

# **UNDERSTANDING THE RISK OF EXPOSURE TO OCCUPATIONAL HAZARDS AND SAFETY MEASURES FOR NIGERIAN WORKERS**

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## **ABSTRACT**

To have a vibrant and productive economy in any nation, it becomes imperative that the health and safety of her workers must be given priority attention by the worker himself, employer and the government. Because of the increasing industrialization, infrastructural developments and modernization taking place in developing countries particularly like Nigeria. These factors have not only increased the job opportunities in and around the country but at the same time increased the incidence of morbidity and mortality of workers.

And so it is important that the worker has an in depth knowledge and understanding of the nature of the job with regards to the health hazard exposures peculiar to the job and the safety measures to be undertaken even before accepting the job. More so, safety officers, factory and industrial managers etc. need to appreciate the need to know all that is involved in the job in order to make the workplace a safe and conducive one for the worker and achieve high productivity.

This paper attempts to highlight a lot of occupational hazards that occur among both the formal and informal Nigerian workers, reasons for their occurrences, safety measures, lapses on the part of the employer and reveals the laxity on the part of government to enact and enforce occupational safety and health laws.

**KEYWORDS:-** Occupation, Health, Workplace, Hazards, Nigeria, Safety

## **INTRODUCTION**

### *DEFINITION OF OCCUPATIONAL HEALTH*

The joint International Labour Organization (ILO) and the World Health Organization (WHO) constituted in 1950 and revised in 1995, defined Occupational Health as the “promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupation”. ILO further summarized Occupational Health definition as the “prevention of departure from health among workers caused by their working conditions; the promotion of workers in their employment from risks resulting from factors adverse to health, the placing and

maintenance of the worker in occupational environment adapted to their physical and psychological well-being; and the adaptation of work to man and man to his work.

Despite improvements in occupational safety and health over the years, workers continue to suffer work-related deaths, injuries, and illnesses. Though the Occupational Safety and Health Act (OSHA) makes it mandatory for employers to provide a workplace free from recognised hazards that cause, or are likely to cause, death or serious physical harm to employees, the growing rate of work-related diseases across the globe is alarming (Eroke, 2013).

Nigerian workers across all sectors of the economy recently have become more endangered and prone to accident which ranges from minor to fatal, as some have lost their lives right in the line of duty, while some have lost vital organs, therefore rendered permanently incapacitated.

#### WHAT IS AN OCCUPATIONAL HAZARDS?

The nature, situation and conditions of work determines the type and nature of occupational hazards (diseases and accidents) prevalent in a particular occupation/industry. Even the work processes, products and by products can constitute a health hazard to the workers, their immediate families and their neighbourhoods (Achal, 2000).

The hazards can affect many organs of the body causing some pathological changes that can threaten the health and well-being of workers. The threat can result in physical, mental, social and behavioural changes and even death if prompt treatment is not instituted. This is why it is very necessary for occupational health practitioners to have thorough knowledge of the hazards associated with each occupation for quality care provision and accuracy in diagnosis. The workers should also be well educated on the hazards in their particular occupation. This will enable them take precautionary measures and then comply with the occupational safety measures provided for them.

## **OCCUPATIONAL HEALTH PROBLEMS**

Occupational health problems can be regarded as diseases, accidents and other hazards arising from the work environment or situations that arise in the attempt to perform tasks in any occupation. It is a compensable disease that arises out of and in the course of employment (Henderson and Nite 1978, p. 243).

#### WHAT ARE SAFETY MEASURES?

Safety implies a state of relative security from accidental injury or death due to measures designed to guard against accidents (Burdine and Mc Leroy, 1992). As a legal concept, it implies a state of relative security from accidental injury or death due to measures designed to guard against accidents (Burdine and Mc Leroy, 1992). Therefore, safety measure is an effort or action put in place to prevent, minimise and eliminate danger.

## **HISTORICAL BACKGROUND**

### *DEVELOPMENT OF OCCUPATIONAL HEALTH IN NIGERIA*

Development of occupational health in Nigeria followed the pattern in other developing countries. Originally, the main occupation was unmechanized agriculture and animal husbandry. The workforces were mainly women and children. Payment for work was not known. Workers were exposed to many types of health hazards. Treatment then was not organized. Later, manufacturing including construction came into being. Modern occupational health, reported (Achal, 2000) started as a result of colonization and industrialization by Britain.

The first occupational health services in Nigeria was introduced by the Medical Examination Board of Liverpool Infermery in 1789 with the main aim of caring for the health of British slave dealers from Africa to Britain. However, after the abolition of slave trade, the Royal Niger Company of Britain increased its exploration and trading activities in Nigeria. The Company organized its own health services which were later inherited by the United African Company (UAC). During the British colonial rule, many of their soldiers were dying of malaria.

This led Colonel Lugard to establish health services to take care of the health and welfare of soldiers and other colonial administrators. Later, during the Second World War, the Medical Corps was separated to cater for the military alone leading to the creation of Public Health Service which became the nucleus of the National Health Service. After the world war, many industries started emerging chief among them were construction of rail lines and coal mining. This attracted employment of many Labourers especially young men. These workers commonly worked 12-14 hours shift; 7 days a week under unspeakable conditions of grime, dust, physical hazards, accidents, smoke, heat and noxious fume among others.

Feeding was very poor; workers were dying in their forties and fifties. People had no knowledge between work conditions and health. They accepted work related illnesses and injuries as part of the job and lived shorter lives. Employers attributed workers' poor health and early death to workers' personal habits on the job and their living conditions at home. Little or no attention was paid to prevention of the hazards in work places. Payment was very poor and dismissal very common because job seekers were many. Workers' reaction to poor conditions at work resulted in killing of coal miners in Enugu. That exposed the working conditions of coal miners and the origin of worker's day in Nigeria. These developments and awareness lead to the establishment of some occupational health services in some Nigerian industries and occupational health legislations Act in Nigeria. The earliest practices that can be regarded as occupational health services in Nigeria were carried out by British Companies like UAC, John Holt.

This was followed by establishment of some occupational health services by Nigerian governments in the Railway Corporation and Coal Mines. Such services included pre-employment and periodic medical examination, treatment of minor illnesses and accidents. In some cases, general practitioners were hired on part time basis, especially in urban centres to take care of the sick injured workers. The increased industrialization and its impact on health, safety and welfare of workers lead to the creation of occupational health unit in the Federal

Ministry of Health and the Institute of Occupational Health in Oyo State Ministry of Health. These agencies organized courses for managers, safety officers, medical officers, occupational hygienists, and other personnel involved with the protection, maintenance and promotion of health and welfare of workers in Nigeria.

### POPULATION WORK FORCE IN NIGERIA

Thirty-eight per cent of the male working population in Nigeria are engaged in agriculture (against 20% of women) and 56% of the female working population are engaged in sales and service occupations (against 19% of men). Twenty-one per cent of men and 9% of women are engaged in skilled manual trades and 16% of men and 8% of women in professional and technical jobs (NPC) Less than 15% of the total workforce is employed by government in the civil service ( Omokhodion, 2009) .

## **FORMAL SECTOR**

This is the sector of the economy having occupations in which the workers are largely employed formally by private or public i.e. government. The jobs are administratively structured such that the worker's job is secured to some extent.

## **OCCUPATIONAL HEALTH PROBLEMS IN INDUSTRY**

Workers in industries do face numerous occupational health problems. Such problems seriously affect their productivity and life span. The main problems include: Problem of social and environmental pollution, air pollution, noise pollution, and chemical pollution.

### SOCIAL AND ENVIRONMENTAL HEALTH PROBLEMS:

Migration of both skilled and unskilled workers from rural to urban centres causing overcrowding and environmental pollution. The migration results in unemployment, poverty, lower standard of living, delinquent behaviour such as abuse of drugs and alcohol, prostitution, robbery, and psychological problems among others. These outcomes bring about stress, anxiety and their implications. Apart from environmental pollution, there is problem of poor housing, overcrowding, poor working conditions and malnutrition.

**Traumatic injuries** are common especially where protective measures are not taken seriously. Most known injuries include musculoskeletal injuries, traumatic amputations, bruises, lacerations. These do cause serious set-back in the industries concerned. There could be lost of economy due to absenteeism and poor productivity.

**Air pollution** is a serious health problem of industrialization. Apart from contamination of air and the entire environment through automobile and industrial fumes, it introduces harmful

pollutants from the exhaust of internal combustion and diesel engines. The pollutants affect the entire body organs and cells causing such risk conditions as cancer, degenerative and chronic diseases including irritation of respiratory and cardiac problems, loss of visibility leading to accidents (Achal, 2000).

### EXCESSIVE NOISE POLLUTION

Noise is a form of energy that is transmitted through the air as waves with varying pressure (Achal, 2000). Noise is measured in decibels. The lowest sound, the human detects is one decibel and the highest is 150 decibel which is damaging to the ear. Example of industries that can produce loud noise include: automobiles, milling/grinding machines, panel beating workshops, stereo equipment workshops, generator producing industries and many others. These industries produce serious health problems which are often neglected. Problems from the noise include poor hearing, loss of concentration, irritation, fatigue, restlessness and in serious cases loss of hearing.

**Excessive temperature and humidity in industries** have their own problems. This occurs in industries where the industrial processes make atmospheric control difficult. Examples of such industries are textile mills, laundries, breweries. The resultant problems include eye inflammations, respiratory and gastro-intestinal problems and even exhaustion resulting from atmospheric extremes.

**Poisonous** - harmful substances other than gases and fumes can be present in industries to cause problems. Chemicals used in industrial plant operations can act as poisons to cause harm to the skin. Chemical chronic poisoning can occur in workers improperly handling materials in routine operations without protective measures.

## **OCCUPATIONAL HEALTH PROBLEMS OF WORKERS IN HEALTH INSTITUTIONS**

Health workers in health institutions (hospitals, clinics, health centres etc) are faced with numerous health problems which impact seriously on their health status. The hospital environment by its nature is full of hazardous agents. The problems could be classified into endogenous and exogenous (Asogwa, 2007).

a) Exogenous problems are such that were brought into the hospital environment by the health worker suffering from such a condition such as tuberculosis, Human Immunodeficiency Virus (HIV), chicken pox and other conditions that have long incubation period and cannot be diagnosed early for preventive measures to take place.

b) Endogenous problems are those acquired within the hospital from patients, patients' relations or even from workers. Example of such problem include hepatitis B, HIV, other blood sera (that is hazards due to exposure to infected blood and other body fluids), other

problems include protozoa infections such as malaria parasites. The hazard could occur through needle stick injuries, lacerations from razor or Lancet or scalpel blades that were infected and other sharp instruments.

c) Hazards resulting from radiation such as x-rays used for radiotherapy. This can result in radiation injuries like cancer. This is seen mostly in workers in x-ray departments where radioactive substances are used for therapeutic purposes.

d) Problems due to exposure to communicable diseases such as tetanus, chickenpox, and other blood borne pathogens. This is a major concern when caring for infected patients. The presence of resistant organisms causes extra concern and makes treatment difficult. Workers who have frequent contact with blood and blood products and those engaged in intravenous therapy have a special risk for exposure to hepatitis B.

e) Problems due to exposure to food and water borne diseases include diarrhea, gastroenteritis, caused by schistosomiasis, salmonella's organisms. These problems occur due to contamination of food and water within the environment of the health institution.

f) Problems resulting from hazardous chemical agents do occur. Anaesthetic gasses can increase the risk of spontaneous abortion in pregnancy; maternal illness and death in severe cases and the risk of foetal malformation or death in severe cases. Chemotherapeutic agents used in the treatment of cancer are extremely toxic.

Contact with many drugs, especially antibiotics during preparation and administration may cause the health worker to develop sensitivity. This can cause transitory problems such as hand and skin rashes and other undesirable effects. Cleaning agents and disinfectants used in hospitals can cause some hazards if not properly used.

g) Back and joint injuries are common occupational problems among hospital workers. These problems interfere with the working life of people. They occur due to improper body alignment before and after lifting patients and equipment.

h) Other problems include occupational stress which may be due to pressure of work, shortage of personnel, interpersonal relationship with other staff or with supervisor or with patients or patients' relations or even with self. There could be physical attack from violent and emotionally unstable patients; burn outs due to pressure of work or other various psychosocial stresses at work.

Health workers mostly at risk of health problems include doctors, nurses, laboratory staff, radiographers, mortuary attendants, cleaners, physiotherapists community health practitioners and many others. The major sources of the health problem could be hospital wards, hospital clinics, theatres, laboratory, mortuary and other areas where patients are being treated and blood and other body fluids and specimens are taken for investigation.



## **OCCUPATIONAL HEALTH PROBLEMS OF AGRICULTURAL WORKERS**

In developed and developing countries including Nigeria, agricultural work is the main occupation for majority of the people. The type of agricultural work varies and ranges from mechanized to non-mechanized farming. The activities involved included: clearing the ground, planting, weeding, harvesting, and processing, among others. Then for animal husbandry it involves breeding, raising and caring for animals. The health problem can occur from any of the activities and could be grouped into general and specific health problems. The general problems include: cardiovascular, respiratory, nutritional problems and accidents

Specific problems are those connected with various agents of diseases such as physical, biological and chemical hazards (Achalu, 2000). **Biological hazards** include zoonosis or diseases transmitted by animals during caring and handling of animal products and wastes. Examples of such health problems include: anthrax, brucellosis, bovine tuberculosis, laser fever, rabies, bird flu and many others. These problems arise during planting, harvesting and primary processing of all types of crops as well as problems arising from breeding, raising and caring for animals, tendering market gardens and nurseries.

**Parasitic diseases** transmitted due to contact with polluted water in farmlands and poor sanitary conditions of agricultural environment include: hookworm disease (ankylostomiasis), schistosomiasis especially in irrigated and riverine farm lands, tetanus, sleeping sickness, malaria, skin rashes and many others.

**Allergic diseases** do occur due to inhalation of vegetable pollen dusts, animal dusts, organic chemicals and reaction to certain food substances. Such diseases include asthma, byssinosis from cotton dust, bagassosis from sugar cane bagasse, allergic conjunctivitis from rubber, dermatitis from wood dust, and allergic skin reaction to certain grasses and chemicals.

**Physical problems** do occur as a result of exposure to prolonged heat and sunlight, noise from farm machinery, dust and fumes, puncture wounds from sharp instruments and woods, cuts, bruises and lacerations. These can cause severe preventable diseases like tetanus, bacterial infections and gangrene of the wound. Other problems include backache resulting from prolonged bending, heavy load and wrong posture.

**Accidents and other injuries** do occur and they can result from liquid or gas splashing, electrocution due to electrical faults, falling from height such as palm trees, mango trees, tractor accidents, and so on. We also have records of stings and bites such as human bite, snake bite, dog bite, scorpion bite and many others. When the stings and bites occur, the treatment is always an emergency in order to save life and protect the individual. Human bites do occur over ownership of farm, and it is the most dangerous if treatment is not taken at once.

**Social problems** include: low income, poverty, lack of healthcare and health facilities, water borne diseases like diarrhoea, cholera, schistosomiasis, dysentery, parasitic problems like hook worm, tape worm, and other water borne diseases got from polluted stagnant dirty waters in the

farm land as well as sanitary conditions (Achal, 2000). Food poisons also do occur either as a result of contamination at the harvesting or preparation or servicing or even eating with soiled hand or contaminated plates and cutleries.

Work place violence is a serious cause of health problems. It may occur over ownership of farm land or economic trees. This can cause interpersonal or even communal violence, body injuries and death in severe cases.

## **HEALTH PROBLEMS OF WORKERS IN EDUCATION INSTITUTIONS**

Educational institution (primary, secondary and tertiary) is purely a learning institution where teachers and students interact. The proprietor of the school is the employer while teachers and students are regarded as employees. Both teachers and students are exposed to various occupational problems. Teachers face such problems as:

**Accidents** - might occur resulting in injuries like falls, chalk board dropping from the wall or knocking the feet against hard objects. Infections can occur. It could be transmission from infected student or from the school environment through the use of infected animals for practical demonstration or contaminated environment e.g. chickenpox, measles.

**Needles prick injuries** occurring during practical demonstrations on how to inject animals or vaccination and immunization of animals.

**Varicose veins** in severe cases resulting from long standing and pressure

**Respiratory problems** could be due to inhalation of chalk particles and particles from dust within the school environment.

**Dehydration** could be due to talking, heat on radiation, convection and conduction of heat.

**Electrocution** could be due to faulty electrical appliances in the school premises and in the offices. It can occur during laboratory demonstrations or even during teaching process.

Loss of voice could be due to strains on the vocal cord during long period of talking in large classes. The teacher has to try to increase the volume of the voice while teaching to carry the class along.

Anxiety and its implications like hypertension, other cardiac anomalies resulting from strains and stresses in school. The stress can be caused by the pressure of work; from students especially with stubborn students; from, employers, from self due to inner tensions from inability to fulfil one's desires, stresses from work overload; generated by caring for students and their personal problems; poor remuneration and irregular payment of salary.



Other causes of anxiety and stresses include organizational structure of the school, job insecurity facing teachers; students parent intrusions, relationship with school workers and co-teachers as well as relationship with supervisor. Other causes of emotional dissatisfaction include back pain, frequent headache, pains and disabilities, and other illnesses.

The health problems of the teacher can cause absenteeism and decreased productivity, poor learning and poor students' performance. Indirectly this could cause poor academic and administrative growth of the school.

## **THE INFORMAL SECTOR**

Workers in this sector are most times casually employed may be by relatives, family members or self employed. Examples of occupations in this sector are street hawkers, sedentary hawkers, small and medium jobs and menial jobs etc.

Studies have shown that workers in this sector are at risk of exposure to several hazards like body injuries from road accidents, harassments from police, task force environmental officials etc (( Oluyomi 2012). Other hazards mentioned above are likely to occur.

## **PREVENTIVE MEASURES TO OCCUPATIONAL HEALTH PROBLEMS**

It includes:

- Pre-employment medical examination of all employees to rule out presence of any health problems and potentials for hazard in the job.
- Immunization of employees at risk of infections such as tuberculosis, hepatitis B and HIV, where applicable.
- Periodic monitoring of all employees in all occupations especially those in high risk areas e.g. periodic x-ray examination of staff working in x-ray units, or those working in lead producing industries, heavy metal industries.
- Regular inspection, of food preparation, servicing and storage facilities as well as inspection of food preparation environment.
- Ensuring the use of wholesome water for drinking and food preparation (pathogen free chlorinated water) to avoid water borne infections and making sure that water containers are free from contamination.
- General hygiene of the work environment especially that of the hospitals, schools and many others to avoid accidents and infection dissemination.

- Provision of safety devices such as eye goggles, booth, helmet, lead apron and many others.
- Supervision of working environment intermittently
- Health education and counselling

## **ENGINEERING PREVENTIVE MEASURES ARE AS FOLLOWS**

There should be appropriate designs of the workplace, equipment, machinery to work with.

The workplace should always be kept clean.

The work place should be generally well ventilated.

Substitution of machine spare parts whenever there is need.

Environmental monitoring should be done from to time to time.

## **LEGISLATION**

There must be labour Acts, factories Acts and industries Act in place. So that employers do not take undue advantage of their employees.

The government should ensure that employers whether private or individual owned firms abide strictly to these laws. This is very important so the rights and privileges of a worker are not abused.

## **RECOMMENDATIONS**

### **RESPONSIBILITY ON THE SIDE OF GOVERNMENT**

It is the sole responsibility of the government to enact and enforce laws upon employers of labour, labour unions and all-concerned organizations that are required to offer satisfaction to the worker on his or her job. More importantly giving much attention to laws that will promote occupational safety and health, ergonomics and compensation. So that the work place can be the second home of the worker, objectives and goals of the job are achieved and high productivity to benefit the economy.

## **RESPONSIBILITY OF THE EMPLOYER**

The employers should establish a healthy working relationship with their workers and provide and always fulfil their terms and conditions of the work towards their workers that have been initially agreed upon.

## **RESPONSIBILITY OF THE EMPLOYEE**

Workers should abide by the rules and regulations of the workplace and practise all precautionary measures while they work in order to prevent and eliminate the dangers that could be encountered at work place.

Occupational Safety and Health Promotion should be intensively carried out in every work place. This will lead to awareness, sensitization and healthy and safety practices at work place.

## **CONCLUSION**

The safety of the work place is the collective responsibility of the three groups – employer, employee and government. This is very important in order to tackle the high incidence of morbidity and mortality of workers.

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