



Occupational Hazards Management and Worker's Commitment in the Electricity Distribution Industry in Nigeria

K. G. NWORGU

nworgu_godson@yahoo.co.uk

Faculty of Social Sciences, Ignatius Ajuru University of Education,
Rumuolumeni, Rivers State.

Abstract

Employees in electricity distribution industry seldom show commitment to routine job due to their exposure and vulnerability to workplace hazards and the underlining consequences it poses. The study examined occupational hazards management and worker's commitment in electricity distribution industry. This paper is obliged with the objective of identifying potential occupational hazards and how employees display commitment to electricity distribution tasks considering possible electricity hazards management in the work environment. Two research questions were formulated in line with the objectives. The cognitive theory of self-regulation was used to expatiate the study. Secondary and primary data were sourced. The descriptive survey design was adopted, and a well-structured questionnaire were purposively administered to 350 respondents, of which 301 were returned for analysis. Retrieved data were analyzed using spearman's rank order correlation in statistical package for social sciences version 24. Findings of the study showed that different types of hazards exist in workplaces and that workers do show commitment to electricity distribution work when hazards are managed. Base on the findings, the study recommends that safety training and re-training should regularly be conducted to create awareness of potential hazards in workplace

Keywords: *occupational hazards, workers' commitment, electricity distribution, organizational culture, psychological hazards, electricity distribution industry, ergonomics, persistent willingness, personal protective equipment*

1.0 Introduction

As organizations recruit workers to achieve their core goals and objectives, and strive toward improving in the global competitive industry there is the likelihood of its employees to experience difficult situations which may be referred to as occupational hazards. The skills, competence and experience of the workers can become threatened as a result of workplace hazards which invariably may hamper the worker's efforts to perform optimally. When the workplace is saturated with unsafe or life threatening conditions, the workers well-being and safety will be virtually a mirage. This implies that only safe and healthy workers can conveniently discharge their responsibilities in relation to the expectation of the employer. To this end, for organizations to perform up to their expectation, occupational hazards should be identified and handled to ensure better organizational performance. More so, hazards are of the potency to deregulate the worker's attitude toward fulfilling set goals at workplace.

In respect of the foregoing, Cox and Cox (2013) argued that a strategic safety analysis should be done and go beyond what is called rules, regulations and policies that are always given by the government and companies, but should regularly determine how workers can cope in averting the cases of occupational hazards. This implies also that organizations must consider the safety of the workplace, and workers must be aware of assessment of occupational hazards. In addition, the prompt check on occupational hazards is usually influenced by certain factors that include workers training history, workgroup, organizational culture, norms and personality. Furthermore, a measure of control contributes to workplace assessment of occupational hazards and the use of necessary skills in the workplace. There are several workplace occupational hazards that are of concern in recent times. These are biological hazards, chemical hazards, physical hazards, and psychological hazards. However, the biological hazards are mostly encountered by workers in public health. They are often exposed

to bio-hazardous materials in all their tasks. Such exposure to hazards is linked to blood-borne pathogens which are commonly traced to needle stick injuries, contaminated items and surfaces, and exposure to mucous membranes. Others are contact with secretions from infectious patients such as coughing, sneezing or air contaminated with infectious biological agents. The risk for any healthcare worker is the exposure to biological hazards.

Chemical hazards come from the exposure to waste chemicals generated at workplace, such that in organizations where workers that work with varieties of chemicals are exposed to potential hazards. When workers come in contact with these chemicals, the adverse effect to their body is usually life threatening. On the aspect of physical hazards to which workers are exposed to include slips, s and falls, environmental conditions, driving hazards, usage of compressed gas cylinders, cuts and electric hazards. Also employees experience an ergonomic hazard which is linked with the use of computers and postures of work.

Another common hazard encountered by workers is the psychological hazards. In the workplace, employees do experience abuse by clients, members of the public, co-workers and management. In addition, workers do have threat of violence, stress, depressions, anxiety disorders and other mental illness as a response to excessive workplace stressors (hazards). However, psychological hazards vary in job locations and organization (Alberta Government, 2011).

1.1 Statement of the problem

Occupational hazards have enormous negative effect on the health and performance of employees as was observed by Ebeloku *et al*, (2018). In electricity distribution, several industrial workers are exposed to enormous danger from electricity. The danger of electrocution in this industry is very worrisome to workers. A number of workers seem to be unaware that overhead power lines have alternating current and that electricity facility, whether insulated or not poses hazard situations that have to be handled with utmost safety consciousness. The observation of Casini, (2016), affirm that electrocution may occur from contact with an object which seemingly appears as in fallen power lines. Electricity is highly essential for almost all household and industrial activities. It is referred to as the flow of an atom's electrons through a viable conductor.

Accordingly, Casini, (2016) argued that electrical injuries include electrocution, burns, electric shock and falls caused by contact with electrical energy. In this regard, electricity causes death when the human body become part of an active electrical circuit that has a current liable of over stimulating the human nervous system or even resulting to damage to all the internal organs. However, the level of injuries received depends on the magnitude of the current, the pathways of the current through the human body, and the duration of the current through the electrocuting source of energy. Electrical hazards pose and represent a major or serious widespread occupational danger in which all members of the workforce at the workplace are exposed to during the hours of work in which they are obliged to perform their routine duties. Electrocution with other fatalities occurs to workers in various job levels and job categories. In addition, greater number of workers are unaware of the potential and frequent occupational or electrical hazards present in their workplace, which makes them more vulnerable to the danger of electrocution. This study seeks to address particularly issues on workers' commitment despite the acknowledgment of electricity hazards in electricity distribution industry.

The objectives of the paper include to:

1. Identify potential occupational hazards in workplaces as in electricity distribution industry
2. Investigate how workers display commitment in electricity distribution tasks in hazards management situations in the work environment.

The following are research questions that guides the study

1. What are the potential occupational hazards in workplaces as in electricity distribution industry?
2. Do workers in electricity distribution industry show commitment to work in hazard management situations in the work environment?

2.0 Theoretical framework

The cognitive theory of self-regulation, as a system is central to causal processes, which interface with effects of active external influences, but provides the actual avenue for purposeful action. The emphasis of cognitive theory lies on the psychological forces that can affect people motivation. It is much concerned with individual's perceptions of their workplace and the ways of interpreting and understanding the work environment. However, it provides an increasing more expected approach to motivation. This theory is very useful to managing personnel because it reveals more realistic direction on motivation techniques. Therefore, expectation, feelings about equity, and goal achievement explain the processes, (Armstrong, 2009).

In view of the theory above, individuals should display some level of consciousness of the factors surrounding the work environment, knowing also that self-regulation in the workplace is key to work performance. Therefore, progress in self-regulation is on the condition of consistency, fidelity, and proximity of self-regulation or monitoring. It is the process of self-monitoring that can evaluate one's performances. Also, one's mood can affect how she or he performs. Self-monitoring of behaviour that bears on personal competence and self-esteem, in turn, activates affective reactions that can distort self-perceptions at the time the behaviour is occurring, as well as later recollections of it (Bandura, 1991 p.250).

2.1 Conceptual Framework

The concept, occupational hazards is fundamental in every industry and work environment. It is a situation or condition in which workers usually are exposed to harm in the work community. Therefore, the basic intention of this aspect of the study is to vividly give conceptual explanations to the variables related to the study, and bearing in mind the objectives of the study.

According to Llias *et al.*, (2009), occupational hazards are usually that activity, object or condition having the potential to harm or cause injuries to workers, destruction to equipment, loss of working material, or reduction to the ability or momentum to perform a given function at the workplace. The link between hazards and injuries is such that cannot be overemphasized. For Ahmed *et al* (2012) it constitutes any condition or material that has the ability to cause harm or loss and other consequences resulting from the occurrence of unexpected and undesired outcomes. According to Meenesh (2014), occupational hazards in production and service delivery organizations can be classified into three (3) major aspects, such as general hazards, special hazards and hazards caused by the work environment. In the same vein, Ford & Tetrick (2011) argued that occupational hazard is that aspects of one's occupation-specific content that increases the risk of injury. More so, it can be seen as the potential risks that decline the health and safety of people who do work in the workplace. Further, Chandrasekar (2011) explains that unsafe and unhealthy workplaces have the potential to cause injury to workers. Meanwhile, occupational hazard leads to occupational accidents and in the absence of routinely health and safety systems at workplace, makes employees vulnerable to occupational hazards, and it has the capacity to depress worker's morale and performance (Sadullah & Kanren, 2009); (Oketunji, 2014).

In organizations, there exists certain hazards which refers to potential hazards that affects workers' health, caused by environmental events which are "capable of exposing employees to varieties of diseases, like those in the health care industry. It is one's kind of work that determines to a large extent what he/she is expected to do, and the hazardous nature of the work which is performed, (United State Department of Labour, 2008); (Bureau of Labour Statistics, 2010). Hazard has multiple dimensions in its explanation, but for Alexander (2004) hazard is argued as the exposure to a certain risk of disaster in pre-disaster condition, due to the availability of the human population in hazardous areas. Hazards are of various types and comprise the following which constitutes the discussions below.

2.2 Exposure to Bio-Hazards

The complex nature of biological hazards to workers in the healthcare service delivery sector is such that puts their lives in constant danger. This is because biological hazards or biohazards are known organic substances that result in a viable threat to the health of people and other living organisms. The threat which bio-hazards

pose is due to the contingent factors inherent in them. These include micro-organisms, which are pathogenic, toxins, and viruses such as the coronavirus or covid-19 pandemic from biological sources, fungi, spores, and bio-active substances.

It should be noted that bio-hazards also include the biological transmission of all kinds of diseases. Globally, it is estimated that a total of 320,000 workers die each year from biological hazards (communicable diseases). This is due to exposure to biohazards at the workplace in the health care industry, (Driscoll et al, (2005); (Organizational Safety & Health Academy, 2007). According to (National Hazard Exposure Workers Surveillance, 2011), Biological hazards increase the risks for most workers in a large variety of ways. Employees in health care professions are constantly exposed to biohazards through daily contact with the human body, blood, saliva, tissues, mucous, urine, droplets from sneezes, and even feces. All of these substances have risk of high viral diseases. Those who work with live animals and animal products come in contact with blood, tissue, milk, and eggs; they are also vulnerable to animal diseases and infections, in which some have the capacity to infect humans. The biological hazards in animals include Q-fever, Hendra virus or avian flu.

Exposure to biohazards in the workplace can occur when workers in laboratory do cell cultures, soil, organic dusts, clay and plant materials, food, wastewater and sewage tests. However, exposure to molds, yeasts and coal in construction industry is also a hazard. Other hazards in some industrial processes, in workplaces with high humidity and air conditioning systems and in construction companies is air pollution. The exposure to biohazards is risky and may not be obvious, but has widespread consequences on the workers and the work environment, (OSHA, 2003). Apart from the health care profession, biological hazards consist of substances that result to socio-economic disruption, environmental degradation and property damage, such as insect infestations, (Driscoll *et al.*, 2005).

Consequently, Harrison (2001) argued that people who work in laboratory are exposed to animal related diseases, and develop allergies that can cause anaphylactic shock as well as death. Also, the exposure to industrial processes that involves metal and wood, coal in construction industry and cement producing companies results to hazards, (OSHA, 2003). In general, the public have poor understanding on biological hazards and the transmitters of biohazards (OSHA, 2007). It is the poor understanding of biological hazards that leads to poor hazard assessment among organizations and workers. However, the observation of (NHEWS, 2011) shows that human and animal related exposures have obvious evidence of biological hazards. Such is found in wastes, algae and molds in the work environment, where animals are kept. The poor understanding remains a great barrier to embarking on research toward having wider knowledge on biological hazard exposure in the workplace.

3.0 Occupational Chemical Hazards

Work and environment impacts on the health and safety of employees, who work with chemicals in organizations. This shows that organizations are influenced by work hazards, which must be controlled to reduce risk. The minimizing of risk may be achieved by understanding and utilizing appropriate models for worker's health and workplace safety. Chemical hazards are a serious occupational health and safety issue that relates to workplaces, where humans come in contact with varieties of chemicals (Pisaniello *et al.*, 2012). Those who work in chemical related occupations tend to incur occupational disease. The occupational diseases caused by chemical hazards are respiratory disease, cancer, and dermatitis, (National Occupational Health and Safety Commission, 2002). Further, chemical hazards are widely associated with facilities like refineries, chemical plants, large fuel and chemical storage worksites, where enormous quantities of hazardous materials and liquids are stored, handled as well as being processed, (Safe Work Australia, 2012).

For clearer understanding, a chemical is "any element, chemical compound, or mixture of elements and/or compounds", (Organizational Safety & Health Academy, 2007). Chemicals are hazardous substances which workers are exposed to at the workplace, which have a potential adverse effect on human health, (Safe Work Australia, 2010). Chemicals are dangerous substances, or mixtures that contain physical, chemical, acute toxic agents, which have the capability to harm or kill people. It is a hazard to workers, property or the environment

where they are used for processing. Chemicals have a competent and corrosive authority which workers must acknowledge, (National Transport Commission, NTC, 2007). Hazardous chemical contains materials that are treated or regarded as hazardous. They are substances that are widely agreed as Globally Harmonized system of classification and labeling of chemicals (United Nations, 2011) for the purpose of health effects, environmental impacts, physiochemical properties, that meet the global criteria for inclusion on the list of hazardous chemicals. These terms attributes and distinguishes dangerous goods and hazardous substances from others, (Safe Work Australia, 2012).

Chemical hazards are potential hazardous energy which can disrupt molecular bonding as a result of the reaction of chemical elements. However, toxic chemicals have the power to either cause serious injury or harm to workers' health if inhaled, swallowed, or by skin contact, and even death, (National Transport Commission, 2007). Therefore, hazardous substances also include industrial chemicals, agricultural chemicals, pesticides, pharmaceutical, food related chemicals and cosmetics that may be available in the work environment and that have an adverse effect on an employee's health due to direct exposure to the chemical, (Safe Work Australia, 2012).

3.1 Occupational Ergonomics Hazards

Ergonomics hazards is an occupational hazards associated with injuries and illnesses. Ergonomics means the way of making designs for work-stations, work-flow and work-practices to meet the capabilities of employees. Ergonomics modality helps to reduce those factors able to generate occupational risk and injuries associated with occupational ergonomic, such as strains and sprains and other traumatic disorders in the worker. Ergonomics hazards relate to work postures fatigue and abnormal effect in performing work and blood vessels disruption. More so, it can also cause musculoskeletal disorders (MSDS). Ergonomics which refers to 'worknomics' explains laws pertaining to, or measure. In full, ergonomics means the law pertaining to work, the measure of work. Ergonomics are risk factors inherent in the task and risk factors inherent in the environment. Employees in workplace are of various shapes, sizes and height vulnerable to some ergonomics hazards to an assigned role or job to perform. The given task(s) of the work can show potential risk factors that stipulate the probability of an injury. However, the workplace location or environment where the worker job exists may constitute exposures to occupational risk factors.

The major risk of Ergonomic hazard is (MSDS). This is resultant on the worker when there arises the case of mismatch between the jobs physical requirements and the worker physical capacity. This can increase the workers risk to musculoskeletal disorders that is work related. The worker is likely going to suffer muscular, blood vessels, nerves, tendons and ligaments discomforts. Employees in several occupations and industries can be exposed to potential risk conditions at workplace, such as when their job involves bending, pushing, lifting heavy materials, reaching overhead, pulling heavy loads, operating machines in awkward body postures and performing same jobs respectively. All these increases the workers risk to musculoskeletal injuries consisting of epicondylitis, tendinitis, fibromyalgia, carpal tunnel syndrome, osteoarthritis and rheumatoid arthritis, rotator cuff injuries (shoulder) and trigger finger and muscle strains and low back injuries.

Every worker's ability to meet each work task is necessary to understanding each worker's uniqueness. They should not be thronged together for the purpose of ergonomic design. In relative terms, stereotyping a worker's ability should never be based only on age, strength, or even gender. Ergonomic design requires that every work equipment or tool should be designed in accordance to meeting each employee job task and not the entire employee population (Oshacademy, 2017). Ergonomic hazards, affects the musculoskeletal system of the bones. To be precise, the major parts of this system include bones, tendons, muscles, ligaments, blood vessels, nerves and cartilage. To avoid risk factors on individual employee, it is vital to understand further that on designing a workstation, it should be designed specifically for the individual working at the workplace and however, there are inherent factors associated with the employee. This include age, gender, strength and endurance and physical fitness. Repetition and static work saps energy from the worker. More so, strength is required to do heavy work, although the lungs and heart gets stressed and that may lead to fatigue. This situation may result to injury and weakness to the muscles.

There are risk factors to every given work task and there are also task variables in the work environment that have the capacity to increase or decrease the risk of traumatic disorders this may depend on workplace or job design. However, the determining factors include tools, equipment, machinery, furniture, materials and workstation layout. Work designs helps to reduce risk factors in the workplace, and most tasks require forcefulness or physical effort to accomplish it. There is need to maintain the control of tools and equipment used for such purpose, which also depends on the object weight, type of grip, object dimensions, body posture, slipperiness of object and type of activity. Also inclusive is temperature, vibration, duration of the task, and the number of repetitions of such tasks. More so, the work activities that require force on the body comprise pulling, pushing, lowering, lifting, pounding, hitting, jumping and pinching.

However, it is the worker lifting posture that may be hazardous, or enables the risk of injury (Oshacademy, 2017). In a force related condition, where any part of the body presses against an object, such force may lead to excess mechanical stress on the ligament and tissues. On gripping an object, there is a suitable way and wrong way to grip an external object. Where the force and posture is not accomplished rightly, may cause harm to the hand. In the workplace, there are two ways to handling equipment, tools and materials for work and they include pinch grip and power grip. The pinch grip strategy needs much additional muscle strength, and that may likely result to a potential injury. In another dimension, the power grip is the situation where the muscle of the whole hand is applied with force to manipulate objects. This turns to be most acceptable, safest and effective grip to use.

When a task requires the worker to keep standing or sitting, that is, remaining on a posture for a long period of time while accomplishing a task, this condition increases the likelihood of generating serious injury to the worker. To this end, static exertion enables fatigues on the muscles which may also increase the chances of having more traumatic injuries. Meanwhile, some of the symptoms of excessive static load which results to ergonomic hazard includes feet ache, varicose veins, lower back pain, neck pain, forearm pain, wrist pain, and shoulder and arm pain. Ergonomic risk factors inherent in the work environment includes heat stress, cold stress lighting and noise. The external heat generated in the workplace may cause maximum heat load on the worker's body, which causes heat stroke, and is a life threatening situation. There are several other factors in which there are potential risk which the environment brings to the job. The heat stress comes through heat cramps, electrolyte imbalance, heat exhaustion, dehydration and loss of mental or physical work capacity. The presence of heat stress in the work environment is resulting from the apparent high humidity. However, the high temperature may be caused by tropical heat, heat from machine engines, summer heat, heat from chemical reactions and processes, body heat, welding and friction.

4.0 Psychological Hazards

Psychological hazards are a type of occupational hazards that has negative impact in the workplace among management and workers. It comprises all the elements involving the workplace, work environment, workstations, management practices or organizational activities that create a risk to worker's mental health and their psychological well-being (Alberta Government, 2017). Meanwhile, the various psychological hazards in workplace consists bully, harassment, traumatic events, violence and threats. However, worker's exposure to psychological hazards may result to varieties of outcomes that usually or likely affect workers well-being and work performance. Prolonged exposure to less or more psychological hazards, such like increasing job ambiguity or responsibility at work environment may also negatively impact the psychological well-being or health of the potential worker.

Certain work organizational factors, environmental factors and personal factors contributes to a worker's psychological well-being, and can affect any worker's health or altitude to work. According to (Alberta Government, 2017), shift work or hours of work, workload and workplace, job security, organizational change, interpersonal relationships and technological change are the work organizational factors that may affect the workers' health or psychological well-being. However, the environmental factors that can also psychologically affect any worker include noise, lighting and indoor air quality. Therefore, the personal factors that can lead to psychological hazard are work-life conflict or violence, changing levels of family living standard, pre-existing anxiety, substance abuse, depression, and other mental imbalance or illness.

According to the postulation of (Alberta Government, 2017), psychological hazards can have negative impact on worker's mental and physical health. On this note, workers may develop negative changes in behaviours with regard to coping with daily task. However, some workers deal with psychological hazards by involving in drug or alcohol abuse, which may develop more psychological distress. Meanwhile, such conditions and behaviours of the worker may affect the employer either directly or indirectly, because those workers who have poor psychological health can avoid turning up to work or engage in absenteeism. Other ways the employer can feel the impact of psychological hazards is on benefits costs, turnover, rates, accidents and injuries rates, workers' compensation claims and disability rates on which is associated between the employers and employees.

To control psychological hazards, the employers and employees are key participants. More so, the assessment of psychological hazards in the workplace remains a major aspect for its control. The assessment process includes the identification of potential hazards inexistence at a given period of work hours for every task at workstations and every job in the workplace. After identifying existing hazards, and its assessment to determine the risk involved, there is the need to take appropriate control strategies. However, designing measures to control psychological hazards at work environment needs the developing of policies on the control of psychological hazards. More so, such policies should have well designed implementation procedures that will show the employers commitment to control the risk at the workplace, (Alberta Government, 2017). However, occupational hazards are even found in other industries that generate and distribute useful energy.

4.1 Exposure to Electricity Hazards

Electricity is a well-known source of current being utilized for various activities. It has generally been recognized to be a traumatizing hazard in workplace Workers in electricity industries are being exposed to risks, such as electrical shock, electrocution, falls, burns, injuries and death, (Thaker *et al*, 2013). Furthermore, electrical hazards are frequently noticed in every industry, and it has been observed that there are four main types of electrical injuries resulting from exposure to electricity hazards, (Casini, 2016). These injuries include: electric shock, electric burns, falls instigated by contact with electricity energy and fatal electrocution. Meanwhile, for electrocution to happen, the worker becomes vulnerable to electrical hazard when there is exposure to some lethal rate of electrical energy.

For death to take place, worker's body must have contact to a potential active electrical source capable of vehemently stimulating the human nervous system. According to Casini (2016), the level of electrical injuries is determined on the magnitude of the active current, the entry point of the current, and the duration on which the electrical current passes through into the body. More so, the extent of damage to the human body and prompt medical treatment mainly determine the result of the energy exchange (Face,1991).

According to Casini (2016), electrical hazards is associated with electrical injuries which can occur in multiple ways, when the human body have direct contact with electrical current source. The result of the uncoordinated and asynchronous contraction of the muscle fibers within the heart that can quickly cause death due to absence of oxygen going into the brain, (Stout & Bell,1991). More so, the amount of electric current entering the human body is closely related to the level of resistance via the body. The environmental conditions like standing water, wet clothing and high humidity increases the potential effect of electrical hazards. On dry environment, the level of resistance can be as high as 100,000 Ohms, while broken skin may reduce the body's resistance to 1,000 Ohms. Moreover, high voltage of electrical current can break down and reduce the human skin resistance level to 500 Ohms. Once the body becomes punctured, there will be a massive flour of electrical current which quickly leads to cardiac stand still and rapid destruction of the human body internal organs, (NIOSH, 2000).

4.2 Electricity Work Commitment

Commitment in the workplace has become a major concern in most organizations in recent times, especially as it concerns workers who face potential workplace hazards while executing their routine tasks in electricity distribution industry. Commitment refers to persistent willingness in a given role or work, (Morrow, 1993).

Various scholars have examined commitment as it relates to individual goals, (Donovan, & Radosevich, 1998), to relatives and friends, (Spencer, 1995), and to one's community, (Greer & Stephens, 2001). Goal theory commitment in the work environment or workplace is very necessary for consideration. It is important to note that worker's life circulates around organizations and as well as the execution of work. More so, different forms of work commitment have been investigated by several scholars, which include job performance, turn-over, Job satisfactions, organizational commitment, occupational commitment and career commitment, (Cooper – Hakim & Viswesvaran, 2005). Commitment brings changes in the workplace, as individual workers show behaviours that persist in improving the organization, and fulfills their daily assigned tasks, such can raise high the organization's performance, (Cohen, 2003). Thus, commitment is the choice made by workers to persistently continue with their work despite the lingering hazardous nature of such work. Researchers have stressed that some workers are committed to their organization, while others are committed to their occupation, and some are more committed than others (Wallace, 2013).

4.3 Management of Workplace Hazards

The approaches to controlling and managing of hazards are of three categories. This includes hazard control protective clothing; engineering, warnings and waste disposal; and training on safe handling of biological materials as in biological hazards. Workers in public or private healthcare industry can play vital roles in controlling biohazards. They should often evaluate the potential for being exposed to hazardous materials in all of their tasks and draft out an effective hazard control measure. Another measure for controlling biological hazards is the decontamination or removal of contamination of microorganism. This procedure enables the killing of microorganisms on items for safe use or disposal. When items or materials are disinfected, it will eliminate specific kinds of organisms, by chemical means. Hence, disinfection is an avenue of decontamination. The surfaces that have spill of potentially infectious items must be totally decontaminated. Also every work area, client rooms and other devices used may also require decontamination, (Shematek & Wood, 2006).

In another dimension of ensuring a safe work environment, ventilation of workplaces must be considered with utmost importance. Most workplace, usually have general ventilation, with the use of furnaces, windows and air conditioning. There should be a regular maintenance of ventilation equipment, as well as reduce the risk of any microbial growth. Administrative controls are often used against biological hazards in health care. This measure of control gives attention on ensuring that appropriate and preventive steps are applied, that all work procedures properly documented and those employees in public health are given adequate training often to use the proper procedures. However, administrative controls consist of policies and procedures that ensures expectations of performance, codes of practice, staff placement, required orientation and training, work schedules, and occupational health programmes in which baseline immune status is recorded and immunizations are provided, (Government of Alberta, 2011).

In the healthcare sector, an encompassing management system establishes the continuum of prevention of infection and control system all over work-sites and operations. More so, this system should include:

- a) A control process that identify worksite specific hazard for all sites and tasks, and how to tackle them.
- b) An infection control and prevention design with clear delegation of responsibilities and roles.
- c) Regular standards for sterilization of equipment, disinfection of materials, cleaning of surfaces, procedures, and policies practices. In addition, hand wash and hygiene policies and available materials, assessing client risk; communication routes, decontamination of clothing and persistence of dedicated clothing.
- d) Preventing and managing properly any outbreak of infection.
- e) Adequate manpower to comply with occupational health and safety regulations.
- f) Proper orientation and workplace education.
- g) Policies and procedures for biomedical waste handling.
- h) A comprehensive monitoring and surveillance plan.
- i) Chronological recording of events and reporting of any outcomes. Thus, every work procedure should add the consideration and control of the hazards exposure to workers.

In the event of any biological spill, the procedures of tackling such event have to be made known before hand to workers. Therefore, the effective and adequate control of a biological spill is dependent on the training and techniques prescribed to workers in public health sector, and the response measure prescribed. To this effect,

materials necessary for clean-up of spills and decontamination must be readily procured and available to enable timely spill response. The management or control of risk of chemicals involves the systematic development and devoted implementation of chemical hazards controls as well as the monitoring of the effectiveness of the control procedures. Controlling hazardous chemicals aligns properly in accordance to hierarchy of controls. This is because a procedure of controls can eliminate hazards or minimize the inherent risk involved. However, it is well required to ensure the implementation factors like putting barriers or defenses to have effective control over hazardous chemicals. Meanwhile, the control procedures as it concerns toxic chemicals include: the approaches that are effective and reliable that give required result of the elimination of hazardous substances in workplace; the substitution of hazardous substances for less chemicals that are hazardous. This may require using chemical substances in a pellet than in a dust form (OHS Body of knowledge chemical hazards, 2012).

The isolation of hazardous chemical is also an effective way of control. To this regard, workers are being protected in a control room, assigning a buffer point within a chemical reactor, and utilizing the material when workers are not in the environment. Another measure of controlling hazardous chemicals is by implementing engineering controls which ensure the reduction to exposure at the vessels or pipes containing hazardous chemical. It is necessary also to prevent uncontrolled releases of chemicals; which may result to the use of strategies like reduction of quantity, temperature control and segregation of storage facilities. These kinds do require some measure of administrative controls. In addition, to support high-level controls, administrative controls are most required.

More so, administrative controls involve maintenance or cleaning of equipment and re-training of workers as well as training of their managers in operating and maintenance of equipment. However, preventive maintenance may be necessary in eliminating accidental releases of hazardous substance from source. Therefore, work processes need more modification to allow engineering controls to function effectively as required; this consists the safe-handling modalities and designed storage instructions, (Safe Work Australia, 2011).

The use of personal protective equipment (PPE) is important for workers in the workplace. It helps to reduce the risk to exposure of any dangerous or hazardous substance. Wearing PPE can also reduce exposure to hazardous chemicals absorbed via respiration or body or eye contact. The selection of hand gloves to guide against any chemicals absorbed via the body requires checking the charts to indicate the chemical resistant gloves, footwear and safety eye glass. However, poor PPE can be a means to chemical exposure. Moreover, it is important to determine the effectiveness of procedures of control by adequately evaluating the process in the workplace in several ways which may include routine atmosphere monitoring, inspections of control methods, reporting and investigating spills, containment losses, or environmental and accidental chemical releases, biological monitoring of workers urine, saliva-samples, exhaled breath and blood samples of individuals exposed to chemical hazards and medical surveillance, health effects on workers exposed to hazardous chemicals, (Work Safe Alberta, 2011); (Safe Work Australia, 2011); (OHS Body of Knowledge Chemical hazards, 2012).

Managing hazardous substances or examining diseases caused by exposure to chemicals, OHS professional is required to liaise with other specialists like: "certified occupational Hygienist with expertise in the relevant area for advice on exposure assessment and control; dangerous goods consultant for advice on transport, storage and handling; production engineer for safe work practices; chemical engineer for engineering controls, particularly at the design phase; occupational physician for biological monitoring and health surveillance; occupational health nurse who may be the first to receive reports of health effects; Epidemiologist to determine the strength of association between chemical exposure and disease; and Toxicologist to determine safe levels of exposure through health-based risk assessment, (OHS Body of Knowledge chemical hazards, 2012 p.33)

Several control strategies are useful in controlling ergonomic hazards; it is however in hierarchical control form. Employers are encouraged to utilize the hierarchy of hazard controls, which comprises, elimination, substitution, engineering controls, warnings, administrative controls and personal protective equipment, (OSH Academy, 2017). This hierarchy of controls is seen as being highly effective and substantially protective than other measures for controlling workplace ergonomic hazards. By elimination we mean removal of hazards and by substitution it refers to replacing hazards. Both elimination and substitution are seen to be an effective way

of reducing hazards, though it is regarded as being a difficult process. When the process is at the design stage, it becomes simple to implement. However, if it's an existing process, there is need to make some changes on the kind of equipment available, and procedures may be needed to eliminate or substitute for any hazard. In this regard, engineering controls consist of making required changes to workstations, equipment or tools utilized on the job. This control measure is generally accepted over others as paving way for permanent changes that ultimately eliminate hazards even at the source. It is however very expensive to implement, but its effect is highly significant. Thus engineering control ensures the isolation of hazards, (OSH Academy,2017). In addition, administrative controls are usually dictated procedures in which management considers scheduling changes developed to prevent and reduce exposures to any ergonomic hazards. Administrative control does not totally eliminate risks or hazards, but advocates for safe policies and procedures for the minimizing of ergonomic hazards at workplace.

The use of personal protective equipment can avert some degree of ergonomic risk in the workstation. Some of these devices include wrist splints or supports, gloves, and back belt. Utilizing ergonomic personal protective equipment (PPE) is seen to be effective in reduction of the intensity or frequency of exposure, injury and effects of ergonomic hazards. According to (Krau,1996), the use of back-belts reduces the risk of lower back injuries. However, controlling ergonomics hazards is important and requires a well-balanced systemic approach of implementing engineering control and administrative control strategies with a well-defined safety system improvement, which interrelate to ergonomics hazards, and ensuring that unsafe behaviours are eliminated.

According to Zhao *et al* (2014), electrical accidents related to occupational hazards and injuries are disproportional in electrical and construction industries than in other sectors. To mitigate occupational hazards, there is the need for risk control practices and performance evaluation checks. These processes use a hierarchy of controls standards to evaluate and estimate risk protection effectiveness, (Manuele, 2006). However, the control measures are categorized into five main orders. The control measures include elimination, substitution, engineering, administration, and personal protective equipment. Elimination of hazards is the process of changing a job pattern in systemic way that will totally eradicate a hazard; an example is when disconnecting electrical circuits, there is need to use protection. By substitution, hazardous work can be exchanged with non-hazardous, like in using a cordless tool for a corded power tool. Studies show that engineering measure is the application of safeguarding technology to put a barrier to prevent hazard from reaching the employee. This is where non-conductive ladders are used to help isolate workers from power lines. For administrative measure, work location schedules, policies, or procedures are changed for possible prevention of occurrence of electrical hazards. In this case, certain areas are placed with caution signs like lockout or tag out. This system may reduce the probability of an employee being shocked by electrical current. Personal protective equipment is the level of control measure that makes it mandatory for workers to use insulated cloth, helmet, respirators, sleeves, gloves, ear plugs and goggles. The basis for these control measures is to protect and prevent workers from involving in any incident of hazards.

Employees in various job areas, such as tree trimmers, telecommunication workers, utility line workers and technicians are often exposed to energized and overhead power lines. These occupational risk exposures can be minimized by insulating or isolating the electric current source from the vulnerable worker. This can be achieved by placing a physical barrier or insulating the power lines, or by adhering to prescribed clearance distances (Kisner & Casini, 2006). In the same vein, workers in maintenance section might inadvertently draw close or contact erected overhead crane runway conductors. Maintenance workers might also neglect to replace an isolating metal plate covering electrical conductors, thereby putting other workers at risk. However, the compliance with measures of control of electrical hazard could eliminate the potential risk and reduce the risk of electrocution.

5.0 Methodology

The study adopted the descriptive survey design The population of the study is the estimated total number of employees in Electricity Distribution industry in Nigeria The sample size was derived using the Taro Yamane formula expressed thus: $n = \frac{N}{1 + N(e)^2}$. Where n =sample size, N =population size, and e =level of precision or margin of error at 5%. However, the sample size calculated is thus: 400 of which 301 respondents returned the administered questionnaires. The purposive sampling technique was used in the study. And the Statistical

package for Social Sciences version 24 was used of which the Spearman's rank order correlation was utilized to present data on tables.

5.1 Result and Discussion

Table 1: Univariate Analysis for Electricity Work Commitment

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std Error
Commitment	301	1	5	3.55	1.111	-459	.140
Commitment	301	1	5	3.60	1.014	-317	.140
Commitment	301	1	5	3.84	.911	-964	.140
Commitment	301	1	5	3.85	.861	-907	.140
Commitment	301	1	5	3.88	.900	-1.012	.140
Valid N (Listwise)	301						

Source: Fieldwork Survey (2019).

Univariate analysis for commitment and motivation shows that each item for the construct has a minimum entry of 1 which represents strongly disagree and a maximum of 5 which represents strongly agree. Each of the items also had a mean above 3.0 and a negatives skewness which implies a non-parametric test such as Spearman rho.

5.2 Correlation

		Electrical_Hazard	Commitment_and _Motivation
Spearman's rho	Electrical_Hazard	Correlation Coefficient	1.000
		Sig. (2-tailed)	.697**
		N	.000
Commitment_and_ motivation	Commitment_and_ motivation	Correlation Coefficient	301
		Sig. (2-tailed)	301
		N	.697**
			.000
			301

** Correlation is significant at the 0.01 level (2-tailed)

Source: Fieldwork Survey (2019).

The data shows that a significant relationship exists between electrical hazard and commitment with a correlation coefficient of 0.697 and a p-value of 0.000 which is less than alpha of 0.05. The research therefore rejects the stated null hypothesis and accept the alternate.

5.3 Conclusion

The result and findings of this study reveals a strong existence of occupational hazards and worker's commitment in electricity distribution industry in Nigeria. The study orchestrated that when there is awareness on occupational hazards, there will be increased safety consciousness and high commitment to routine work. This is because consciousness about worker's safety would help to increase organizational performance. In addition, the study reveals that electricity hazards have several effects on employees which causes painful sensation, muscular contraction, burns and electrocution to victims.

Recommendations

The study recommends the following:

1. Safety training and re-training should regularly be conducted to create awareness of potential hazards in workplace
2. Employees should be compensated for work commitment to every routine task successfully done to improve organization performance.

3. Emergency and medical treatment centres should be organized to handle incidents of cases resulting to workplace injuries.

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