accident or disease at the work place (Owie and Apanga, 2016). It has been observed that despite the noticeable evidence of government concern as seen in the incorporation in some health programs some activities to promote injection safety, formation of infection control committees, post exposure prophylaxis to HIV/AIDS, promotion of universal precaution practices and hazard allowances in workers’ pay, these efforts and activities has in no way eliminated completely the risk to which workers are

exposed with immense consequences on their health (Verma *et al.*, 2018). Also, work place violence (WPV) is a recognized occupational hazard in the healthcare industry (Adedokun, 2020). WPV is any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site. (Avillion and Mitus, 2023). It can affect and involve workers, clients, customers and visitors. WPV ranges from threats and verbal abuse to physical assaults and even homicide (Small, 2020).

Worldwide, the healthcare workforce represents 12% of the working population. Healthcare workers operate in an environment that is considered to be one of the most hazardous occupational settings (Liu *et al.*, 2019). In addition to the usual workplace related exposures, healthcare workers encounter diverse hazards due to their work related activities (Ndejjo *et al.*, 2015). In spite of this knowledge, the healthcare work environment continues to be neglected by governments and organizations (Ndejjo *et al.*, 2015). Occupational health is a neglected public health issue among healthcare workers in developing countries (Rai *et al.*,

2021). This has exposed healthcare workers in developing countries to various forms of hazards which have had negative consequences on their wellbeing and performance at work (Owie and Apanga, 2016). At the same time health care workers are at a high risk of exposure to blood and body fluids (Yasin *et al.*, 2019). Needle stick injuries, cuts and splashes are common occupational accidents exposing health care providers to different blood borne pathogens (Oyekunle *et al.*, 2020). Transmission of hepatitis B virus, human immune deficiency virus (HIV), and hepatitis C virus (HCV) has been related to injuries and frequency of exposure (Sin *et al.*, 2016).

A cross-sectional study among 200 health workers in 8 major health facilities in Kampala, Uganda was done to assess the occupational health hazards faced by healthcare workers and the mitigation measures. Results showed that overall, 50.0% of respondents reported experiencing an occupational health hazard. Among these, 39.5% experienced biological hazards while 31.5% experienced non-biological hazards. Predictors for experiencing hazards included not wearing the necessary personal protective equipment (PPE), working overtime, job related pressures, and working in multiple health facilities. Control measures to mitigate hazards were availing separate areas and containers to store medical waste and provision of safety tools and equipment (Ndejjo *et al.*, 2015). Also, the biological hazards mainly experienced by healthcare workers were sharp related injuries (21.5%), cuts and wounds (17.0%), never wore all necessary PPEs (wore all PPEs (30.4%) versus others (51.8%)), worked over time (yes (45.4%) versus no (25.4%)), worked in multiple health facilities (worked in multiple facilities (48.2%) versus single facilities (36.1%)), and experienced job related pressure (experienced job pressure (45.5%) versus others (9.1%)). Among those that experienced non-biological hazards, the majority experienced stress (21.5%), physical, psychological, sexual, and/or verbal abuse (10.5%), and musculoskeletal injuries (10.5%). those who never wore all the necessary PPEs (wore all necessary PPEs (21.7%) versus others (44.7%)), worked over time (yes (36.9%) versus no (18.6%)), those who worked in multiple health facilities (multiple (41.1%) versus others (27.8%)), those who had less than 8 hours of daily sleep (<8 hours (34.0%) versus others (24.0%)), and those who experienced work related pressure (experienced pressure (36.5%) versus others (6.1%)) (Ndejjo *et al.*, 2015).

In Nigeria however, several studies on the practice of occupational health hazard among healthcare workers had been conducted. A study carried out in Federal Government-owned, tertiary healthcare facility (Obafemi Awolowo University teaching hospital), at Ile Ife, Osun state, Nigeria, evaluated the knowledge, attitudes and perceptions of occupational hazards and safety practices in Nigerian healthcare workers, showed that on composite knowledge index, 167 respondents (57.6%) had high knowledge while 123 (42.4%)

respondents had low knowledge on occupational hazards and safety in the workplace. Furthermore, most (58%, 253) respondents acquired knowledge on occupational hazards through professional training while only 6% respondents acquired it through pre-employment orientation on work ethics. Surprisingly, only 52.1% “always” complied with preventive safety precautions advised in the standard operating procedures (SOPs) and job aids. However, the reasons given by defaulting 47.9% that do not ‘always’ comply with SOPs were lack of, or inadequacy of safety kits/equipment (41.0%), time compliance (5.9%) and associated discomfort (1.0%). Also, most of the health workers (93.8%) practice safe disposal of sharps (Aluko *et al.*, 2016).

In Enugu Metropolis, South-East Nigeria, the proportion of HCWs that have had exposure of their mucous membranes to blood/body fluids in the past 6 and 12 months were 17.5% and 27.0% respectively while the mean number of exposures were 2.94 ± 2.388 and 3.19 ± 2.875 respectively. A similar proportion had needle stick and sharps injury in the past 6 (16.5%) and 12 (22.0%) months while the mean number of injuries were 2.73 ± 1.875 and 2.98 ± 2.074 respectively (Nwoga H *et al.*, 2020). A separate study conducted in among medical waste handlers in Ahmadu Bello University Teaching Hospital Zaria Northwest Nigeria showed that the most common injuries were falling on a slippery floor (48.1%), contact/irritant dermatitis (40.5%), and 34.2% from stress. Only 45.6% received treatment following injury at the work place. Most respondents (75.9%) were aware of safety devices, and more than half (51.9%) received their information from special safety training. More than half of the respondents (51.1%) had poor knowledge of use of safety devices, and 60% had special training in occupational safety. Most respondents (89.9%) used heavy-duty rubber hand gloves, but only 5.1% used aprons (Onoja-Alexander *et al.*, 2020).

From the foregoing and based on the authors knowledge, there is little or no research conducted on the knowledge and practice of occupational health hazard among healthcare workers in Kogi State, Nigeria. Hence, the need for this study to fill the gap in literature.

2.0 RESEARCH METHODOLOGY

2.1 Study Design

The study was a cross sectional descriptive study.

2.2 Study Population

All medical staff members at Kogi State Specialist Hospital were included in the study's population. The study was conducted among healthcare professionals, including physicians, nurses, laboratory scientists, and hospital attendants, who frequently come into direct contact with patients' blood or bodily fluids and are also exposed to other non-biological health risks, at the Kogi State Specialist Hospital in Lokoja, Kogi state.

2.3 Sample Size Determination

The sample size was determined by taking into account the standard normal deviation set at 95% confidence level, which is 1.96, and a confidence interval of 0.05, or 5% confidence interval. This yielded the minimum sample size necessary for accuracy in estimating proportions. Therefore, the sample size of 347 will be drawn from the study population using the Yamane (1973) technique. Equation 1 displays the formula obtained by Yamane (1973);

$$\begin{aligned} \text{Therefore, } S &= \frac{347}{1 + 347 (0.05)^2} &= \frac{347}{1 + 347(0.0025)} \\ S &= \frac{347}{1 + 0.87} &= \frac{347}{1.87} \\ S &= 185.56 \approx 186 \end{aligned}$$

In order to take care of attrition due to non-response 30% was added:

$$\frac{30}{100} \times 186 = 55.8$$

Hence, $186 + 55.8 = 241.8 \approx 242$

Therefore, 242 women were recruited for the study.

2.4 Sampling Technique

A multi-stage sampling technique was used.

First, the medical staff was divided into the following categories: physicians, nurses, lab scientists, pharmacists, dentists, health assistants, and others

Secondly, proportionate distribution was carried-out among the healthcare workers. The total number of the health care workers in the hospital was 347 (67 doctors, 126 nurses, 32 laboratory staffs, and 122 hospital attendants) as shown below;

$$\begin{aligned} \text{Doctors: } & \frac{67 \times 242}{347} = 47 \\ \text{Nurses: } & \frac{126 \times 242}{347} = 88 \\ \text{Laboratory staffs: } & \frac{32 \times 242}{347} = 22 \\ \text{Hospital attendants: } & \frac{122 \times 242}{347} = 85 \end{aligned}$$

Thirdly, simple random sampling technique was implored to select eligibility and consenting respondents until the required number allotted to each cadre of health care professionals was achieved.

2.5 Study Instruments

A self-administered, structured, closed-ended questionnaire served as the data collection instrument. The information that the tool seeks for are biographical information, knowledge of occupational hazards, and experience with occupational hazards. The data tool was pre-tested on some health workers at Federal Medical Centre Lokoja, to determine the average time for a question to be completed under the guide of the research assistance.

$$S = \frac{N}{1 + N (e^2)} \dots\dots\dots (1)$$

Where:

S = Sample size

N = population of study

e = error margin

2.6 Data Collection Methods

The respondents were given a briefing on the aims of the study. Data was collected by two health workers (doctors) with research experience. Before data collection, one day training was done to teach them how to administer the tool on various occupational health hazards to enable them guide the respondents. The researcher personally supervised the distribution and retrieval of the data collection tool.

2.7 Data Analysis and Presentation

After obtaining the data from the respondents, the data's were cleaned manually and coded into the software (IBM SPSS software program v23). For all categorical variables, descriptive statistics was used to present data using frequency distribution tables, charts, and graphs. Chi-square test was applied to evaluate relationship between categorical variables, and multivariate analysis was done using multinomial logistic regression to determine the predictors that influences practice of occupational hazard. Statistical significance was set as p-value < 0.05

2.7.1 Knowledge and Practice Assessment

To assess knowledge and practice of occupational hazard, respondents were scored one mark each for correct responses while each wrong answer was not given any marks. The overall respondent's level of knowledge and practice of occupational hazard was scored on a scale of 0 to 100 percent, respondents with a score of $\geq 50\%$ is said to have excellent knowledge and practice, while respondents with score < 50% is said to have poor/inadequate knowledge and practice of occupational hazard.

2.8 Ethical Consideration

A written approval was obtained from the Ethical Committee of the Kogi State Specialist Hospital Lokoja, Kogi State. Consent was obtained, and confidentiality guaranteed to all the respondents as no names was indicated, with assurance that the survey was only for academic purposes.

3.0 RESULTS

In order to conduct this study, a total of 242 questionnaires were distributed, and a total of 232 questionnaires were retrieved, translating to a 95.9% response rate.

3.1 Socio-demography Characteristics and Awareness of Occupational Hazard

The results of the respondents' socio-demographic characteristics, such as those listed in Table 1, are shown in this section of the study

Table 1: Socio-demographic characteristics of the respondents

Demographics	Options	Frequency	Percentage
Gender	Male	75	32.3%
	Female	157	67.7%
	Total	232	100.0%
Age	20 - 29	22	9.5%
	30 - 39	94	40.5%
	40 - 49	72	31.0%
	50 and above	44	19.0%
	Total	232	100.0%
Marital status	Single	15	6.5%
	Married	200	86.2%
	Separated	7	3.0%
	Widowed	10	4.3%
	Total	232	100.0%
Religion	Islam	58	25.0%
	Christianity	174	75.0%
	Total	232	100.0%
Job cadre	Attendant	76	32.8%
	Nurse	94	40.5%
	Laboratory staff	20	8.6%
	Doctor	42	18.1%
	Total	232	100.0%

Based on Table 1 results, majority of survey participants are female 157 (67.7%), between the ages of 30 and 39 (40.4%), are married (86.2%), practices Christianity (75.0%), and work as nurses (40.5%).

3.2 Knowledge Assessment of Occupational Health Hazard

The knowledge of occupational health hazard is evaluated in this section of the study, and the results are used to group the respondents' overall knowledge according to scores, as shown in Table 2 and Figure 1.

Table 2: Respondents Knowledge on Occupational Health Hazard

Knowledge	Options	Frequency	Percentage
Work place violence is an act of threat of physical violence, harassment.	Yes	220	94.8%
	No	12	5.2%
	Total	232	100.0%
Work place violence only covers verbal abuse involving client, works, customers and visitors	Yes	46	19.8%
	No	186	80.2%
	Total	232	100.0%
Work place violence involves verbal and physical violence only on workers at work place	Yes	56	24.1%
	No	176	75.9%
	Total	232	100.0%
Work place violence only covers physical abuse involving client, works, customers and visitors	Yes	48	20.7%
	No	184	79.3%
	Total	232	100.0%
Substitution, i.e. transfer of patient with high tendency of violence reduces occupation hazard	Yes	148	63.8%
	No	84	36.2%
	Total	232	100.0%
Engineering control, i.e. building structures prevent occupation hazard	Yes	157	67.7%
	No	75	32.3%
	Total	232	100.0%
	Yes	180	77.6%

Knowledge	Options	Frequency	Percentage
Use of emergency communication for rescue intervention reduces occupation hazard	No	52	22.4%
	Total	232	100.0%
Policy formation and implementation against work place violence reduced occupation hazard	Yes	199	85.8%
	No	33	14.2%
	Total	232	100.0%

The result from Table 2 showed that 220(94.8%) majority of the respondents had good knowledge on workplace violence as any act of threat of physical violence, harassment, transfer of patient with high tendency of violence reduces hazard 148 (63.8%), building structures prevent occupation hazard 157 (67.7%), use of emergency communication reduces

hazard 180 (77.6%), and available policy and implementation reduces occupation hazard 199 (85.8%), whereas they had poor knowledge on the remaining occupational health hazard research questions. However, the overall knowledge of the health workers on occupational health hazard is shown in Figure 1.

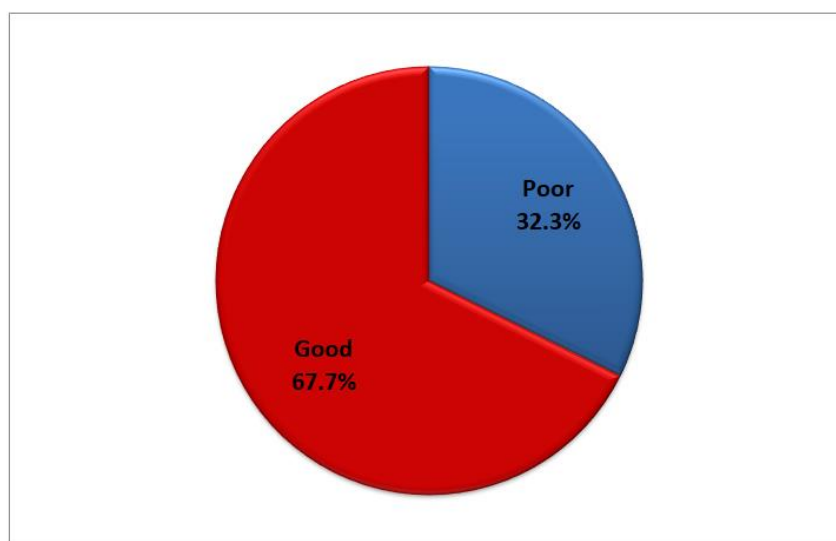


Figure 1: Knowledge Score on Occupational Health Hazard

The result from Figure 1 showed that more than half 67.7% majority of the healthcare workers had good knowledge on occupational health hazard, whereas 32.3% of them had poor knowledge on occupational health hazard. The findings from this study is in agreement with studies done by Setiyadi *et al.*, (2022); Erah *et al.*, (2020); Wahab *et al.*, (2016); where majority

of the healthcare workers had good knowledge towards preventing occupation health hazard.

3.3 Practice of Occupational Health Hazard Prevention

The occupational health hazard prevention practices of the healthcare workers were ascertained and are presented in Table 3 and Figure 2 showed the overall practice score.

Table 3: Occupational Health Hazards Practice

Practice	Options	Frequency	Percentage
Wearing of goggles reduces occupational hazard	Yes	158	68.1%
	No	74	31.9%
Use of mouth piece, resuscitating bag and other ventilation	Yes	135	58.2%
	No	97	41.8%
Use of emergency communication devices for rescue/intervention	Yes	144	62.1%
	No	88	37.9%
Use of appropriate PPE at work reduces occupational hazard	Yes	152	65.5%
	No	80	34.5%
Routine cleaning and disinfecting environmental surfaces	Yes	216	93.1%
	No	16	6.9%
Disinfecting reusable equipment's in between patients	Yes	212	91.4%
	No	20	8.6%
Prioritizing single-patient room if patient is at increased risk	Yes	208	89.7%

Practice	Options	Frequency	Percentage
Transferring of patient with violence tendencies	No	24	10.3%
	Yes	164	70.7%
Disposing of materials used in the ward/theatre	No	68	29.3%
	Yes	172	74.1%
Recapping needles before disposal	No	60	25.9%
	Yes	144	62.1%
Disposing of solid wastes into safety box	No	88	37.9%
	Yes	215	92.7%
Disposal of soaked cotton wool in a safe place	No	17	7.3%
	Yes	220	94.8%
Disposal of "single use only" equipment's	No	12	5.2%
	Yes	217	93.5%
	No	15	6.5%

The result from Table 3 showed that majority of the healthcare workers wear goggles (68.1%), mouthpiece (58.2%), use emergency communication (62.1%), use of PPE (65.5%), routine clean surfaces (93.1%), disinfect reusable equipment's (91.4%), prioritize single-patient room (89.7%), transferring

patients with violence (70.7%), disposing of materials (74.1%), recapping of needles (62.1%), dispose solid wastes (92.7%), disposal of soaked cotton wool (94.8%), and dispose of single use only equipment's (93.5%). However, the overall practice of the health workers on occupational health hazard is shown in Figure 2.

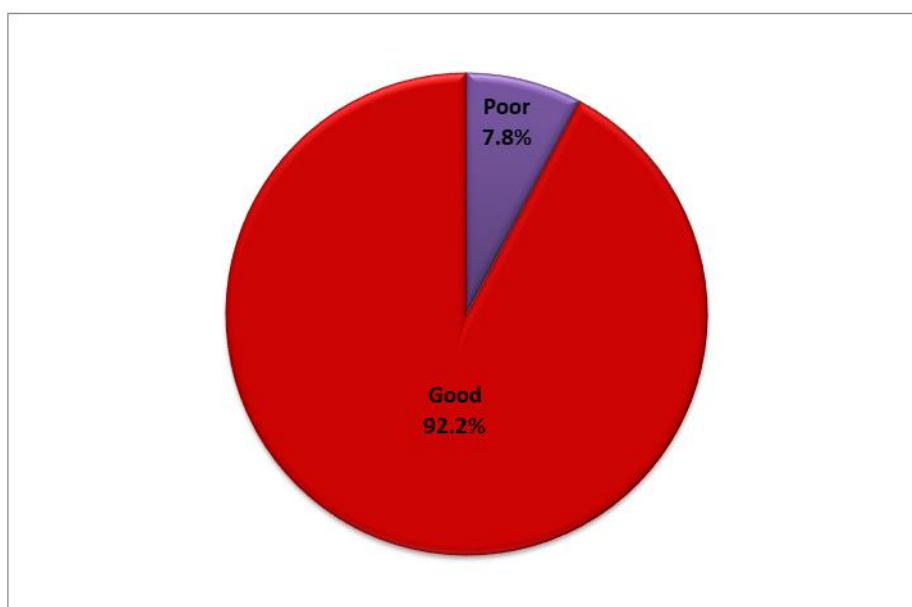


Figure 2: Practice Score on Occupational Health Hazard

The result from Figure 2 showed that more two-third 92.2% majority of the healthcare workers had good practice towards occupational health hazard, whereas 7.8% of them had poor practice. This findings is in agreement with studies done Maigoro *et al.*, (2022); Rehman *et al.*, (2018) where majority of the healthcare workers practiced good occupational safety hazard at their various work places.

3.4 Associating Factors of Occupational Health Hazard

This section of the study determined the socio-demographics, and knowledge factors that had significant association with practice of occupational health hazard among healthcare workers of Kogi State Specialist Hospital, Lokoja Kogi State.

Table 4: Association between Socio-demographics, Knowledge, and Practice of Occupational Hazard

Practice	Options	Poor	Good	Chi-square	Sig. Value
Demographics	Gender				
	Male	2	73	4.015	0.045*
	Female	16	141		

Practice					
Demographics	Options	Poor	Good	Chi-square	Sig. Value
Age	20 - 29	2	20	5.685	0.128
	30 - 39	6	88		
	40 - 49	3	69		
	50 and above	7	37		
Marital status	Single	2	13	3.495	0.321
	Married	14	186		
	Separated	0	7		
	Widowed	2	8		
Religion	Islam	5	53	0.080	0.777
	Christianity	13	161		
Job cadre	Attendant	10	66	5.582	0.134
	Nurse	5	89		
	Laboratory staff	0	20		
	Doctor	3	39		
Knowledge	Poor	11	64	7.390	0.007*
	Good	7	150		

*. The Chi-square statistic is significant at the .05 level.

The result from Table 4 showed that there is a significant relationship between the healthcare workers gender, and knowledge (i.e., Sig.-values < 0.05) on practice of occupational health hazard, whereas there was no relationship between the healthcare workers age, marital status, religion, and job cadre (i.e., Sig.-values > 0.05). The outcome from the findings is in agreement with studies done in Ahmadu Bello University Teaching Hospital Zaria Northwest Nigeria by Onoja-Alexander *et*

al., (2020) where association was detected between gender and practice of occupational hazard prevention.

3.5 Factors Influencing Practice of Occupational Health Hazard

This section of the study determined the socio-demographics, and knowledge factors influencing the practice of occupational health hazard among staffs of Kogi State Specialist Hospital, Lokoja Kogi State.

Table 5: Factors that Influence Good Practice of Occupational Health Hazard

Factors	OR	Sig.	AOR	95% Confidence Interval	
				Lower Bound	Upper Bound
Gender					
Male [1]					
Female	.658	.000	1.932	1.456	2.562
Age					
20 - 29 [1]					
30 - 39	1.482	.000	4.400	2.708	7.150
40 - 49	1.238	.000	3.450	2.097	5.675
50 and above	.615	.027	1.850	1.074	3.187
Marital status					
Single [1]					
Married	2.661	.000	14.308	8.154	25.105
Separated	-.619	.187	.538	.215	1.350
Widowed	-.486	.280	.615	.255	1.485
Religion					
Islam [1]					
Christianity	1.111	.000	3.038	2.227	4.143
Job cadre					
Laboratory staff [1]					
Nurse	1.194	.000	3.300	2.001	5.442
Attendant	1.493	.000	4.450	2.740	7.228
Doctor	.668	.015	1.950	1.137	3.343
Knowledge					
Poor [1]					
Good	.852	.000	2.344	1.749	3.141

The result from Table 5 showed that female healthcare workers [AOR = 1.932; CI = 1.456 – 2.562] are highly significantly likely to practice occupational

hazard prevention compared to male healthcare workers, healthcare workers within 30 – 39 years [AOR = 1.482; CI = 2.708 – 7.150], 40 – 49 years [AOR = 3.450; CI =

2.079 – 5.675], and above 49 years [AOR = 1.850; CI = 1.074 – 3.187] are highly significantly likely to practice occupational hazard prevention compared to healthcare workers within 20 – 29 years of age. Also, only healthcare workers who are married [AOR = 14.308; CI = 8.154 – 25.105] are significantly likely to practice occupational hazard prevention compared to healthcare workers who are single, whereas Christians [AOR = 1.111; CI = 2.227 – 4.143] are significantly likely to practice occupational hazard prevention compared to Muslims. More results showed that nurses [AOR = 3.300; CI = 2.001 – 5.442], attendants [AOR = 4.450; CI = 2.740 – 7.228], and doctors [AOR = 1.950; CI = 1.137 – 3.343] are significantly likely to practice occupational hazard prevention compared to laboratory staffs. Finally from the findings, healthcare workers with good knowledge [AOR = 2.334; CI = 1.749 – 3.141] are significantly likely to practice occupational hazard prevention compared to healthcare workers with poor knowledge.

4.0 CONCLUSIONS

The study was conducted to ascertain the knowledge and practice of occupational hazard among healthcare workers of KSSH, and it was concluded that 67.7% majority of the respondents had good knowledge about occupational health hazard, whereas 92.2% majority of them also exhibited good practice towards occupational hazard prevention. However, the high rate of health workers practicing good occupational safety measures was attributed to their knowledge since there was a significant association between the healthcare workers knowledge and good practice of occupational hazard prevention. Finally from the findings of the study, female healthcare workers, those within 30 – 39 years, married healthcare workers, Christians, those who work as hospital attendants, and healthcare workers with good knowledge are significant factors that influence practice of occupational health hazard prevention among the healthcare workers of KSSH.

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