**Occupational Hazards and Injuries among Health Workers in the Ahafo Ano North Municipal Hospital, Tepa, Ghana**

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**ABSTRACT**

**Background:** An occupational hazard and injury is described as any personal injury or hazards, disease or death that results from an occupational accident. Globally, occupational hazard has been identified as the leading cause of industrial ailment accounting for over 11% of disability. Failure to address operational injuries result to apathy, fatigue and disincentive to workers which inhibit the zeal to work.

**Methods:** The study was conducted to assess the occupational hazards and injuries among health workers in the Ahafo Ano Municipal, Tepa. A cross sectional and health facility-based study was conducted to realise the objectives of the study. Health workers were selected at the facility level using convenient sampling technique. The study approach was quantitative, and questionnaire was used to collect data among the health workers. Data collected was analysed using SPSS package version 21.0. It involved a descriptive analysis where data was presented in a form of tables and charts.

**Results and Findings:** The findings revealed that, health workers were not diagnosed of infections. However, physical injuries (75.7%) such as fall, burns and lifting of patient were major occupational hazards and injuries health workers suffered. Majority of health workers (78.9%) had no PPE to use in their facility and hindered their work output. Few PPE available were cover/cap (26.5%) and mask (30.5%). However, only 38.6% of the health workers have had training on its usage. The majority of health workers 235 (90.7%) had never reported any occupational hazards and injuries to the health facilities.

**Conclusions:** Occupational health hazards are common among health workers and were not adequately reported. Training of health workers on measures to mitigate these hazards and injuries may also enhance the reporting behavior and its management when it occurs.

**Key words;** Occupational Hazards and Injuries among Health Workers in the Ahafo Ano North Municipal Hospital, Tepa, Ghana

# **1.1 Background of the Study**

An Occupational hazard and injury is recounted as any injury or hazards, disease or death that spring from an occupational accident (1). Globally, occupational hazard has been identified as the leading cause of industrial indisposition accounting for over 11% of disability (2). Health care is a non-traditional employment setting, envisaged by the general public to be pristine and secure. However, hazard consciousness is frequently lacking. Furthermore, given the distinctive task of caring for the sick, self-protection practice, which normally succour in protecting workers, are suspended in a culture of selfless commitment to patient care (3). The world of work has changed dramatically. Proliferation has affected the structure of workplaces, the way work is performed, and occupational safety and health (OSH). Despite enormous strength in improving OHS over the past century, an estimated 317 million non-fatal occupational injuries and 321,000 occupational fatalities occur globally each year, that is 151 workers sustain a work-related accident every 15 seconds {Citation}(ILO 2013). Poor workplace is a substantial economic burden on individuals, employers, and society. Estimates from the International Social Security Association (ISSA) suggest that costs associated with nonfatal workplace accidents alone equal approximately 4 percent of world gross domestic product (GDP) each year (4).

Findings from the International Labour Organisation (ILO) revealed that work-related injuries and accidents that account for economic losses are as high as 4% of the global GDP (ILO, 2013). Sharps and needle stick injuries are occupational hazards to healthcare workers. Healthcare workers are exposed to deadly blood borne pathogens through contaminated needles and other sharp objects (5). In most African and Asian countries, health workers are leaving their jobs due to the growing threat of injuries and illness related to occupationally acquired disease or illness (Mohammad, 2014). Significant improvement has been achieved in occupational health and safety (OSH) as several countries have identified its relevance and the need to give optimum premium to preventing accidents and ill-health. However, the correlation between OHS and workplace accidents and injuries show that existing OHS are ineffective at the healthcare environment (6). A study on assessment of safety practices and injuries associated with wood processing found that occupational injuries and illnesses such as headache, back pain, leg and hip pain and respiratory problems are, repeatedly reported by workers (Amponsah et al. 2013). Therefore, managers need to put in measures to enforce practice of safety, especially the use of personal protective equipment (PPE), to reduce hazards and injuries associated with wood processing (7). Similarly, other authors have high lifted open wounds and fractures as the commonest and least injuries recorded by building construction workers in Ghana(Amissah et al, 2019). Failure to address operational injuries result to apathy, fatigue and disincentive to workers which inhibit the zeal to work. (8).

Clearly, failure to address health threats in the work environment may pose a barrier to retaining and sustaining caregiver ranks, which in turn threaten the delivery of health care. In identifying these gaps, this study seeks to assess the occupational hazards and injuries among health workers in the Ahafo Ano Municipal, Tepa.

# **1.2 Problem Statement**

Healthcare workers are frequently exposed to occupational hazards and are at risk of injuries, given they are constantly in contact with patients (9). These exposures do not only affect the quality of care delivered by healthcare workers but also their safety and well-being. Unsafe and injurious working environment affect service delivery quality and productivity and retention of health workers (10).

Ghastly, stressing the vulnerability of health staff exposure to occupational injuries, 96% of blood borne infections chanced in low- income countries. Skillfully, Healthcare Professionals take care of sick people through diverse curative and preventive services. However, while they engrossed on providing healthcare, they are exposed to hazards that could affect their health and wellbeing. This is the situation in developing countries where health services are implored with the minimum protective precautions against being exposed to various occupational injuries and hazards (11). In addition, substandard attitude toward safety of health workers and miniature mastery on occupational injuries and hazards among health workers significantly contribute to their vulnerabilities (5).

Little is mentioned about occupational health hazards and injuries confronting healthcare practitioners and other health facility workers in Ghana. The Ahafo Ano North health facilities especially Tepa Government Hospital, the busiest health facility in the Municipality, and serving as the main referral health centre do not report any occupational injuries and hazards affecting them in their discharge of duties. This study sought to assess the occupational hazards and injuries among health workers in the Ahafo Ano North Municipal, Tepa (Ahafo Ano North, 2020).

# **1.3 General Objective**

To assess the occupational hazards and injuries among health workers in the Ahafo Ano Municipal, Tepa.

# **1.3.1 Specific Objective of the Study**

Therefore, the specific objectives of the study were to:

1. Assess the nature of occupational hazards and injuries health care workers suffer during healthcare delivery in the Ahafo Ano North Municipal, Tepa.
2. Identify the possible reasons of occupational hazards and injuries among health care workers in the Ahafo Ano North Municipal, Tepa.
3. Assess whether health workers report occupational hazards and injuries they encounter at the work place in the Ahafo Ano North Municipal, Tepa.

# **1.4 Research Questions**

The following set of questions directed the researcher in this study:

1. What are the nature of occupational hazards and injuries health care workers suffer during healthcare delivery in the Ahafo Ano North Municipal, Tepa?
2. What are the possible reasons of occupational hazards and injuries among health care workers in the Ahafo Ano North Municipal, Tepa?
3. What are the occupational hazards and injuries that healthcare workers report at the work place in the Ahafo Ano North Municipal, Tepa?

# **1.5. Justification of the study**

Assessing the occupational hazards and injuries among health workers has the ability to create awareness in occupational health hazards and injuries and superintend and set standards to promote safety and health in the various healthcare settings (12).

Adequate knowledge on occupational hazards and injuries coupled with approving demeanor and consciousness among healthcare workers is profoundly essential for preventing the hap of various classifications of occupational injuries and diseases. However, data on hazards and injuries faced by healthcare workers during the discharge of duties is scanty especially in less developed countries where the load of occupational injuries and diseases continue to wax (Agbana et al., 2016).

This study was expected to help provide data on hazards and injuries syndicated with the healthcare environment and ways to reduce the happenings of these hazards by using equipment to safeguard employees at the health facilities.

The arbitrament of this study may boon policy makers such as the Ministry of Health, Ghana Health Service and other healthcare related organizations to fashion out the must-have policies to help improve the safety and health of healthcare workers in the country.

# **1.6. Conceptual Framework**

Figure 1 illustrates the relationship between the nature of occupational hazards and injuries, causes of occupational health and the types of occupational health hazards that healthcare workers are likely to report at the health care environment. The framework was adapted from (Adamu & Abdullahi, 2017) a study on conventional occupational health hazards associated with healthcare workers in tertiary institutions, revealed healthcare workers encounter with injuries and hazards such as back pain, latex allergy, violence, stress and many others, which inversely affect their work and health. The causes of these hazards and injuries may include non-availability of personal protective equipment/wears, accidental causes, inadequate training on safety measures and ignorance on safety measures of staff. However, there is non-reporting or minimal data on injuries and hazards that occur at the health care environment.

Health care workers may be extremely careful in their line of duties when they know the health hazards and injuries bonded to whatever procedure they are undertaking. The eventual goal of knowing the causes of occupational health hazards and injuries and reporting is to spawn a healthy working ambient for all categories of workers in the healthcare facility.

**Hazards Suffered by Health Workers**

-Biological (eg. Blood transmitted disease)

-Chemical (eg. Formalin)

-Physical (eg. Wet floors, Violence)

**Safety Practices**

-Uses of PPE

-Training

**OCCUPATIONAL HAZARDS AND INJURIES AMONG HEALTH WORKERS**

**Demographic Characteristics**

-Age

-Sex

-Level of Education

-Job category

-Marital Status

-Religion

**Possible reasons of Occupational Health Hazards**

-Non-availability of personal protective wears

-Inadequate training on safety measures

**Reporting of Occupational Health Hazard**

-Channels of reporting (eg. OHSU, OPD, etc)

**Figure 1: Occupational hazards and injuries among Health Workers** **Framework**

Source: Nsiah, 2021.

# **2.0 METHODOLOGY**

# **2.1 Introduction**

The purpose of this study was to assess the occupational hazards and injuries among health workers in the Ahafo Ano North Municipality, Tepa. This chapter focused on the study area, study design and type, study populations, sampling technique and sample size, data collection tool, data collection technique, data analysis, pre testing, limitation of the study, pre-test and ethical consideration.

# **Background of the Study Area**

The study was conducted in the Ahafo Ano North Municipality, Tepa which is one of the forty-two (42) administrative municipal/districts in Ashanti Region, Ghana. It is located in the northern part of Ashanti Region and shares common boundaries with Ahafo Ano South distict, Tano North, Tano South and Asutifi district. It has a total population of 119,024 according to 2010 population census with a growth rate of 2.7%, containing 4,761 children under one, 19,639 children under five years and 31,422 WIFA respectively calculated. Administratively, the Municipality is divided into five (5) Sub-municipalities, namely Tepa, Manfo, Anyinasuso, Betiako and Subriso.

# **2.3 Study Design and Type**

A descriptive cross-sectional study design was used to assess the occupational hazards and injuries among health workers in the Ahafo Ano North Municipal, Tepa. Descriptive study design is a scientific method that involves observing and describing the behaviour of a subject without influencing it in any way, (Shuttlewortg, 2008). Descriptive designs results in collection and description of data, whether in words, pictures, charts or tables (Gay,1992). The study was designed to assess the occupational hazards and injuries among health workers in the Ahafo Ano North Municipal, Tepa. The advantage of this study is that the subjects are observed in a complete natural and unchanged environment. Descriptive research is mostly used as the precursor to more quantitative research design and are the general overview giving some valuable indicators as what variables are worth testing quantitatively. In, addition, the use of descriptive design allows variables and procedures to be described as accurately and completely as possible so that other researchers can replicate the study.

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Cross sectional design as a research design was used and carried out at one time point or over a short period. It is conducted to estimate the prevalence of the outcome of interest in a given population, commonly for the purposes of public health planning. In this study, cross sectional design was used to assess the occupational hazards and injuries among health workers. Cross sectional design provided a ‘snapshot’ of the occupational hazards and injuries affecting health workers in the Ahafo Ano North Municipality, Tepa between June, 2020 to December, 2020. A cross sectional study is used when the purpose of the study is descriptive, often in the form of a survey. Inability to follow-up is a common concern in cross sectional design studies and one of the strategies used to overcome this is to increase sample size to have a better description of the population within the time frame.

**2.4 Study Population**

Polit and Hungler (1999:37) define study population as a totality of all the subjects, objects or members that conform to a set of specifications for a specific study. The study population included health workers of the Ahafo Ano North Municipal health facilities who were present at the time of the study. Health workers here consisted of nurses (Nurses, Midwives and Healthcare assistants), Doctors (Doctors and Physician assistants), Laboratory staff (Biomedical scientists and laboratory technicians), Pharmacists (Pharmacists, pharmacy technicians and dispensary technicians), Radiologists, Physiotherapists, Orderlies, Mortuary staff, Labourers and Security Officers. These categories of health workers were relevant to this study since they directly are exposed to hazards and injuries in their routine activities. The study assumed that these health workers would provide information on occupational hazards and injuries among health workers in the municipality, Tepa. Therefore, the number of health workers required to represent each cadre of health workers were calculated in table 1 below

Table 1: Proportionate Representation of Cadre of Health Workers in the Study Population

|  |  |  |  |
| --- | --- | --- | --- |
| **Health Workers** | **Health workers population** | **Proportion per population** | **Required no. of Health workers** |
| Nurse | 143 | 143/270\*259 | 137 |
| Doctors/PAs | 13 | 13/270\*259 | 12 |
| Laboratory Staff | 9 | 9/270\*259 | 9 |
| Pharmacy Staff | 17 | 17/270\*259 | 16 |
| Physiotherapy staff | 3 | 3/270\*259 | 3 |
| Orderlies | 26 | 26/270\*259 | 25 |
| Mortuary workers | 9 | 9/270\*260 | 9 |
| Labourers | 33 | 33/270\*261 | 32 |
| Security Officers | 17 | 217/270\*262 | 16 |
| Total | 270 |  | 259 |

**Source: Field Data, 2020**

Keys: Numerator – number of health workers per cadre, Denominator – total health workers, and multiplier – calculated sample size for the study

# **2.5 Sampling Technique and Sample Size**

Two sampling techniques were employed in the study namely; proportionate sampling and convenient sampling technique. Proportionate sampling is a sampling strategy (a technique for turnout participant for a study) is used when the population is made up of several subgroups that are substantially different in number. The number respective to the entire population decides the number of participants from each subgroup (13). In this study, the number of facilities for the study are ten (10). Each facility has different staff strength and therefore to achieve equal representation of all health workers in the study, the number of health workers to represent each facility were proportionately derived from the total staff strength of the facility.

Again, convenient sampling technique was used to select participants from the health workers for the study. Convenient sampling technique is a non-probability sampling technique where subjects are drawn from part of a population (health workers) because of their convenient accessibility and proximity to the researcher. Convenient sampling technique was used because the health workers were readily available in the facility. In this regard, the researcher upon reaching each facility, gave the questionnaire to any health worker within the facility who was willing and ready to participate in the study.

This process continued until the required number of study participants needed for the study from each category of health workers in that facility was achieved.

# **2.5.1 Sample Size Estimation**

The minimum sample size that was required for this study was determined using the Cochran formula as cited Cochran (1963:75). The Cochran formula was used because it aides in calculating an ideal sample size, a desired level of precision, desired confidence level and the estimated proportion of the attribute present in the population. It is considered appropriate in situations with large populations. The study area has an estimated population of 119,024 and therefore using Cochran’s formula was the ideal. An estimated 20% health staff population from the 2010 population census was used and substituted in the formula and the sample size was calculated as follows;

Where:

N-sample size

P-The proportion of the targeted population that has the characteristics of focus in the study. In the study, the particular characteristics were all health workers, which was 20% of municipal population.

p = expected proportion of health workers experiencing occupational hazards and injuries = 20% =0.2 (Ahafo Ano North Municipal, 2020).

Z = Z value corresponding to a 95% level of significance = 1.96

q- 1-p = 1-0.234 = 0.766

e- = Level of precision. This study adopted 5% level of precision (0.05)

Therefore, from the above the sample size will be calculated as N=

**n= 235**

In order to take care of non-response in recording of information of participants, the study added 10% of the total sample size to arrive at the required sample size of **259**. Therefore, the proportionate representation of health workers in facilities was calculated as follows;

Table 2: Proportionate Representation of Health Workers in Facilities

|  |  |  |
| --- | --- | --- |
| **Health facility** | **Number of staff** | **Required Sample** |
| Tepa Hospital | 170/270\*259 | 163 |
| Manfo HC | 21/270\*259 | 20 |
| Anyinasuso HC | 18/27\*259 | 17 |
| Betiako HC | 13/270\*259 | 12 |
| Twabidi HC | 12/270\*259 | 11 |
| Subriso HC | 14/270\*259 | 13 |
| Asuhyiae CHPS | 7/270\*259 | 6 |
| Akwasiase CHPS | 6/270\*259 | 5 |
| Tettehkrom CHPS | 5/270\*259 | 4 |
| Numesua CHPS | 9/270\*259 | 8 |

Source: Field Data, 2020

Keys: Numerator – number of health workers per category, Denominator- total health workers, and multiplier – calculated sample size for the study

**2.6 Data Collection Tools and Technique**

Structured questionnaire was designed and distributed to health workers to collect the data for the study. Upon reaching each facility, permission was sought from facility in charges and unit heads and health staff for this study and my interest was made known to them before data collection commenced. All COVID-19 protocols were duly observed.

The questionnaire was self-administered. The principal investigator distributed the questionnaire to all eligible health workers in the municipality who consented to and was ready to participate in the study. Health workers who needed further assistance in responding to the questionnaire were aided by the principal investigator

The health workers were given a time of 30mins within which they were required to respond to and submit the questionnaire. The principal investigator upon completion collected the questionnaire and ensured high completion rate and return of the questionnaire.

# **2.7 Data Analysis**

The data collected was analysed using quantitative data analysis method. It involved a descriptive analysis where data was presented in a form of charts, tables and percentages. The completely filled questionnaires was serially numbered and crosschecked by the principal investigator for easy identification. To ensure that data entry into the computer is accurate, the principal investigator independently crosschecked each entry. Data was coded and entered into SPSS version 21.0 for analysis.

The data was presented in charts and tables for interpretation and analysis based on descriptive analysis of the variables under study. To analyse the demographic characteristics of respondents, frequencies and percentages was used. Pie and bar chart, were used to analyse the nature of occupational hazards and injuries health care workers suffer during healthcare delivery. Frequencies and percentages was used to analyse both possible reasons of occupational hazards among health care workers and whether health workers report occupational hazards and injuries they encounter at the work place.

# **2.8 Limitation of the Study**

The study limitations that affect this study included; measure used in data collection and the sampling procedure.

* Measure used in data collection: Unwillingness by some participants to return the questionnaire and other participants not ready to fully participate in the study as expected. Some of the participants had less time to spend with the researcher during the data collection and affected the study.
* Sampling procedure: The participants were selected conveniently. This sampling technique did not constitute the true representation of the study participants and therefore affected generalization of the results.

# **2.9 Ethical Consideration**

The Ethics Review Committee of the Ghana Health Service (GHS) approved the protocol of this study. Permission was sought from the Ahafo Ano North Municipal Health Directorate with an introductory letter from the School of Health and Allied Sciences, Catholic University College of Ghana, Fiapre-Suyani, before data collection commenced. Approval was also obtained from all facility In-charges and unit heads in all the 10 facilities after proposal presentation was made at the Municipal Health Directorate. The study was done at the facilities under no risk.

Data collected was known to only the researcher and was used for academic purposes. Consent was sought before the start of the study.

Data collected was stored for five (5) under lock and key, and if it had to be used for another study, approval would be sought from the Ghana Health Service Ethics Review Committee (GHS-ERC) approval before doing so.

# **3.0**. **RESULTS AND FINDINGS**

The purpose of the study was to assess occupational hazards and injuries among health workers in the Ahafo Ano North Municipal, Tepa. This chapter presents the results of the study based on the research objectives. They were; demographic characteristic of respondents, the nature of occupational hazards and injuries health care workers suffer during healthcare delivery in the Ahafo Ano North Municipal, Tepa, identify the possible reasons of occupational hazards and injuries among health care workers in the Ahafo Ano North Municipal, Tepa, and assess whether health workers report occupational hazards and injuries they encounter at the work place in the Ahafo Ano North Municipal, Tepa.

## **3.1 Demographic Characteristics of Respondents**

The study gathered data about the demographic characteristic of the respondents and it is presented in Table 3. The sex distribution of the health workers indicated that (50.2%) males and (49.8) females. The age of the respondents showed (34.4%) were 20-29 years, (50.6%) were 30-39 years, (2.7%) were 40-49 years and (12.4%) were 50-59 years. E ducational level of health workers revealed that, (81.9%) tertiary education, (12.7%) secondary education, and (5.4%) completed JHS. On religious denomination of health workers, there were (91.1%) Christians and (8.9%) Muslims. Most health workers (54.1%) (3.1%) clinicians, (3.9%) midwives, (3.1%) laboratory technicians, (8.1%) record officers, (2.7%) physiotherapist and (25.1%) other health staffs such as labourers, security and mortuary attendants. Finally, (14.7%) were working at OPD, (10.4%) at laboratory, (6.9%) at paediatric ward, (42.1%) at medical ward, (4.6%) at surgical ward, 5(1.9%) at maternity, (3.5%) at records and (15.8%) at other departments such as mortuary, stores, security and reproductive and child health unit. On number of years health workers have worked in their department, (10.8%) had worked for 1-4years, (52.1%) had worked for 5-9 years, (23.6%) had worked for 10-14 years, (12.7%) had worked for 15-19 years and (8%) had worked for more than 20 years.

Table 3: Demographic Characteristics of Respondents

|  |  |  |
| --- | --- | --- |
| **Variable** | **Frequencies** | **Percentage (%)** |
| **Gender** |  |  |
| Males | 130 | 50.2 |
| Females | 129 | 48.9 |
| **Age** |  |  |
| 20-29 years | 89 | 34.4 |
| 30-39 years | 139 | 50.6 |
| 40-49 years | 7 | 2.7 |
| 50-59 years | 32 | 12.4 |
| **Educational Level** |  |  |
| Tertiary | 212 | 81.9 |
| Secondary | 33 | 12.7 |
| JHS/MSLC | 14 | 5.5 |
| **Religious Denomination** | | |
| Christian | 236 | 91.1 |
| Muslim | 23 | 8.9 |
| **Profession** |  |  |
| Nurse | 140 | 54.1 |
| Clinician | 8 | 3.1 |
| Midwife | 10 | 3.9 |
| Lab Tech | 8 | 3.1 |
| Records | 21 | 8.1 |
| Physiotherapy | 7 | 2.7 |
| Others | 65 | 25.1 |
|  |  |  |
| **Department** |  |  |
| OPD | 38 | 14.7 |
| Laboratory | 27 | 10.4 |
| Paediatric | 18 | 6.9 |
| Medical | 109 | 42.1 |
| Surgical | 12 | 4.6 |
| Maternity | 5 | 1.9 |
| Records | 9 | 3.5 |
| Others | 41 | 15.8 |
|  | | |
| **No. of years worked in the facility** | | |
| 1-5years | 28 | 10.9 |
| 5-10years | 135 | 52.1 |
| 10-15years | 61 | 23.5 |
| 15-20years | 33 | 12.7 |
| More than 20 years | 2 | 0.8 |
| **Total** | **259** | **100.0%** |

Source: Field data, 2021

## 4.2 Nature of Occupational hazards and injuries health care workers suffer during healthcare delivery

The purpose of this analysis was to assess the nature of occupational hazards and injuries health care workers suffer during healthcare delivery using pie charts, frequencies and percentages. Hazards such biological, chemical and physical were assessed and the results were presented as follows.

Source: Field data, 2021

Figure 2: Health Workers ever Diagnosed of Infection at the Facility

Figure 2 showed that, respondents 25 (9.6%) have ever been diagnosed of an infection at the facility before, while 234 (90.4%) said they have never been diagnosed of any infection in the facility

Source: Field data, 2021

Figure 3: Type of Infection

On the type of infections health workers were diagnosed with in the health facility, figure 3 showed that 2 (8%) said Tuberculosis, 7 (28%) said skin rashes, 2 (8%) said hepatitis and 14 (56%) said other infections such as diarrhea, malaria and common cold.

Source: Field data, 2021

Figure 4: Infection Acquired through Routine Duties at the Workplace

Whether the infections were acquired through routine duties at the workplace, figure 4 showed that 4 (16%) said yes and 21 (84%) said no.

Source: Field data, 2021

Figure 5: Healthcare Workers’ Management of Infection

On management of infections acquired by healthcare workers, figure 5 illustrated that 19 (75.7%) said they self-medicated and 6 (24.3%) said sought medical attention.

Source: Field data, 2021

Figure 6: Health Workers ever Injured at the Health Facility

On health workers who have ever injured at the health facility, figure 6 indicated that 196 (75.7%) said yes whiles 63 (24.3%) said no.

Source: Field data, 2021

Figure 7: Type of Injury

On type of injuries health workers are embattled at the healthcare environment, figure 7 showed that, 15 (5.8%) was needle prick, 33 (12.7%) was back pain, 50 (19. 3%) was leg injury and 104 (40.2 %) was other injuries such as fall, burns, lifting of patient and cut through weeding.

Figure 8: Attended any Workshop/training on Occupational Health and Safety

Figure 8 revealed that 70 (26.9%) of health workers said they had attended a workshop on occupational health and safety while 189 (73.1%) said they have never attended any workshop on occupational health and safety.

Figure 9: Recommendation for Management to organize more Training on Occupational Health and Safety

Figure 9 revealed that most health workers 239 (92.3%) recommended management should organize more training on occupational health and safety practices, 9 (3.9%) said no and 11 (4.2%) said they do not know whether management should organize training on occupational health and safety or not.

## **3.3. Possible Reasons of Occupational Hazards and injuries among Health Care Workers**

The aim of this analysis was to identify the possible reasons of occupational hazards and injuries among health care workers in the Ahafo Ano North Municipal, Tepa using frequency and percentage calculations. Majority (78.8%) of the health workers had no PPE to use in the facility. The most prevalent PPE available for use was the hand gloves (41.9%), followed by the face mask (30.5%) and then the head cap (26.6%)

Again, health workers (57.1%) use PPE all the time, (16.6%) do not use and (26.3%) sometimes use it. In addition, health workers responses to the PPE they use at work, (26.6%) use head cover, (41.7%) use glove, (41.7%) use facemask and (1.2%) was non-response. Furthermore, health workers (38.6%) have had adequate training on the use of PPE, (61.4%) said no.

Table 4: Possible Reasons of Occupational Hazards and injuries among Health Care Workers

|  |  |  |
| --- | --- | --- |
| **Variable** | **Frequencies** | **Percentage (%)** |
| **Do you have PPE to use in your facility** | | |
| Yes | 204 | 78.8 |
| No | 47 | 18.1 |
| Don’t know | 8 | 3.1 |
| **Which PPE are available for use** | | |
| Head cover/cap | 69 | 26.6 |
| Gloves | 108 | 41.7 |
| Face mask | 79 | 2.7 |
| Missing system | 3 | 1.2 |
| **Do you use PPE when working all the time** | | |
| Yes | 148 | 57.1 |
| No | 43 | 16.6 |
| Sometimes | 68 | 26.3 |
| **Which of the PPE do you use at work** | | |
| Head cover | 69 | 26.6 |
| Gloves | 108 | 41.7 |
| Face mask | 79 | 30.5 |
| Missing system | 3 | 1.2 |
| **Have you had adequate training on the use of these PPE** | | |
| Yes | 100 | 38.6 |
| No | 159 | 61.4 |
| **Total** | **259** | **100.0%** |

**Source: Field data, 2021**

## **3.4 Occupational Hazards and Injuries Health Workers Report**

This analysis focused onassessing whether health workers report occupational hazards and injuries they encounter at the work place in the Ahafo Ano North Municipality, Tepa. Frequency and percentage calculations were used. The results were analyzed in table 4 as follows; health workers (22%) said there is a department/unit in the facility earmarked to handle OHI in the facility, (54.4%) said there is no department/unit in the facility earmarked to handle OHI. However, (23.6%) said they are not sure such department for OHI exist. Health workers (94.7%) said the department /unit is the emergency, (5.3%) said is the OPD. However, no one said there is special department/unit for OHI. Health workers (1.5%) had ever reported an OHI in their facility, (16.2%) said no and (82.2%) there is no need reporting any OHI to the facility. Again, health workers (1.2%) mentioned their facility have a protocol to follow when encountered with OHI, (11.2%) said no such protocol exist. However, (87.6%) said they do not know. Finally, (98.4%) had never reported any OHI, (0.4%) had reported a case of needle prick, and (1.2%) had reported other cases such as diarrhea, headache and backache respectively to the unit.

Table 5: Occupational Hazards and Injuries Health Workers Report

|  |  |  |
| --- | --- | --- |
| **Variable** | **Frequencies** | **Percentage (%)** |
| **Department/unit in the facility earmarked to handle OHI** | | |
| Yes | 57 | 22.0 |
| No | 141 | 54.4 |
| Not sure | 61 | 23.6 |
| **If yes, which department** | | |
| Emergency | 54 | 94.7 |
| OPD | 3 | 5.3 |
| Special unit for OHI | 0 | 0 |
| **Have you ever reported any OHI** | | |
| Yes | 4 | 1.5 |
| No | 42 | 16.2 |
| No need | 213 | 82.2 |
| **Facility has a protocol to follow when encountered with OHI** | | |
| Yes | 3 | 1.2 |
| No | 29 | 11.2 |
| Do not know | 227 | 87.6 |
| **OHI health workers have ever reported** | | |
| None | 255 | 98.4 |
| Needle prick | 1 | 0.4 |
| Others | 3 | 1.2 |
| **Total** | **259** | **100.0%** |

Source: Field data, 2021.

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**4.0 DISCUSSION**

This chapter discussed the results of this study based on the research objectives. They were the nature of occupational hazards and injuries health care workers suffer during healthcare delivery in the Ahafo Ano North Municipal, the possible reasons of occupational hazards and injuries among health care workers in the Ahafo Ano North Municipal, and whether health workers report occupational hazards and injuries they encounter at the work place in the Ahafo Ano North Municipal, Tepa.

# **4.1 Nature of Occupational Hazards and Injuries Health Care Workers suffer during Healthcare Delivery**

The finding of this study revealed that 234 (79.9%) of health workers had never been diagnosed of an infection at the facility. However, few 25 (20.1%) of the health workers had been diagnosed of an infection in the facility. This study finding is not in agreement with a study conducted by Russi, (2017) which found that health care workers are mostly diagnosed with blood borne pathogens and other related infections. HIV/AIDS, hepatitis B virus, tuberculosis specimen and other infectious diseases that can be acquired in the workplace during their processes and preparations are toll on the healthcare worker and the healthcare environment. Similarly, (14) dissenting to this finding also revealed that Health workers are diagnosed with different infections in the healthcare environment. Most of these infections were found in laboratories and include Tuberculosis, hepatitis, and HIV/AIDS. Other chemical hazards such as harsh detergents flammables, lead, radiation, solvents and many others are consequent risk to health workers who are exposed to them. furthermore, findings from (15) also found opposite to the findings of this study, which revealed that SARS-CoV-2 infection was diagnosed in health workers (7.3%) than in non health care workers. Few health workers 25 (9.6%) diagnosed of infection further affirmed a study conducted by Eyayo, (2014) on evaluation of occupational health hazards among health workers, which found that, majority of workers working in the facility are familiar with the three main hazards in the work environment and therefore are careful of coming into contact with it. The workers know them (biological physical and chemical) and the risk impose by these hazards since management are always educating them on the causes, and the health effects of these hazards. On the type of infections health workers were diagnosed with in the health facility, the study found that most of the health workers 14(56%) were infected with diarrhea, malaria, and common cold with only 7(28%) been skin disease. Again, 4 (16%) health workers said these infections were acquired through routine duties at the workplace. These study findings confirmed studies conducted by Chhabra, 2016 and on healthcare hazards among healthcare professionals which revealed that, nurses who go on night duties are usually infected with malaria, skin rashes and diarrheal diseases, and chemicals (disinfectants, diagnosis, and drugs) are among the leading causes of disorders in healthcare providers(16). Similarly, Von Delft et al., 2015, on why healthcare workers are sick of TB, revealed that rather than being protected, thousands of healthcare colleagues are at an increased risk of TB and especially drug-resistant TB. Health workers are the first to suffer the consequences of a progressively more resistant and fatal TB epidemic, and urgent interventions are needed to ensure the safety and continued availability of these precious healthcare resources(17). Dudeia & Singh, 2017 also confirmed this finding when it was revealed in their study that health care workers in their quest to provide quality health service to patients, majority of them send for food when they are in need. Food handlers, during preparation and processing contaminate the food with several chemical and biological agents unintentionally(18). Similar study conducted by Ulutasdemir & Tanir, 2017 on occupational risk of health professionals iterated that, healthcare environment is highly considered the most breeding sites for occupational hazards(19), (15). The study further found that majority of health workers 75.7% self-medicate when they acquire infections while 24.3% seek medical attention. This study finding is in line with a study conducted by Onchonga, Omwoyo, & Nyamamba, 2020 on assessing the prevalence of self medication among health care workers before and during 2019 SARS-CoV-2(COVID 19) pandemic in kenya added that most health care workers usually self-medicate when they found out they have acquired an infection (p<0.05)(20). (Sadio et al., 2020) in their study on assessement of self medication practices in the context of COVID outbreak in Togo affirmed that self medication was prevalent in the treatment of COVID 19. Most of the health workers were using vitamin C (27.6%) and some relied on traditional medicine (95% CI : 31.2-37.3). The study in addition found that 75.7% of health workers had ever got injured and 24.3% had not. Again, 104 (40.2%) had injuries such as fall, burns, lifting of patient and cut through weeding, other injuries injuries included needle prick (5.8%), back pain (12.7%) and leg injury 50 (19.3%). This finding affirmed studies conducted by (Suliman et al., 2018); (Wåhlin et al., 2020) who revealed that averagely, 3.5% of health workers had injuriess such as needle prick, workplace violence, injuries during patient manual handling and sharp injuries and these injuries are common in the health care environment, especially student nurses who are at high risk of needle prick injuries(21,22). Similarly, a systematic review conducted by (23) on occupational hazards among health care workers in Africa revealed needle stick injuries are among the leading cause of injuries among care workers, rate of recapping was prominent and nurses lacked adequate knowledge.

In addition, Ulutasdemir & Tanir, (2017) on occupational risk of health professionals iterated that, healthcare environment is highly considered the most breeding sites for occupational hazards(24). The study further revealed that majority of health workers 189 (73.1%) had had no workshop on occupational health and safety whilst 70 (26.9%) said yes they have had a workshop on occupational health and safety. Again, 239(92.3%) recommended management should organize more training on occupational health and safety practices. These findings are of similar to finding of the study conducted by (24) which affirmed that there is little or no workshop for most health staff and further recommended regular in-service training on OHS. (25) also added that Training of health care workers on the prevention of occupational injuries can prevent work retardants. Training is widely acknowledged as an important component of occupational hazard control and risk management. Again, (26) also revealed that factors associated with injuries at the workplace include non wearing of PPE, overtime working, work related pressures, working in multiple facilities and inadequate training on the use of equipment. These hinder compliance to protoclos and expose workers to work related injuries

# **4.2 Possible Reasons of Occupational Hazards and Injuries among Health Care Workers.**

The study revealed several possible reasons of occupational hazards and injuries among health workers in the health facilities. Use and non-use of PPE have diverse effect on the health of workers. Majority of health workers 78.8% had no PPE to use in their facility, 18.1% said PPE were available for use and 3.1% said they do not know whether PPE were available. These findings are similar to studies conducted by (27); (28) on non-availability and persistent use of PPE which revealed that in an outbreak of acute contagious infections such as COVID-19, Ebola, and severe acute respiratory syndrome(SARS),personal protective equipment (PPE) needed were not available causing apathy and fear among healthcare workers(27); (28). Again, experience on other respiratory virus requires persistent usage of PPE and is essential in reducing transmission of nosocomial infections and its non-existence proves detrimental to health care givers. Martin-Delgado et al, 2020 also affirmed these findings when they revealed in their study that 70% of healthcare workers reported lack of PPE, which hindered the progress of work output (29). Further findings from (Rebmann et al., 2021) regarding thereness of PPE, infection and prevention repository on the first month added that, soon after COVID-19 was declared pandemic, a lot of hospitals and health care facilities were running low to almost full shortage of all PPE (P<001 for all)(30). Further findings of the study revealed Some PPE available for use were head cover/cap 69 (26.6%), gloves 108 (41.9%), face mask 79 (2.7%). These findings confirm a study conducted by (Chughtai & Khan, 2020) on the use of personal protective equipment to protect against respiratory infections in Pakistan: a systematic review found out that the face mask and gloves were the most commonly used to protect HCW from respiratory and other infections(31). Similar finding from Livingston, Desai, & Berkwits, 2020 on sourcing personal protective equipment during the COVID-19 pandemic affirmed that shortage of PPE such as face mask, goggles, coveralls and aprons were so rapid that propositions such us turning plastic garbage bags for gowns and water bottles cutouts for eye protection were considered. Finding out whether health workers have had adequate training on the use of PPE, 38.6% said they have had training, and 61.4% said no training had been done(32). This finding of the study was similar to a study conducted by Park, 2020 which found that health care workers(HCWs) are at a high risk of exposure and therefore protecting the health care worker is important(33). However, severe acute respiratory syndrome such as corona virus 2(SAR-CoV-2) requires continuous and further trainings on the use PPE such as face mask, face shields and respirators for health workers. The study further added that HCWs are often not sure of what to wear and when to wear. Decision to wear a mask or a shield is dependent on the level of protection particular PPE provides. Therefore, understanding the usage is key in selecting the appropriate PPE. Again, Schröder et al., 2016 in their study on laboratory safety attitudes and practices: A comparison of academic, government and industry researchers affirmed that, safety trainings in healthcare institutions are woefully inadequate and they sometimes base on experience to avoid certain striking challenges which affect their mode of delivery at the work place environment(34). The study further recommended the need to involve expect to train especially laboratory staff on the right PPE to use when attending specific samples. Furthermore, Alao et al., 2020 assessment on health workers’ knowledge, beliefs, attitudes and use of PPE for prevention of COVID-19 infection in low-resource setting in Nigeria found that only (25%) of health workers had adequate knowledge about PPE(35). Even health workers who had adequate knowlegde had difficulty in donning and doffing of mask (p=0.002).

# **4.3 Occupational Hazards and Injuries Health Workers Report**

In order to found out whether health workers report occupational hazards and injuries (OHI) they encounter at the work place during provision of health services to clients, the study found out if there is availability of an OHI department or unit earmarked to handle OHI for health workers. Majority of health workers 141 (54%) said there is no department or unit in the facility earmarked to handle OHI. Few health workers 57 (22%) said there is a department or unit in the facility that takes care of OHI encountered during routine health service delivery. However, 61 (23.6%) said they are not sure such department for OHI even exist. Most Health workers 54(94.7%) assumed the emergency unit at the hospital is the place earmarked for OHI, while other health workers spotted the outpatient department (OPD) as the place earmarked for OHI. No health worker mentioned that, there is a special unit/department earmarked to handle OHI. This study finding is not in agreement with the policy guidelines on occupational health and safety in Ghana, which explained that health facilities should have an OHS unit. The unit would be man by Public Health Officer/clinician and report directly to the District Director of Health services (36). Again, policy document on occupational health and safety of Komfo Anokye Teaching Hospital provided similar finding. The facility has no specific system for collecting and collation of health data on staff of health sector in that, specific structure to address occupational challenges for health workers is at large (37).

On whether health workers have ever reported any OHI to the department, majority 213 (87.6%) said there was no need reporting any OHI to the department, only few 4 (1.5%) said they had ever reported a case at the facility. This study finding affirms the findings of a study conducted by (21) on student nurses level of knowledge about NSI and its prevalence and post-exposure measures in Jordan which found that, student nurses had exposure to NSI. However, majority of the students who suffered NSI found it difficult to report to their clinical instructors or even write a short report. Similar study conducted by (38) on experiences of frontline nursing staff on workplace safety and occupational health hazard in two psychiatric hospitals in Ghana also revealed that, although majority of health staff knew about occupational hazards, less than half of the healthcare workers reported exposure to work place health hazards. Moreover, several of these healthcare workers had had exposure to occupational hazards and injury. Again, findings from (39) on reasons why health care workers are sick of TB explained that, most healthcare workers feel stigmatized and therefore feel reluctant to report occupational hazards to management. Findings from (26) on occupational health hazards among healthcare workers in Kampala, Uganda found the affirmative, that 50% of respondents reported experiencing occupational health hazard. In addition, (40) in their study on common occupational health hazards in a tertiary health institution in Bida, North-Central revealed that, of 108 health workers who sustained various occupational health hazards, 57.4% reported to management. Respondents, 32% did not report to the committee and six of the health workers felt there was no need to inform anybody about it. Again, 169 (65.3%) of respondents said their facilities have no protocol to work with when encountered with OHI, 30 (11.6%) said protocol exist however, 40 (15.4%) said they do not know. This study finding is in affirmative to the provision of standardized protocols to health workers when encountered with health hazards or injuries in Kenya, according to Kenyan guidelines on occupational health and safety (36).

The study further revealed that 235 (90.7%) had never reported any OHI, 15 (5.8%) had reported cases of needle prick, and 9 (3.5%) had reported other cases such as diarrhea, headache and backache to the unit. This finding from the study further confirmed earlies findings from (21); (38), which revealed that most nurses (student and background) find it difficult to report occupational hazards and injuries they encounter at the workplace. However, few of the health workers had reported of needle prick injuries, and other infections (24), (5).

# **4.4 Summary of Chapter**

Health workers may not suffer biological hazards such as HIV/AIDS, skin diseases, Tuberculosis, Hepatitis and diarrhea. However, occupational injuries were very common among health workers in the Ahafo Ano North Municipal health facilities. It was evident from this study that only 4 (16%) of health workers who had acquired infection (malaria) was through routine activities in the health care envirnment. Most health workers had had one form of occpuational injuries or the other through burns, falls, lifting of patient and weeding. Other injuries included needle prick and back pain. These study findings were substantiated with findings from (Suliman et al., 2018); (Wåhlin et al., 2020) who affirmed that, health workers had injuriess such as needle prick, workplace violence, injuries during patient manual handling and these injuries are common in the health care environment(22,41). (23), further added that, fall, burns and needle stick injuries are among the leading cause of injuries among healthcare workers, rate of recapping was prominent and nurses lacked adequate knowledge. Majority of health workers recommended management should organize more training on occupational health and safety practices. This was necessary in-behalf-of, more health workers can prevent themselves from occupational injuries and improve work effectiveness. (24); (25); , (26).

Inadequate PPE may be a possible reason of occupational hazards and injuries in the healthcare environment. It was evident from this study that majority of health workers had inadequate PPE to use in their facilities and its non-availability caused fear and apathy among respondents. However, limited PPE that were available for use such as gloves, face mask and cover/cap, most of the HCW had had no training on its usage. Studies from; (Rebmann et al., 2021); (Chughtai & Khan, 2020); (Livingston, Desai, & Berkwits, 2020) confirmed that healthcare workers reported lack of PPE which hindered the progress and process of work (27); (28); (29). This notwithstanding, face mask and gloves were the most commonly used PPE to protect HCW from respiratory and other infections yet, safety trainings in healthcare institutions are woefully inadequate and they sometimes base on experience to avoid certain striking challenges which affect their mode of service provision. (33); (34); (35).

Most health workers said no department or unit is earmarked to take care of OHI. They are compelled to mix with patient to receive treatment whenever they encounter any OHI at the emergency unit and the OPD. Staff at the Municipal Hospital assumed the emergency unit is the first point of call when you encounter any OHI, while the sub municipal facilities assumed is the OPD (37); (Chireh, 2010). Again, no standardized protocol on OHI exist in the units/department (36). Majority of health workers do not see the need to report any OHI to the health facility because the facilities lack basic protocols on OHI, feel stigmatized when they report cases of OHI. This notwithstanding, few health workers had reported cases of needle prick, diarrhea, headache, and backache to the units (38); (39); (40); (21); (5).

**5.0 CONCLUSIONS AND RECOMMENDATIONS**

The purpose of the study was to assess the occupational hazards and injuries (OHI) among health workers in the Ahafo Ano Municipal, Tepa. This chapter focuses on conclusions and the recommendations of the study.

# **5.1 Conclusion**

The following conclusions are drawn based on the findings:

1. Health workers may not suffer biological hazards such as HIV/AIDS, Tuberculosis, Hepatitis B and diarrhoea. However, physical injuries such as needle prick, burns, falls, and lifting of patients affect health workers.
2. Essentially, inadequate PPE may contribute to occupational hazards and injuries in the healthcare environment. Non-availability of PPE may influence fear and apathy among health workers in the discharge of their duties.
3. Safety training on the use of PPE is inadequate. To this extent, health workers are at high risk of exposure to several occupational hazards and injuries.
4. No occupational health and safety facility exist in any of the health facilities in the Ahafo Ano North Municipality; therefore, majority of health workers are not encouraged to report occupational hazards and injuries (OHI) to the health facilities.
5. The emergency unit and the outpatient department (OPD) unit some health workers assume are the point of call when encountered with any OHI lack basic OHI protocols.

# **5.2 Recommendations**

Based on the study findings, some recommendations are proposed to health workers, and managers of health services in the Ahafo Ano North Municipal on OHI, possible reasons and whether health workers report OHI they encounter.

1. The study recommended that there should be enough PPE available for use by health workers to protect and prevent them from OHI since non-availability may cause fear and apathy among health workers in their discharge of duty.
2. Managers of health facilities should organize training on occupational health and safety practices (prevention of OHI and use of PPE). This is necessary in-behalf-of, health workers may prevent themselves from occupational injuries and improve work effectiveness.
3. The study further recommended that health facilities establish an occupational health and safety unit to address all concerns of OHI. This will encourage health workers to report all OHI affecting them in their routine activities.
4. Standard operating guidelines and protocols on occupational health and safety should be available at the occupational health and safety unit to ensure that safety procedures and protocols are followed.

# **5.3 Recommendations for Further Studies**

The study recommended that further research be conducted on how knowledge and awareness of Occupational Health and safety facilities influence report of OHI in health facilities.

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