

Occupational, Safety and Health Practices among Nurses at a County Referral Hospital with Respect to COVID-19 Pandemic-Kenya

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Abstract

Background: Nurses are exposed to a wide range of occupational health and safety hazards. During the COVID-19 pandemic, nurses have been frontline in care provision and are more exposed to various health hazards.

Materials and methods: A descriptive cross-sectional design was used among 120 nurses at a County Referral Hospital in Kenya to assess their occupational health and safety practices. A total of (n=88) nurses participated in the study.

Results: In the study, (n=32) nurses had experienced trauma during the pandemic. A less number (n=49) had had training on occupational health and safety at the workplace. A significant (n=32) and (n=18) reported being exposed to biological and psychological hazards, respectively. Nurses have been exposed to several hazards during the pandemic.

Conclusion: Significantly, nurses are exposed to biological and psychological hazards during care delivery. Future studies need to focus on the impact of psychological trauma among nurses attending clients in the healthcare environment.

Key Words; COVID-19 pandemic, nurses, Occupational hazards, exposure, frontline

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I. Introduction

Health is a crucial department in both the national and county governments. According to Pavel (2019), it is a right for every citizenry for a country to receive healthcare. Successful attainment of quality care requires the safety of healthcare providers and recipients. A safe environment is free from health hazards and is conducive and satisfying to the recipients (Rivera et al., 2019).

According to Jangland et al. (2017), quality care achievement requires a safe environment for patients and healthcare providers. A safe environment is built and is dependent on many factors, including managerial participation, individual participation and personal lifestyle. Policy development and implementations have always been keen to accommodate the achievement of health care safety.

OSH is a global concern for employees, employers and governments. Despite global campaigns and programs to ensure safety, there are around two million work-related fatalities annually. According to ILO, more than 270 million work-related accidents and more than 160 million work acquired diseases annually (Simanjuntak, 2019).

COVID-19 has, in recent times, been added to the list of healthcare hazards to which healthcare professionals; nurses are exposed. According to Jackson et al. (2020), all aspects of nursing activities in various healthcare provision settings have been affected by this pandemic. Staff-wellbeing is a managerial and governmental role that ought to be played well. Nurses taking care of critically ill patients work for long shifts to ensure that care is given. According to Maben 1, 2, 3, & Bridges (2020), it is high time that the nurses' psychological and mental health is taken care of.

Hospital-acquired health infections have, for long, also caused the death of many healthcare workers globally. According to Jackson et al. (2020), nurses and physicians who work in high infectious units of a health facility are the most vulnerable to such infections, including COVID-19.

The occupational health act 2007

The occupational health act, 2007, was enacted to ensure employee protection and security from hazards in various working environments. This Act intends to ensure that employers ensure that their employees

are working in safe environments from harm. It gives directions under section 6 (2) that; the provision and maintenance of a working environment for every person employed that is safe without health risks and adequate as regards facilities and arrangements for the employee's welfare at work. Additionally, it informs all persons employed of any risks from new technologies and dangers associated with them. In addition, ensuring that every person employed participates in the application and review of safety and health measures.

II. Material And Methods

A descriptive cross-sectional research design was adopted. The mentioned variables were investigated in relation to how it affects healthcare providers. A qualitative method of study adequately answered the subject of study by giving precise information. Notably, a self-administered questionnaire was used to collect data from the participants who consented to participate in the study. A total of (n=88) nurses were recruited to participate in the study. Among the participants, 36.4 % (n=32) were males, while on the other hand, 63.6 % (n=56) were female.

Study design: A descriptive cross-sectional research design was adopted for the study. A self-administered questionnaire was then used to collect data from the participants who consented to participate in the study.

Study Location: The study was carried out at the Kericho County Referral Hospital- Kenya. The health facility is located in Kericho town along Hospital Road. It is the largest hospital in Kericho County, with a bed capacity of around 400.

Study Duration: The study was carried out between February 2021 to May 2021

Sample size: 91 nurses

Sample size calculation: The sample size was calculated using Fischer's formula. The target population was selected randomly from the sample of 120 nurses. Assuming the confidence interval was at 10% and a confidence level of 95%, the study population from a calculation using Cochran's method was 91 nurses.

Subjects & selection method: The study employed a stratified sampling method. The strata were divided into the medical, surgical, maternity and outpatient departments.

Inclusion criteria:

- i. A qualified nurse of any level
- ii. Must have worked for at least one year as a qualified nurse.
- iii. Should be employed as a nurse at Kericho County Referral Hospital in any department.

Exclusion criteria:

- i. The nurses meeting the inclusion criteria but do not consent to participate in the study.
- ii. The nurses who will be on leave or duty off during the study.

Data collection: Written informed consent was sought from participants. A self-administered questionnaire was then given for filling. The fully filled questionnaires were handed back to the researcher.

Statistical analysis: SPSS was then be used to calculate percentages, frequencies, means, and modes. These were then interpreted and presented using charts and graphs.

III. Results

This section will give an insight into the finding in the study.

3.1 Demographic information

During the data collection period, a total of (n=88) nurses were recruited to participate in the study. Among the participants, 36.4 % (n=32) were males, while on the other hand, 63.6 % (n=56) were female. Notably, 64.8 % (n=57) had worked in the facility for less than two years, 22.7 % (n=20) had worked in the facility for a period of between two to four years, 1.1 % (n= 1) had worked in the unit for a period of four to six years while 11.4 % (n=10).

3.2 Awareness of occupational safety and health

Table 1 Awareness of occupational safety and health

	Strongly agree	Agree	Disagree	Strongly disagree	DK/NA
I am aware of the existence of the Safety and Health Act of 2007	33(37.5%)	40(45.5%)	14(15.9%)	1(1.1%)	0
I have a right to be part of the process of identifying and resolving workplace health and safety concerns.	40(45.5%)	43(48.9%)	4(4.5%)	1(1.1%)	0
It is important to master occupational safety and regulations.	47(53.4%)	38(43.2%)	2 (2.3%)	1 (1.1%)	0
It is important for me to report work-related injuries and illnesses immediately.	53(60.2%)	33(37.5%)	1(1.1%)	1(1.1%)	0

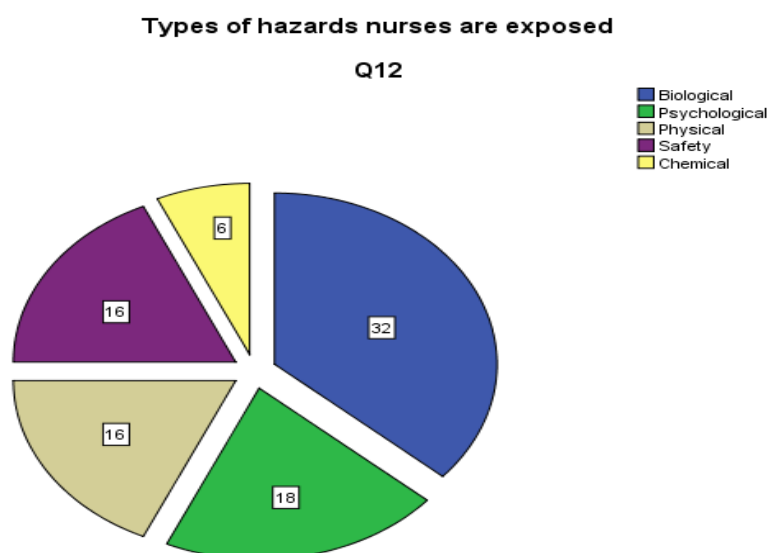
I have had training on occupational health and safety at the workplace.	13(14.8%)	36(40.9%)	31(35.2%)	7(8.0%)	1(1.1%)
Staff and employers must share the responsibility for occupational health and safety.	40(45.5%)	43(48.9%)	3(3.4%)	2(2.3%)	0

3.3 Occupational health and safety hazards

Table 2 Occupational health and safety hazards

	Strongly agree	Agree	Disagree	Strongly disagree	DK/NA
I have had any injury in the workplace during the COVID-19 pandemic	7(8.0%)	12(13.6%)	60(68.2%)	9(10.2%)	0
I have experienced trauma in the workplace during the COVID-19 pandemic	11(12.5%)	21(23.9%)	45(51.1%)	11(12.5%)	0
I have developed work-related illness during the COVID-19 pandemic	9(10.2%)	20(22.7%)	44(50.0%)	15(17.0%)	0

3.4 Types of hazards nurses are exposed

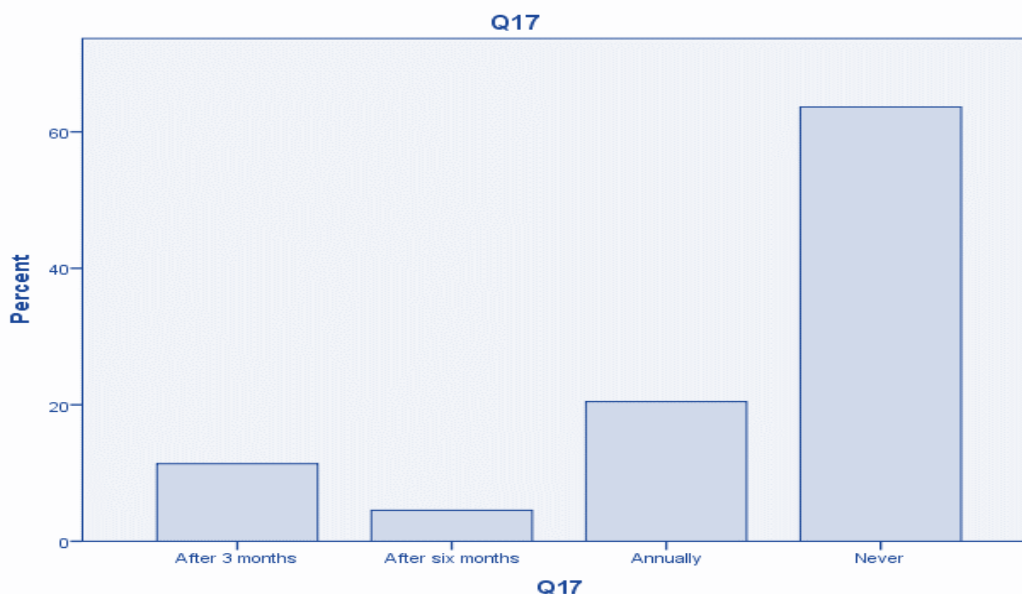


In this study, with the (n=88), 36.4% (n=32) claimed that they are exposed to biological hazards, 20.5% (n=18) claimed that they are exposed to psychological hazards, 18.2% (n=16) claimed they are exposed to physical hazards, and 18.2% (n=16) claimed that they are exposed to safety-related hazards. Additionally, 6.8% (n=6) stated that they are exposed to chemical hazards.

3.5 Occupational safety and health management practice

Table 3 Occupational safety and health management practice

	Strongly agree	Agree	Disagree	Strongly disagree	DK/NA
My employer enforces occupational health and safety measures.	16(18.2%)	43(48.9%)	25(28.4%)	4(4.5%)	0
I was oriented on occupational health and safety when taking up my assignment (employment) in this facility.	10(11.4%)	42(47.7%)	33(37.5%)	3(3.4%)	0
This facility offers medical cover for any work-related injuries or illnesses.	6(6.8%)	30(34.1%)	42(47.7%)	9(10.2%)	1(1.1%)
Personal Protective Equipment is always available to all staff all time.	5(5.7%)	13(14.8%)	48(54.5%)	21(23.9%)	1(1.1%)



In this study, 11.4 % (n=10) said that occupational health and safety in the facility are done after three months, 4.5 % (n=4) suggested that they are done after six months, while 20.5 % (n=18) suggested that they are done annually. On the other hand, a significant 63.6 % (n=56) claimed that the facility never organizes occupational health and safety programs.

IV. Discussion

4.1 Awareness of occupational safety and health

Many states and governments globally have recognized the need to emphasized occupational health and safety among their citizenry. In many cases, laws have been enacted, both parliamentary and federal laws, to shelf and protect their employees from being vulnerable to health-related hazards. For instance, in the Kenyan setting, the Safety act of 2007 was enacted into law to make various institutions comply with the occupation safety needs of their employees. In this study, 37.5% (n=33) of the participants strongly agreed that they are aware of the Safety and Health Act of 2007 while, 45.5 % (n=40) agreed while 15.9% (n=14) claimed that they were not in the knowledge of the existing law, while 1.1 % (n=1) strongly disagreed that they were aware of the law. In his study, Konijn et al. (2018) affirmed that awareness of existing laws are essential since they form grounds of argument for clients in events when they fall vulnerable to the existing health hazards. Notably, the form grounds for compensatory measures to be taken and a legal platform to claim any deficiency in the occupation health and safety outcomes.

In the study, 45.5% (n=40) strongly agreed, while 48.9 % (n=43) agreed that it is important for them to participate in occupational health and safety promotion measures. Contrary, only 4.5 % (n=4) of the participants disagreed, while 1.1 % (n=1) did not know whether it is their right to take part in the process or not. According to Shangareev (2018), employees have the role of participating in identifying and resolving workplace-related safety concerns actively. Additionally, mastery of the occupational health and safety regulations within an institution alongside the statutory laws is important. This information is a basis to build while taking part in occupational health and safety promotion strategies. In this study, 53.4% (n=47) of the participants strongly agreed while 43.2% (n=38) agreed that it is important to master these regulations while 2.3 % (n=2) disagreed and 1.1 % (n=1) strongly disagreed.

In this study, 60.2 % (n=53) of the participants strongly agreed, while 37.5 % (n=33) agreed that it is essential to immediately report work-related injuries and illnesses. On the other hand, 1.1 % (n=1) disagreed, and 1.1 % (n=1) strongly disagreed that it is essential to report workplace injuries. Employees should also report work-related injuries and illness after their occurrences. In a study, Fagan & Hodgson (2017) noted that many cases of work-related injuries always go unrecognized by the relevant institutional bodies. Report of the injuries and illnesses is essential for actions to be taken to improve the situation and avert future occurrences.

14.8 % (n=13) of the participants strongly agreed, while 40.9 % (n=36) agreed that they had prior occupational health and safety training. On the other hand, 35.2 % (n=31) disagreed, and 8.0 % (n=7) strongly disagreed that they had had training on occupational health and safety. Training on occupational health is vital to be done by both the organization and other external bodies such as occupational health directories (Peckham et al., 2017). In many cases, trained employees are more likely to be vigilant and conscious of the existing risk

and ways to reduce these risks. Therefore, a well-trained cohort of employees is at a lesser risk because most hazards can early be recognized and averted.

In this study, 45.5% (n=40) of the nurses strongly agreed that 48.9 % (n=43) agreed that they have a shared responsibility with their employer to enforce occupational health and safety measures. On the other hand, only 3.4 % (n=3) of the participants disagreed, while 2.3 % (n=2) strongly disagreed that they should share the responsibility with their employers. Occupational health and safety enforcement is a collaborative action that must include the employer and the employee. In some instances, according to Duryan et al. (2020), only the employer actively takes part in the enforcement of occupational health and safety.

4.2 Occupational health and safety hazards

According to the study, 8.0 % (n=7) of the participants strongly agreed, while 13.6 % (n=12) agreed that they had developed work-related injuries during the COVID-19 pandemic. 68.2 % (n=60) disagreed, and 10.2 % (n=9) strongly disagreed that they had developed injuries at the workplace during the pandemic. On the other hand, 12.5 % (n=11) strongly agreed, and 23.9 % (n=21) agreed of the participants claimed that they had experienced trauma in the workplace during the pandemic. Contrary, 51.1 % (n=45) of the participants disagreed, and 12.5 % (n=11) strongly disagreed that they had not developed any trauma during the COVID-19 pandemic. In a study, Barasa et al. (2020) claimed that more than three hundred Kenyan nurses had developed COVID-19 in their line of duty. However, their cases have ranged from being mild and other cases severe. 10.2% (n=9) of the participants strongly agreed, and 22.7 % (n=20) agreed that they had developed work-related illnesses during the COVID-19 pandemic. On the other hand, 50.0 % (n=44) of the participants disagreed, and 17.0 % (n=15) strongly disagreed that they had developed work-related illness during the period.

Healthcare workers have been on the frontline in the fight against the COVID-19 pandemic. In a study, Ehrlich et al. (2020) claimed that healthcare worker's exposure to the COVID-19 could occur within the hospital setting or during work-related travels to the community. Nurses have been on the frontline during the care of the clients diagnosed with the disease. Due to the limited number of isolation facilities, Kaseje et al. (2021), in their study, concluded that these clients, in some cases, have been in the general wards for management. The potential health care worker's exposure to the virus is determined by the possibility of coming in direct contact with persons infected with the virus. Notably, this includes direct physical contact with contaminated surfaces and other objects generated from the aerosol procedures with clients without sufficient PPEs.

In many cases, injury occurs during the management of the clients diagnosed with the virus. For instance, most clients with the disease are immobile, and some need total nursing care. In this case, nurses have the role in giving hygiene care and client turning, which in most cases is straining, causing spinal related injuries.

A significant range of trauma has also occurred during the pandemic. Psychological trauma, in most cases due to long use of the available PPEs, increasing workloads in the general wards and the isolation wards (Greenberg et al., 2020). Additionally, psychological trauma can occur with the frequent loss of clients to the disease leading to extensive mental instability.

4.3 Types of hazards nurses are exposed

Occupational hazards are harmful substances that nurses are exposed to during their day-to-day activities while caring for their clients. Notably, occupational health hazards have both short term and long-term effects on the persons exposed. In this study, with the (n=88), 36.4% (n=32) claimed that they are exposed to biological hazards, 20.5 % (n=18) claimed that they are exposed to psychological hazards, 18.2 % (n=16) claimed they are exposed to physical hazards, and 18.2 % (n= 16) claimed that they are exposed to safety-related hazards. Additionally, 6.8 % (n=6) stated that they are exposed to chemical hazards. From the findings, the work environment has a vast range of hazards that directly affects the nurses.

Nurses are exposed to a wide range of biological hazards while giving care in the healthcare environment. A similar study by Sacadura-Leite et al. (2018) showed that exposure to these hazards is common to the nurses while carrying out procedures such as wound dressing and other such as disinfection, transportation of contaminated materials and working directly in a contaminated environment. According to Ishaque et al. (20021), the main occupational hazard route of transmission is through the blood and in some cases, some are airborne, fecal-oral route and direct contact with the infection. In many cases, the main occupational risk is the hepatitis B, C and D viruses, HIV, and the recent infectious disease COVID-19. With COVID-19, it is spread through inhalation of microscopic nuclei when infected persons sneeze or coughs.

Among the various types of occupational hazards, psychological hazards affect most of the mental health of nurses. Psychological hazards have a strong correlation with the work environment, organization, management and the social factor of the environment leading to a potential impact on the psychological wellbeing of the persons working in the environment. A study by Arefi et al. (2021) concluded that in most cases, they are a result of workload, work-related stress, lack of job control and, in some instances, lack

adequate workplace justice. Increased exposure to psychological hazards may lead to fatal side events such as developing cardiovascular diseases and directly contribute to the fast development of mental disorders such as depression. Work-related stress leads to other aspects such as absenteeism and lower performance in the workplace (Brunner et al., 2019).

Nurses are exposed to a wide range of physical hazards in the work environment. Notably, all these have long-term and short-term effects on their bodies that alter their effectiveness in care delivery. Appeadu & Bordoni (2020) affirmed that common hazard in the workplace nurses includes falls during client transportation, mainly resulting from slippery floors and unstable walking places. Other common physical hazards include radiations for nurses working in various radiation units, including the X-ray departments (Mu et al., 2018). All these cumulatively have effects on the health of nurses, ranging from mild to severe side effects.

Safety-related hazards are common in health care. In most cases, they are a result of a lack of work security and safety. The sources of workplace insecurity and violence include clients, their relatives and, in some cases, staff-staff conflicts. Kramer et al. (2017) concluded that relatives to the clients are, in most cases, associated with hospital-based assaults. On the other hand, mentally ill clients admitted in mental departments or other hospital units also engage in conflicts with care providers in some cases, causing a broad range of injury on the victims.

Chemicals are used in healthcare for various functions. In some cases, they are used to treat in cases of medication, clean, and kill insects. Their use in the healthcare setting also has a lot of harm to the users, the nurses. Simons & Toland (2021) attested that nurses are directly exposed to drugs such as anticancer agents during preparation, transportation and administration. Direct contact with these chemicals have effects on the human body, including changes in body function. The surgical smoke in the lasers and the electrosurgical devices has many chemicals and microorganisms inhaled by the persons within the environment, leading to side effects (Liu et al., 2018).

4.3 Occupational safety and health management practices

In this study, 18.2 % (n=16) of the participants strongly agreed, and 48.9 % (n=43) agreed that their employer is active in enforcing occupational health and safety practices. On the other hand, 28.4 % (n=25) disagreed, while 4.5 % (n=4) strongly disagreed that their employer enforces occupational health and safety measures. Employers, different cadres of levels, have the role in implementing these measures to protect their employees. In a case study, Oswald et al. (2018) concluded that employers have a role in enforcing occupational health and safety management. Even though it is a collaborative action between the employer and the employee, the employer has a more significant part. In most cases, they should; examine the workplace for safety, ensure that their employees are protected using the safety equipment, use colour codes to indicate signs of potential health hazards and establish a well-clarified route of communication in cases to report work-related injuries and illnesses (Michaels & Wagner, 2020). Additionally, it is their role to keep records of work-related injuries and illnesses, including accessing the employees' medical records and hazard exposure, to ensure that actions are immediately taken when needed.

The study indicated that 11.4% (n=10) strongly agreed, and 47.7 % (n=42) agreed that the participants were oriented to occupational health and safety. On the other hand, 37.5 % (n=33) disagreed, and 3.4 % (n=3) strongly disagreed that they underwent any hospital-based orientation on occupational health and safety. It is relevant to ensure that these programs are done to boost the future occupational health and safety situation. Training, as well as orientation on occupational health and safety, is paramount during employment exercises. In many cases, the hospital has many staff employed to replace the retiring workforce and increase their labour force. Chelladurai et al. (2018) concluded that orientation includes training on common practices, enlightenment on the route of communication in work-related injuries, medical training and examination to ensure that the new employees are fit for the employment. Medical assessment and evaluation are essential in ensuring that the new labour force is physically fit to undertake the common roles in the workplace.

In this study, 6.8 % (n=6) of the participants strongly agreed, and 34.1 % (n=30) agreed that the hospital offers medical covers for any work-related injuries and illnesses. On the other hand, 47.7 % (n=42) of them disagreed, while 10.2 % (n=9) strongly disagreed that the facility offers medical compensation while 1.1 % (n=1) did not know whether there is medical compensation or not. Employees who have been injured in the line of duty are entitled to have medical compensation or medical covers under the general worker's compensation benefits. In most cases, the employee must ensure that this is done to enable the treatment process in work-related injuries and illnesses. Tei-Tominaga & Nakanishi (2018) study indicated that many nurses felt a great urge to quit employment due to excessive work-related injuries and lack of medical compensation. Medical compensation is essential, as it is one way to keep employees' productivity afloat and boost their confidence in safety concerns. Insufficient medical covers lead to adverse events such as reduced motivation and dissatisfaction with employment.

In this study, only 5.7 % (n=5) of the participants strongly agreed, and 14.8 % (n=13) agreed that personal protective equipment is always available to all staff at all times. On the other hand, a more significant number, 54.5 % (n=48) of the participants, disagreed, and 23.9 % (n=21) strongly disagreed that the personal protective equipment is always enough at all time while 1.1 % (n=1) were not sure if they are always available. Personal protective equipment is essential in the delivery of care. They protect persons against physical, electrical, chemical and airborne hazards. McMahon et al. (2020), in their study, had acknowledged that during the COVID-19 pandemic, there had been a reduced supply of this equipment to nurses causing them to be more exposed to the virus. In any case, the few available were used in the care for the critically ill clients. Exposure to health hazards is from the deficiency in protective equipment that should shield them from contact. With COVID-19, the recommended PPEs include facemasks, disposable gloves, face shield and isolation gowns.

4.4 Frequency of occupational health and safety awareness programs

Occupational awareness programs are done within specific intervals depending on the institution and other underlying logistics. In this study, 11.4 % (n=10) said that occupational health and safety in the facility are done after three months, 4.5 % (n=4) suggested that they are done after six months, while 20.5 % (n=18) suggested that they are done annually. On the other hand, a significant 63.6 % (n=56) claimed that the facility never organizes occupational health and safety programs.

Occupational safety and health-promoting programs are essential to all employees at all times. During these periods, they are sensitized on the same through education and seminars that help them build more on their sensitivity to occupational health and safety. Periodically organized programs are essential to maintain an occupationally safe environment for employees. In his study, Anozie et al. (2017) recommended that regular training and retraining on occupational health and safety is essential in ensuring that maintaining a safe work environment is critical. Therefore, it is dangerous for the employer to fail to organize such programs since it exposes the employees to these hazards since they fail to act correctly.

V. Conclusion

This study found out that the nurses were aware of the workplace's occupational health and safety requirements. Enhancement of awareness among the nurses has comparatively enhanced occupational health and safety, making the work environment more conducive for work. Nurses at the Kericho County Referral Hospital are exposed to a wide range of hazards during the COVID-19 pandemic. Biological hazards and psychological hazards were on a high among the nurses. Additionally, physical, safety and chemical hazards were reported by the nurses that they are exposed to. The facility, however, had adopted fewer occupational safety and health management practices. If future OSH management measures were strengthened and improved, the working environment would improve significantly. Nationally, county governments should strive to ensure that the occupational health safety of their nurses is preserved.

VI. Recommendations

- a) The County Referral Hospital management should give immediate attention to the psychological hazards the nurses in the facility are exposed to. Other risks should also be attended to in future.
- b) The County Hospital management should develop an Occupational Health and Safety department. The primary roles of this department will be to enforce Occupational Health and Safety related measures.
- c) Counties should ensure that nurses are well trained in Occupational Health and Safety through their departments of health.

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