

Occupational Health and Safety Hazards Experienced by Healthcare Workers at Two Hospitals in Suyani, Bono Region, Ghana

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Abstract

INTRODUCTION Occupational safety and health (OSH) is generally the anticipation, recognition, evaluation, and control of hazards arising in or from the workplace. The study sought to assess and evaluate occupational health and safety hazards experienced among health workers in the Bono region of Ghana. **METHODOLOGY** The study was descriptive cross-sectional quantitative study. Data was from two hundred (200) health workers and was analyzed using the binary logistic regression analysis. **RESULTS** The findings from the study show that risk factors associated with biological hazards were clinical staff [OR = 2.487 (1.146 - 5.397), $p = 0.021$], poor maintenance of hospital items [OR = 0.446 (0.240 - 0.831), $p = 0.011$], assault (verbal) abuse [OR = 2.581 (1.317 - 5.059), $p = 0.006$] and extreme pressure from work [OR = 2.975 (1.519 - 5.829), $p = 0.001$]. Non-biological hazards were associated with being single [OR = 0.499 (0.263 - 0.947), $p = 0.034$], being verbally assaulted [OR = 3.581 (1.865 - 6.876), $p < 0.0001$]. **CONCLUSION** Risk factors related with biological hazards include poor maintenance of hospital items and extreme pressure from work whereas non-biological hazards were associated with being single, being verbally assaulted. Clinical healthcare providers are more vulnerable to occupational health and safety hazards. The study recommends the provision of strategic policies to promote and protect the workers' health based on the development of the epidemiological profile of health, needs to be readjusted and strengthened.

Keywords

Occupational Health and Safety, Healthcare Hazards, Biological Hazards, Non-Biological Hazards, Nurses Safety, Hospital Hazards

1. Introduction

Occupational safety and health (OSH) is generally the science of the anticipation, recognition, evaluation, and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment [1]. This domain is necessarily vast, encompassing a large number of disciplines and numerous workplace and environmental hazards. This study primarily focuses on healthcare workers in the hospital setting and various hazards at the hospital. Hospitals are places of work for healthcare workers or institutions that provide healthcare services, such as treatment, consultations, counselling, clinical, surgical, and psychiatric services for the healthy, sick and the injured [2].

Health workers are all people engaged in work whose primary intent is to improve health, including doctors, nurses, midwives, public health professionals, laboratory technicians, health technicians, medical and non-medical technicians, personal care workers, community health workers, healers and traditional medicine practitioners [3]. The term also includes health management and support workers such as cleaners, drivers, hospital administrators, district health managers and social workers, and other occupational groups in health-related activities as defined by the International Standard Classification of Occupations (ISCO-08) [3].

Recently, the scope of occupational safety and health has evolved gradually and continuously in response to social, political, technological, and economic changes. Globalisation of the world's economies and its repercussions have been perceived as the greatest force for change in the world of work, and consequently in the scope of occupational safety and health at the hospital. Although health workers are the backbone of any functioning health system, they face a range of occupational risks associated with infections, unsafe patient handling, hazardous chemicals, radiation, heat and noise, psychosocial hazards, violence and harassment, injuries, inadequate provision of safe water, sanitation and hygiene. While contributing to the enjoyment of the right to health for all, health workers should also enjoy the right to healthy and safe working conditions to maintain their health. The protection of health and safety of health workers should be part of the core business of the health sector: to protect and restore health without causing harm to patients and workers [3].

According to the report of the National Audit Office [4], in the city of Guernsey, United Kingdom, approximately 3.8% of working time was lost due to illness, and civil workers became sick for an average of 8.7 days in 2005. In Chile, health workers belong to the category that has the highest rates of disability due to illness, with 14.3 days of absence per worker per year; unlike the university workers, who present 6 days of work lost per year [5].

Studies found an average of 7.5 lost days of work per year per worker in the nursing area of a university hospital in Brazil [6].

The safety and health of health workers cannot be overemphasized as the recent pandemic COVID-19, has emphasized on the importance of emergency re-

sponse strategies, building capacity in healthcare systems and most importantly, the role of health professionals in managing this dreaded viral infection. The public health emergency has placed all functions under scrutiny and the procedures to control and mitigate risks and hazards have gathered pace. As healthcare extends into community and home environments, hazards and risks to healthcare workers increase manifold. While their sole purpose lies in improving, protecting and developing the health of the community and individuals within, they might personally experience health problems ranging from infectious diseases to radiation-related cancers, etcetera [7].

Brazil has recently begun the implementation of actions of health surveillance and promotion of major challenges for the consolidation of SIASS, since it is still a recent practice to promote health in public sector workplaces [8]. This is a prevention tool that has been implemented in Brazil with workers from federal agencies to identify risk factors associated with future illnesses. This approach in the federal public service has had an impact on the quality of preventive health, avoiding the removal of workers from their workplace for a cause classified as a possible prevention of this disease. Another aspect is the increasing number of absences that have been occurring in recent years, that is, the numbers of absenteeism due to physical and mental illnesses, a fact that occurs at increasingly younger workers' ages, which reveals the need for special attention and protector follow-up in their quality of life [5].

The Ministry of Health in Ghana is striving to identify and bring under control workplace health and safety hazards; establish effective policies that will protect vulnerable groups at risk of occupational health and safety hazards. A study conducted by the Occupational and Environmental Health Program of the Ghana Health Service (GHS) indicates that workers do not only work under conditions that are hazardous to their health, but also they are not sensitised to Occupational Health and Safety issues [9]. A study undertaken in Ghana also shows that both public and private hospitals segregate their waste into varied classifications, by first recognizing the type of waste and then segregating non-infectious from the general waste [10].

It is of great importance to deepen the study in relation to the health of the health professionals, considering the need to research, know and analyze the determining and conditioning factors of health problems related to processes and the hospital environment. In this way, it is important to analyze workers' health indicators, which are reflections of the real health conditions of the server, to guide managers in the planning and control of activities, in addition to allowing deductions regarding the effects of decisions and their results. From this perspective, this study aimed to assess and evaluate occupational health and safety hazards experienced among health workers in the Bono region of Ghana.

2. Materials and Methods

This is a cross-sectional, descriptive study with a quantitative approach, where

primary data were obtained. The study was carried out at the Sunyani Municipal and Seventh Day Adventist Hospitals both in the Sunyani Municipality, Bono Region of Ghana. Using Krejcie and Morgan formula [11], the sample size obtained was 200 participants. Multistage sampling technique was employed in this study. To be exact, purposive and simple random sampling methods were used in the selection of healthcare workers. Purposive sampling was used because the target group was those working in the hospitals and simple random sampling where each study participant within the defined criteria had an equal chance of being selected until the sample size was exhausted.

The study included nurses, administrators, laboratory technicians, pharmacists, midwives, community health nurses, nursing practitioners, doctors, orderlies, record keepers, health insurance staff and all those working in the hospitals permanently and non-permanent staff working in hospitals. Healthcare workers who were not generally interested in answering the questionnaires and those whose consent was not sought before the commencement of the study together with retired nurses, retired doctors, retired auxiliary staff or support staff at the hospital, laboratory staff, and nurses on leave and those who were off-duty during data collection were all excluded.

Data was collected using structured questionnaires with closed-ended questions. The respondents used 25 - 30 minutes to complete each questionnaire which contained pre-determined answers from which the participants selected the answers that best expressed their views with regards to occupational health and safety hazards in the hospital. The questionnaire consisted of two sections. Section A consisted of eight (8) questions on demographic characteristics such as age, gender, marital status, educational level, place of work, duration of work or years of experience, department at work, and occupation. Section B consisted of twenty-nine (29) questions on knowledge of occupational health and safety hazards, the person responsible for the ultimate responsibility of occupational health and safety hazards, the rights, responsibilities of employers and employees in occupational health and safety, the description of maintenance culture, the benefits of occupational health and safety to the hospital. The questionnaire also captured questions on the health hazards encountered by the health workers while at their workplace.

Data was entered into Microsoft Excel 2010 and exported to Scientific Package for Social Sciences (SPSS) version 22.0 for analysis. Data was presented as frequency, percentages, and graphs. Mean and standard deviation was used to describe the data. Categorical variables were compared using chi-square. Univariate and multivariate logistic regression analysis was used to assess the risk factors associated with exposure to biological and non-biological hazards among health workers in the Metropolis and p -value < 0.05 was considered statistically significant.

3. Results

Socio-demographic Characteristics

The socio-demographic characteristics of respondents stratified by occupation

are shown in **Table 1**: The table shows the stratification by clinical [169 (84.5%)] and non-clinical [31 (15.5%)] staff in the hospital. Females were the majority for both clinical [119 (70.4%)] and non-clinical staff [22 (71.0%)]. A total of 115 (68.0%) of the clinical staff and 21 (67.7%) non-clinical staff were between the ages of 20 - 29 years.

Table 1. Socio-demographic characteristics stratified by occupation.

Variable	Clinical staff (n = 169)	Non-clinical staff (n = 31)
Gender		
Male	50 (29.6%)	9 (29.0%)
Female	119 (70.4%)	22 (71.0%)
Age (years)		
<20	2 (1.2%)	0 (0.0%)
20 - 24	59 (34.9%)	12 (38.7%)
25 - 29	56 (33.1%)	9 (29.0%)
30 - 34	38 (22.5%)	6 (19.4%)
35 - 39	8 (4.7%)	4 (12.9%)
40 above	6 (3.6%)	0 (0.0%)
Marital Status		
Single	77 (45.6%)	20 (64.5%)
Married	91 (53.8%)	10 (32.3%)
Divorced	1 (0.6%)	1 (3.2%)
Education Status		
Sec. Tech. Voc.	15 (8.9%)	6 (19.4%)
Tertiary	154 (91.1%)	25 (80.6%)
Department		
Administration	0 (0.0%)	8 (25.8%)
Wards	83 (49.1%)	0 (0.0%)
Laboratory	12 (7.1%)	0 (0.0%)
Pharmacy	0 (0.0%)	4 (12.9%)
Records	0 (0.0%)	20 (64.5%)
OPD	35 (20.7%)	0 (0.0%)
Antenatal Care (ANC)	38 (22.5%)	0 (0.0%)
Duration of work		
<1 year	45 (26.6%)	8 (25.8%)
2 - 4 years	64 (37.9%)	12 (38.7%)
5 - 7 years	43 (25.4%)	7 (22.6%)
8 - 10 years	8 (4.7%)	4 (12.9%)
>10 years	9 (5.3%)	0 (0.0%)

Clinical staff who were single were 77 (45.6%) while 91 (53.8%) were married and 1 (0.6%) was divorced. However, Non-clinical staff who were singles were 20 (64.5%) and 1 (0.6%) were divorced.

Majority 154 (91.1%) of the clinical staff had attained tertiary education while 15 (8.9%) attained secondary/technical/vocational education. On the other hand, 25 (80.6%) of the non-clinical staff attained tertiary education while 6 (19.4%) attained secondary/technical/vocational education.

A total of 83 (49.1%) of the clinical staff worked in the wards while the least 12 (7.1%) were in the laboratory. Furthermore, the majority 20 (64.5%) of the non-clinical staff worked in the Records while 8 (25.8%) were in Administration. On the length of working within the facility, 46 (26.6%) of the Clinical staff were less than 1 year, 64 (37.9%) between 2 - 4 years, 43 (24.0%) between 5 - 7 years, 12 (6.0%) between 8 - 10 years and 8 (4.0%) were 10 years and above. However, the majority of the Non-clinical staff had <10 years of working experience as shown in tables one and two below.

HAZARDS EXPERIENCED BY HEALTH WORKERS IN THE HOSPITAL

The hazards being experienced by the respondents stratified by occupation are shown in **Table 2**. The Clinical staff who experienced biological hazards were, 125 (74.0%) cuts and wounds, irritation from disinfectants 40 (23.7%), contagious pathogens/agents 57 (33.7%), with the least being anaesthetic gas/agents 7 (4.1%). While the non-clinical staff who also experienced biological hazards were; 16 (51.6%) cuts and wounds, 12 (38.7%) irritation and disinfectants, and the least 2 (6.5%) being chemical inhalation.

Non-biological hazards that were experienced by the Clinical staff were, slips, trips and falls 48 (28.4%), lower back pain 85 (50.3%), extreme pressure from work 75 (44.4%), assault (verbal abuse) 72 (42.0%), and sexual abuse 1 (0.6%). On the other hand, the Non-clinical staffs who experienced non-biological hazards were; slips, trips and falls 6 (19.5%), electric shock 3 (9.7%), lower back pain 14 (44.5%), extreme pressure from work 11 (35.5%), Heat 9 (29.0%), assault (verbal abuse) 10 (32.3%), and sexual abuse 1 (3.2%) as shown in **Table 3**.

FACTORS ASSOCIATED WITH BIOLOGICAL HAZARDS

The factors associated with the exposure of respondents to biological hazards are shown in **Table 3**. The table shows the odd ratio for the association between respondents' characteristics and work-related exposures. Biological hazards were associated with respondents who attained secondary/vocational/technical education [OR = 0.369 (0.150 - 0.907), $p = 0.030$], Clinical staff [OR = 2.487 (1.146 - 5.397), $p = 0.021$], poor maintenance of hospital items [OR = 0.446 (0.240 - 0.831), $p = 0.011$], assault (verbal) abuse [OR = 2.581 (1.317 - 5.059), $p = 0.006$] and extreme pressure from work [OR = 2.975 (1.519 - 5.829), $p = 0.001$].

At multivariate analysis, the independent predictors for experiencing a biological hazard were clinical staff [aOR = 2.252 (1.021 - 4.967) $p = 0.044$], poor maintenance of hospital items [aOR = 0.463 (0.247 - 0.869), $p = 0.016$], assault (verbal) abuse [aOR = 2.486 (1.260 - 4.908), $p = 0.009$] and extreme pressure from work [aOR = 2.890 (1.465 - 5.701), $p = 0.002$] as shown in **Table 3**.

Table 2. Classifications and kinds of Hazards Experienced by health workers.

Variable	Total	Clinical staff	Non-clinical	p-value
	(n = 200)	(n = 169)	staff (n = 31)	
Biological Hazards				
Cuts and wounds	141 (70.5%)	125 (74.0%)	16 (51.6%)	0.0121
Toxic fumes	22 (11.0%)	20 (11.8%)	2 (6.5%)	-
Irritation from disinfectants	52 (26.0%)	40 (23.7%)	12 (38.7%)	0.0793
Contagious pathogens/agents	57 (28.0%)	57 (33.7%)	0 (0.0%)	-
Anesthetics gas/agents	7 (3.5%)	7 (4.1%)	0 (0.0%)	-
Chemical inhalation	16 (8.0%)	14 (8.3%)	2 (6.5%)	-
Non-biological Hazards				
Slips, trips and falls	54 (27.0%)	48 (28.4%)	6 (19.4%)	0.2969
Muscle aches, strains, sprains	44 (22.0%)	37 (21.9%)	7 (22.6%)	0.9323
Chemical spill	32 (16.0%)	28 (16.6%)	4 (12.9%)	-
Noise and vibration	30 (15.0%)	24 (14.2%)	6 (19.4%)	0.4601
Electric shock	16 (8.0%)	13 (7.7%)	3 (9.7%)	-
Lower back pain	99 (49.5%)	85 (50.3%)	14 (45.2%)	0.5992
Extreme pressure from work	86 (43.0%)	75 (44.4%)	11 (35.5%)	0.3578
Heat	34 (17.0%)	25 (14.8%)	9 (29.0%)	0.0524
Assault (Verbal abuse)	81 (40.5%)	71 (42.0%)	10 (32.3%)	0.3092
Sexual abuse	2 (1.0%)	1 (0.6%)	1 (3.2%)	-
Radiation	5 (2.5%)	5 (3.0%)	0 (0.0%)	-
Burns	11 (5.5%)	9 (5.3%)	2 (6.5%)	-

Table 3. Factors associated biological hazards.

Variable	OR	95% CI	p-value	aOR	95% CI	p-value
Gender						
Male	1					
Female	0.752	0.379 - 1.492	0.414	0.754	0.376 - 1.510	0.425
Age						
30 below	1.083	0.563 - 2.080	0.812	1.083	0.558 - 2.101	0.814
>30	1					
Facility						
SDA Hospital	1					
Municipal Hosp.	1.193	0.642 - 2.219	0.576	1.580	0.801 - 3.117	0.187
Marital Status						
Married	1					
Single	0.764	0.415 - 1.405	0.387	0.840	0.450 - 1.566	0.583

Continued

Education Status						
Sec. Tech. Voc.	0.369	0.150 - 0.907	0.030*	0.418	0.167 - 1.049	0.063
Tertiary	1					
Occupation						
Clinical staff	2.487	1.146 - 5.397	0.021*	2.252	1.021 - 4.967	0.044*
Non-clinical staff	1					
Duration of work						
<5	1.416	0.756 - 2.652	0.277	1.437	0.760 - 2.717	0.265
5 above	1					
Knowledge occupational hazards						
Yes	1					
No	0.924	0.481 - 1.775	0.812	0.880	0.453 - 1.709	0.706
Safety training on 1st appointment						
Yes	1					
No	0.824	0.400 - 1.698	0.600	0.839	0.404 - 1.745	0.639
Wearing all necessary PPE						
Yes	1					
No	0.981	0.512 - 1.879	0.954	1.062	0.548 - 2.059	0.858
Hospital items of maintenance						
Good	1					
Poor	0.446	0.240 - 0.831	0.011*	0.463	0.247 - 0.869	0.016*
Assault (verbal abuse)						
No	1					
Yes	2.581	1.317 - 5.059	0.006*	2.486	1.260 - 4.908	0.009*
Extreme pressure from work						
No	1					
Yes	2.975	1.519 - 5.829	0.001*	2.890	1.465 - 5.701	0.002*
Proper disposal						
Yes	1					
No	0.511	0.248 - 1.053	0.069	0.533	0.256 - 1.108	0.092

OR-odd ratio; aOR-adjusted odd ratio; 95% Confidence Interval; p < 0.05 is significant.

FACTORS ASSOCIATED WITH EXPOSURE TO NON-BIOLOGICAL HAZARDS

The factors associated with exposure to non-biological hazards are shown in **Table 4**: The table shows the odd ratio for the association between respondent's characteristics and work-related exposures. Non-biological hazards were associated with those who were single [OR = 0.499 (0.263 - 0.947), $p = 0.034$] and those who said they were verbally assaulted [OR = 3.581 (1.865 - 6.876), $p < 0.000$].

At multivariate analysis after adjusting for the independent predictors for experiencing non-biological hazard, being single [aOR = 0.471 (0.241 - 0.920), $p = 0.028$] and those who were assaulted (verbal abuse) [aOR = 3.921 (1.974 - 7.789), $p = 0.000$] (**Table 4**).

Table 4. Factors associated with exposure to Non-Biological Hazards.

Variable	OR	95% CI	p-value	aOR	95% CI	p-value
Gender						
Male	1					
Female	0.879	0.447 - 1.730	0.709	0.932	0.460 - 1.887	0.845
Age						
30 below	0.614	0.319 - 1.182	0.144	0.645	0.326 - 1.278	0.209
>30	1					
Facility						
SDA Hospital	1					
Municipal Hospital	0.676	0.354 - 1.292	0.236	0.636	0.324 - 1.249	0.189
Marital Status						
Married	1					
Single	0.499	0.263 - 0.947	0.034*	0.471	0.241 - 0.920	0.028*
Education Status						
Sec. Tech. Voc.	0.774	0.271 - 2.213	0.633	0.754	0.254 - 2.240	0.611
Tertiary	1					
Occupation						
Clinical staff	1.733	0.671 - 4.476	0.256	1.549	0.581 - 4.131	0.382
Non-clinical staff	1					
Duration of work (years)						
<5	0.989	0.514 - 1.902	0.973	0.891	0.450 - 1.766	0.741
5 above	1					

Continued

Knowledge of occupational hazards							
Yes	1						
No	1.031	0.526 - 2.022	0.929	1.005	0.498 - 2.025	0.990	
Safety training on 1st appointment							
Yes	1						
No	1.887	0.845 - 4.211	0.121	2.159	0.936 - 4.985	0.071	
Wearing all necessary PPE							
Yes	1						
No	0.949	0.489 - 1.844	0.878	0.878	0.439 - 1.756	0.712	
Hospital items of maintenance							
Good	1						
Poor	1.065	0.570 - 1.990	0.843	0.729	0.368 - 1.445	0.365	
Assault (verbal abuse)							
No	1						
Yes	3.581	1.865 - 6.876	< 0.0001*	3.921	1.974 - 7.789	< 0.0001*	
Extreme pressure from work							
No	1						
Yes	0.977	0.520 - 1.837	0.944	0.866	0.447 - 1.678	0.671	
Proper disposal							
Yes	1						
No	1.662	0.801 - 3.446	0.172	1.738	0.814 - 3.707	0.153	

OR-odd ratio; aOR-adjusted odd ratio; 95% Confidence Interval; $p < 0.05$ is significant.

4. Discussion

In the survey, common biological and non-biological dangers experienced by health professionals were verbal abuse, cuts, wounds, infections from patients, chemical inhalation, lower back discomfort, and injuries connected to sharp objects. This is largely supported by earlier studies by Orji *et al.* [12] and Waqar *et al.* [13], which found that assault (verbal abuse) and lacerations were the most frequent biological and non-biological hazards faced by healthcare workers.

Other hazards included contagious pathogens/agents, chemical inhalation, lower back pains, and contagious pathogens/agents.

The responders said that cuts and wounds, communicable pathogens/agents, and irritation from disinfectants were the most frequent biological risks. The clinical staff or health worker's greatest level of education being a secondary, vocational, or technical school certification, inadequate hospital equipment maintenance, verbal abuse (violence), and intense job pressure are the most likely predictors for these biological risks. Being a clinical staff member, poor maintenance of hospital equipment, verbal abuse (assault), and intense work pressure were the risk variables for the high biological risks among health professionals after accounting for other confounding factors. This is in line with research by Manuel *et al.* [14] and Ndejjo *et al.* [15], who found that being a clinical staff member, experiencing excessive job pressure, and receiving verbal abuse were all risk factors for exposure to biological hazards among healthcare employees. It also suggests that hospitals should have appropriate medical waste disposal systems in place to properly get rid of the waste produced by their facilities to reduce the risk of biological dangers, such as cuts and wounds, among medical personnel. Hospital administration should take steps to ensure that all junior staff members receive the education and training necessary to perform their duties effectively. It is the responsibility of the staff to provide respectful therapeutic interaction with the clients.

The survey also found that the most frequent non-biological dangers reported by hospital staff members included lower back discomfort, trips, falls, and muscular pains, strains, and sprains. The study of Fasunloro and Owotade [16], which indicated that lower back aches were the most prevalent occupational health hazard among clinical dentists in Nigeria, greatly contributed to the finding that lower back pain was the highest non-biological hazard in this study. This is also in accordance with earlier research by Emslie [17] and Ogunbodede [18], who both claimed that the most typical occupational risks identified by health workers were musculoskeletal health issues. It is consistent with other studies' results that the neck and lower back are the two most prevalent locations for discomfort [19]. Backaches that are occupationally acquired may be brought on by fixed postures and repeated motions made when caring for patients in hospitals. Frequent lifting or transferring of dependent patients, bending, treating a large number of patients, working in the same position for an extended period, maintaining a prolonged posture while standing, performing manual therapy, and psychological stress were additional factors that contributed to the development of this occupationally acquired backache [10] [20]. This also implies that health workers especially those that are mostly in contact with the patients (nurses/midwives) should put into practice the appropriate body mechanics when caring for their clients whether through lifting, positioning or simply feeding the unconscious patient at the bedside.

The results of this study also showed that both in univariate and multivariate

analyses, verbal abuse was substantially correlated with respondents' exposure to non-biological hazards. The health worker will be physically and mentally affected by verbal abuse (attack) from a coworker, supervisor, or patient. Fortunately, this will prevent the health worker from taking the essential safeguards and exposing him or her to workplace dangers. This result is consistent with findings from other research, as those by Gerberich [21] who detailed physical and verbal abuse of nurses. His research also showed that annoyance, wrath, fear, worry, tension, and irritability were the most often reported side effects of verbal abuse (attack). According to Levin *et al.* [22], verbal attacks at work can have both immediate and long-term negative physical, psychological, emotional, and professional impacts. Workers who are physically or verbally assaulted may experience psychological depression, lose focus while carrying out their legal responsibilities, and suffer bodily harm such as cuts and wounds. Other studies such as [23] and [24] revealed that workplace violence and verbal abuse are important problems for healthcare workers in developing nations. The most common type of violence faced by healthcare workers is verbal and physical abuse as reported by Çelik *et al.* [25] who reported 91.1% of Health workers had suffered abuse either verbally or physically whilst 32.8% were abused both physically and verbally. This is similar to the study conducted by Simonowitz [26] who established that the most obvious consequences of work-related assault include; physical injury, disability, and other physical outcomes. Brewin *et al.* [27] established in a study that health workers who experience verbal abuse, and bear feelings/symptoms for a longer period, may be at risk of untoward mental health effects such as acute stress disorder or post-traumatic stress syndrome. According to Findorff-Dennis *et al.* [28] and Gnot [29] the effects of verbal abuse persisted for years after the incident and resulted in persistent pain and sadness four years later. According to Gerberich *et al.* [21] verbal abuse can result in biologically hazardous wounds, lacerations, scratches, or abrasions. Therefore, Healthcare professionals are urged to express their feelings, criticisms, and suggestions professionally without verbally or physically offending someone. This will reduce the mental pressure at the facility and promote effective critical thinking toward the alleviation and promotion of health among our clients and staff.

5. Conclusion

The results of this study indicate that more than half of the participants had encountered occupational health and safety hazards. The most frequent biological hazards reported by respondents in both hospitals were sharp-related injuries, toxic fumes, contagious pathogens/agents, cuts and wounds, and irritation from disinfectants. While the respondents were experiencing non-biological risks such as lower back discomfort, intense job pressure, attack (verbal abuse), slips, trips, falls, muscular pains, sprains, and strains, chemical spills, radiation, and sexual assault. Therefore, it is advised that hospitals have suitable medical waste disposal systems in place to properly dispose of the waste produced by their facilities to reduce the risk of biological dangers, such as cuts and wounds, among medical

personnel. Healthcare professionals (HCPs) should have access to personal protective equipment (PPE) along with written instructions on when and how to use it in hospitals. Immunizations against highly contagious illnesses that might expose healthcare personnel to occupational health and safety risks in hospitals are recommended. Hospitals should have automated load-carrying equipment available for the simple carriage and transfer of big items or equipment. As a result, there will be less physical handling of loads and lower back strain among healthcare professionals. The medical personnel should often get in-service training on OHS at the hospitals. Additionally, they must develop practical, live policies for occupational health and safety that OHS administrators can oversee.

6. Disclosure Statement

Ethical clearance for the study was obtained from Ghana Health Service Ethical Review Board (GHS/NR/18-0189) and the management of the hospital as well as the participants' informed consent was sought for the study.

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Authors Contribution

SYO was involved in the study concept and design, manuscript drafting, and revision and supervised the study. CY was involved in the study concept, design, and supervision. SA-W and RKH were involved data acquisition, and data analysis. All authors read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Alli, B.O. (2018) *Fundamental Principles of Occupational Health and Safety*. Second Edition. International Labour Organization (ILO).
- [2] Aluko, O.O., Adebayo, A.E., Adebisi, T.F., Ewegbemi, M.K., Abidoye, A.T. and Po-

- poola, B.F. (2016) Knowledge, Attitudes and Perceptions of Occupational Hazards and Safety Practices in Nigerian Healthcare Workers. *BMC Research Notes*, **9**, Article No. 71. <https://doi.org/10.1186/s13104-016-1880-2>
- [3] WHO (2022) Occupational Health: Health Workers. World Health Organization.
- [4] National Audit (2003) An Analysis on OSHA's Operations—A Case Study on the Construction Industry. NAO. <https://nao.gov.mt/en/recent-publications>
- [5] Magalhães, L.M.C.A., da Silva Costa, K.T., Gustavo, N.C., Leal, M.D. and de Andrade, F.B. (2022) A Study on Occupational Health and Safety. *BMC Public Health*, **22**, Article No. 2186. <https://pubmed.ncbi.nlm.nih.gov/36434565/>
<https://doi.org/10.1186/s12889-022-14584-w>
- [6] Silvia, P. (2022) Psychosocial Factors that Influence the Health of Workers in Contemporary Workplaces. *International Journal of Environmental Research and Public Health*, **19**, Article ID: 14016. <https://pubmed.ncbi.nlm.nih.gov/36360896/>
- [7] ASK-EHS (2015) Occupational Health and Safety. ASK-EHS. <https://www.ask-ehs.com>
- [8] MOH/GHS (2010) Occupational Health and Safety Policy and Guidelines for the Health Sector. MOH/GHS.
- [9] Aseweh, A.P. and Bouwer, A. (2008) Medical Waste Management Practices in a Southern African Hospital. *International Journal of Health Care Quality Assurance*, **21**, 356-364. <https://doi.org/10.1108/09526860810880153>
- [10] Krejcie, R.V. and Morgan, D.W. (1970) Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, **30**, 607-610. <https://doi.org/10.1177/001316447003000308>
- [11] Orji, E., Fasubaa, O., Onwudiegwu, U., Dare, F. and Ogunniyi, S. (2002) Occupational Health Hazards among Health Care Workers in an Obstetrics and Gynaecology Unit of a Nigerian Teaching Hospital. *Journal of Obstetrics and Gynaecology*, **22**, 75-78. <https://doi.org/10.1080/01443610120101781>
- [12] Waqar, S.H., Siraj, M.U., Razzaq, Z., Malik, Z.I. and Zahid, M.A. (2011) Knowledge, Attitude and Practices about Needle Stick Injuries in Healthcare Workers. *Pakistan Journal of Medical Research*, **50**, 111-114.
- [13] Manuel, M., Daphnie, L., D'cunha, S. and Suresh, S.A. (2015) A Study to Assess the Awareness Regarding Occupational Health Hazards among the Employees in the Laundry Department of a Selected Hospital. *Muller Journal of Medical Sciences and Research*, **6**, 40-44. <https://doi.org/10.4103/0975-9727.146423>
- [14] Ndejjo, R., Musinguzi, G., Yu, X., Buregyeya, E., Musoke, D., Wang, J.S., Halage, A.A., Whalen, C., Bazeyo, W. and Williams, P. (2015) Occupational Health Hazards among Healthcare Workers in Kampala, Uganda. *Journal of Environmental and Public Health*, **2015**, Article ID: 913741. <https://doi.org/10.1155/2015/913741>
- [15] Fasanloro, A. and Owotade, F.J. (2004) Occupational Hazards among Clinical Dental Staff. *The Journal of Contemporary Dental Practice*, **5**, 134-152. <https://doi.org/10.5005/jcdp-5-2-134>
- [16] Emslie, R. (1982) Occupational Hazard in Dentistry. *Dental Update*, **4**, 5-6.
- [17] Ogunbodede, E. (1996) Occupational Hazards and Safety in Dental Practice. *Nigerian Journal of Medicine*, **5**, 11-15.
- [18] Adegoke, B.O., Akodu, A.K. and Oyeyemi, A.L. (2008) Work-Related Musculoskeletal Disorders among Nigerian Physiotherapists. *BMC Musculoskeletal Disorders*, **9**, Article No. 112. <https://doi.org/10.1186/1471-2474-9-112>
- [19] Tezel, P.A. (2007) Medical Waste Management Practices in a Southern African

- Hospital. *Journal of Applied Sciences and Environmental Management*, **11**, 91-96.
- [20] Muralidhar, S., Singh P.K., Jain R., Malhotra M. and Bala M. (2010) Needle Stick Injuries among Health Care Workers in a Tertiary Care Hospital of India. *The Journal of Medical Research*, **131**, 405-410.
- [21] Gerberich, S.G., Nachreiner, N.M., Ryan, A.D., Church, T.R., McGovern, P.M., Geisser, M., Mongin, S.J., Watt, G.D., Fedra, D.M. and Sage, S.K. (2011) Violence against Educators: A Population-Based Study. *Journal of Occupational and Environmental Medicine*, **53**, 294-302. <https://doi.org/10.1097/JOM.0b013e31820c3fa1>
- [22] Levin, P.F., Hewitt, J.B. and Misner, S.T. (1998) Insights of Nurses about Assault in Hospital-Based Emergency Departments. *Journal of Nursing Scholarship*, **30**, 249-254. <https://doi.org/10.1111/j.1547-5069.1998.tb01300.x>
- [23] Khademloo, M., Moonesi, F.S. and Gholizade, H. (2013) Health Care Violence and Abuse towards Nurses in Hospitals in North of Iran. *Global Journal of Health Science*, **5**, 211-216. <https://doi.org/10.5539/gjhs.v5n4p211>
- [24] Şenuzun, E.F. and Karadakovan, A. (2005) Violence towards Nursing Staff in Emergency Departments in One Turkish City. *International Nursing Review*, **52**, 154-160. <https://doi.org/10.1111/j.1466-7657.2005.00420.x>
- [25] Çelik, S., Celik, Y., Ağırbaş, İ. and Uğurluoğlu, Ö. (2007) Verbal and Physical Abuse against Nurses in Turkey. *International Nursing Review*, **54**, 359-366. <https://doi.org/10.1111/j.1466-7657.2007.00548.x>
- [26] Simonowitz, J. (1995) Violence in Health Care: A Strategic Approach. *Nurse Practitioner Forum*, **6**, 120-129.
- [27] Brewin, C.R., Andrews, B., Rose, S. and Kirk, M. (1999) Acute Stress Disorder and Posttraumatic Stress Disorder in Victims of Violent Crime. *American Journal of Psychiatry*, **156**, 360-366. <https://doi.org/10.1176/ajp.156.3.360>
- [28] Findorff-Dennis, M.J., MCGovern, P.M., Bull, M. and Hung, J. (1999) Work Related Assaults: The Impact on Victims. *AAOHN Journal*, **47**, 456-465. <https://doi.org/10.1177/216507999904701002>
- [29] Gnot, M. (2011) Occupational Health and Safety Risks in the Healthcare Sector. European Commission. <https://www.ilo.org/dyn/travail/travmain.home>