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Knowledge and Practice of Occupational Safety Measures among Emergency Health Workers in University of Medical Science Teaching Hospital in Ondo, Ondo State

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ABSTRACT

Human beings engage in one occupation or the other and all these occupations involve some degree of occupational hazards that predispose workers to illness and injury. Workers in both developed and developing countries are at risk of exposure to workplace hazard. Hence, the need to ensure protect[on of worker's health through provision of safe working environment.
The study was carried out using descriptive survey research and the data was analysed using both descriptive and inferential statistics. Descriptive statistics of frequency count and percentage was used to analyse the demographic data, while the inferential statistics of Pearson Product Moment Correlation was used to test the hypothesis at 0.05 alpha level and the direction of relationship between the independent and dependent variables. One hundred and sixty five (165) respondent were selected using purposive sampling techniques and total enumeration. The result of the study showed that there is a relationship between: knowledge and attitude towards occupational safety measures t ($r=0.238$, $p<0.05$), between knowledge and practice of occupational safety measures ($r=0.785$, $p<0.05$) Also, there was a significant relationship between attitude and practice of occupational safety measures ($r=0.785$, $p<0.05$) among emergency health workers in University of Medical Science Teaching Hospitals in Ondo, Ondo State Moreover, there was a significant gender difference in knowledge of occupational safety measures among emergency health ($t=6.596$, $p<0.05$). among emergency health workers in University of Medical Science Teaching Hospitals in Ondo, Ondo State ($t=4.406$, $p<0.05$).Bases on the above findings, it was recommended that, emergency health workers should receive more training on the use of personal protective equipment and that there must be adequate provision of personal protective equipment by the Government.

Key words: *knowledge, safety, practice, personal protective equipment, emergency*

Introduction

Workforce is a backbone of a country development. A healthy, well trained and motivated workforce, increases productivity and generates wealth that is necessary for the good health of the community at large. The worker's health can affect his or her performance and productivity depending on environment disposition, safety precaution and occupation organization (Achalu 2000). The need for employees' safety from occupational hazard should be given priority. Every workers needs to be free from all forms of hazards (Asogwa 2007). Occupational safety is a multidisciplinary activity aimed at: the protection and promotion of safety of workers by preventing and controlling occupational diseases and accidents and eliminating occupational factors and conditions hazardous to health and safety at work; the development and promotion of healthy and safe work, work environments and work organization. Occupational health is the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and people to their jobs. Occupational hazard according to Robinson and Davidson (1999) is a risk or danger accepted as a consequence of the nature or working conditions of a particular job. Occupational hazard (OH) can also be defined as a risk to a person usually arising out of employment They stated further that it encompass many types of hazards, including chemical hazards, biological hazards (biohazards), psychosocial hazards, and physical hazards. Park, (2007). Observed occupational hazard as a term signifies both long-term and short-term risks associated with the workplace environment. Short term risks may include physical injury, while long-term risks may be increased risk of developing any chronic health issue. It can also be referred to a situation that predisposes, or causes accidents or diseases, at a workplace (Oji, 1994).

It is very important to maintain The optimum health of the staff in health care organization as they take care of the sick individuals. It is necessary to identify and reduce the hazardous exposures in their working environment as it not only influence their own health but also affect their patient's care. In health care organizations, employees experience a high number of workplace injuries. Hospital is one of the most hazardous place to work. The hazards in Health Care Facilities (HCF) are classified by WHO (2002) into physical, biological, mechanical, ergonomic, chemical and psycho-social. Previous studies have shown that occupational injuries and illnesses among Health Care Workers ranked among the

highest of any industry though could be reduced or eliminated. The predominant hazards to HCWs include blood-borne infections [Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV) and Hepatitis C virus (HCV)], back and neck pain, burn-out stress, allergic reactions to latex materials, spills from chemicals, exposure to radiation, assault from patients; among others. The factors that contribute to occupational illnesses and injuries in HCFs include negligence and carelessness of health care workers, lack of adequate protective aids and equipment, inadequate number of staff, excessive workload, failure to observe basic safety and hygiene guidelines, and inadequate operational knowledge of modern healthcare equipment (Amosun, Degun, Atulomah, Olanrewaju, Aderibigbe 2011). These prompted the US Centre for Disease Control and Prevention (CDC) to develop standard precautions (SPs) for preventing occupational exposures and handling of infectious materials in HCFs. Adherence to the standard precaution, (SP) guidelines has been shown to be effective in curtailing occupational illnesses and injuries among HCWs in HCFs (Ayalu, Reda, Amae, Alemayehu, Belachew, Tiyou, Deribe 2011).

The consequences of occupational illnesses and injuries include physical, economic and psychological damages to the HCWs and their dependents. In Nigeria, HCWs (medical doctors, nurses and nursing assistants) are poorly prepared to handle occupational hazards and therefore sustain injuries/illnesses while performing their duties (Orji, Fasubaa, Onwudiegwu, Dare, Ogunniyi 2002). The vulnerability of staff in the HCFs is compounded by the inadequacy of facilities with equipment that could encourage the practice of occupational safety measures in developing countries.

Occupational health and safety (OHS) covers staff health, safety and welfare in the workplace. OHS is particularly important in public hospitals because major hazards exist—such as exposure to infectious and chemical agents, manual handling of patients and materials, slips, trips, falls, and occupational violence. These hazards can lead to musculoskeletal injuries, acute traumatic injury, infections such as hepatitis and potentially even death. The impact of poor OHS is felt not just by affected staff, but also by the patients they are treating. (Asogwa 2007).

Healthcare workers encounter diverse hazards due to their work related activities (Goniewicz, Włoszczak-Szubzda, Niemcewicz,Witt, Marciniak-Niemcewicz, and Jarosz, 2012).Globally, HCFs employ over 59 million workers and offer variety of services to clients and patients, and are classified as hazardous and high risk work

place (Stonerock 2004). Healthcare facilities like other high risk work places are characterized by a high level of exposure to hazardous agents which significantly endangers the health and life of workers (HCWs). Aluko (2016) (Tziaferi, Sourtzi, Kalokairinou, Sgourou, Koumoulas, Velonakis 2011). However, studies indicate that workers in the farming, general contracting, steel, automobile, truck driving and nursing sectors have the highest risk of exposure to high risk occupational hazards (Bell, Collins, Tiesman, Ridenour, Konda, Wolf, Evanoff 2013). Andersen, Clausen, Mortensen, Burr and Holterm ann, (2012) reported that the healthcare work environment continues to be neglected by governments and organizations as a higher annual prevalence of back pain (77%) among healthcare workers compared to other occupational groups has been reported In fact, ergonomic related injuries pose a significant health risk to workers and yet it is the most prevalent occupational injury in healthcare industry. Healthcare workers are exposed to blood-borne infections which usually expose them to diseases such as HIV, TB, and hepatitis B and hepatitis C (Goniewicz, Włoszczak, Niemcewicz, Witt, Marciniak, and Jarosz, 2012). Substantial morbidity and mortality among these workers inevitably lead to loss of skilled personnel and adversely impact healthcare services which are already strained in many low and middle income countries. Evidence from sub-Saharan Africa indicates that healthcare workers are frequently exposed to chemical, biological, physical, and psychosocial occupational hazards (Nsubuga, Jaakkola 2005). They are constantly in contact with patients that expose them to infections and thus require proper protective measures to reduce their risk of acquisition of disease or injury. Data on occupational hazards among healthcare workers and their mitigation measures remain scarce in most of sub-Saharan Africa countries, especially Nigeria.

Bergh (2003) observed that occurrence of occupational hazards is associated with such personal factors as age. According to him, there is always a high occupational accident rate between ages 17 to 28 and in people aged 60 years and above. Maladjustment problems could lead to emotional instability and risky behaviour he affirmed. Borgman (1971) posited that occupational health hazard changes with individual's age because psychological development is enhanced by maturation and learning. It is important to note that health workers believe of occupational health hazard appear to be influenced by such socio –demographic variables as location, age, gender, level of education and job type.

Personal protective equipment is to be used as a control measures only as a last resort, it does not eliminate the hazards and will present the

wearer with maximum healthy risk if the equipment fails. Successful use of personal protective equipment relies on good user training, good supervision and enforcement (Hughes and Ferrette 2013). For all types of personal protective equipment, there are some basic standard that should be reached, it should be well fitted and comfortable. Training in the use of particular personal protective equipment is essential, so that it is not only used correctly, but the user knows, when to change it, supervision is essential, with disciplinary procedures involved for non-compliance with personal protective equipment rules (Hughes and Ferrette 2013).

Health care facilities (HCFs) are institutions that provide health care services, including counselling, clinical, surgical, and/or psychiatric consultations and treatment services for the healthy, sick and the injured. Globally, HCFs employ over 59 million workers and offer variety of services to clients and patients, and are classified as hazardous and high risk work place (Pruss, Giroult, Rushbook 1999 and Stonerock 2004). Healthcare facilities like other high risk work places are characterized by a high level of exposure to hazardous agents which can significantly endangers the health and life of workers (HCWs). Aluko (2016). Oluwagbemi (2011).noted that in discharging their statutory duties, HCWs may be exposed to hazards which significantly impair their health and quality of life, with multiplier effect on their immediate and extended family members.

The predominant hazards to HCWs include blood-borne infections [Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV) and Hepatitis C virus (HCV)], back and neck pain, burn-out stress, allergic reactions to latex materials, spills from chemicals, exposure to radiation, assault from patients; among others (Amosun, Degun, Atulomah, Olanrewaju, Aderibigbe (2011). In the recent times there is a pandemic of Corona virus which was discovered inWuhan city,China whichhas killed people that were infected around the world. Developed countries like USA, Britain, Italy, France and the likes havinghighest index rate of morbidity and mortality.. To this end many medical doctors and other health personnel have been infected while some of them have died. The factors that contribute to occupational illnesses and injuries in HCFs include negligence and carelessness of health care workers, lack of adequate protective aids and equipment, inadequate number of staff, excessive workload, failure to observe basic safety and hygiene guidelines, and inadequate operational knowledge of modern healthcare equipment (Amosun, Degun, Atulomah, Olanrewaju, Aderibigbe 2011). These prompted the US Centre for Disease Control and Prevention (CDC) to develop standard

precautions (SPs) for preventing occupational exposures and handling of infectious materials in HCFs (Molinari 2003 and Centers for Disease Control (1988). Adherence to the SP guidelines has been shown to be effective in curtailing occupational illnesses and injuries among HCWs in HCFs (Ayalu, Reda, Amae, Alemayehu, Belachew, Tiyou, Deribe 2011) the consequences of occupational illnesses and injuries include physical, economic and psychological damages to the HCWs and their dependants (Gestal 2001)

Vaz, K.,McGrowder, D., Alexander-Lindo, R., Gordon, L., Brown,P. and Irving, R. (2010) in the research carried out among Health Care Workers at the University Hospital of the West Indies, Jamaica reported that There was adequate knowledge and a fair level of awareness among medical doctors, medical technologists, and nurses towards universal precautions which influence their practice of safety precautions in the performance of their duties.Hussen, S.H., Estifanos, W.M., Melese, E.S. and Moga, F.E.,(2017) in a research carried out among Health Care Workers in Wolaitta Sodo Otona Teaching and Referral Hospital reported that 93% of the respondents have good knowledge towards infection prevention which influence their good attitude and practice towards infection prevention.

In Nigeria, HCWs (medical doctors, nurses and nursing assistants) are poorly prepared to handle occupational hazards and therefore sustain injuries/illnesses while performing their duties (Orji, Fasubaa, Onwudiegwu, Dare, Ogunniyi 2011). The vulnerability of staff in the HCFs is compounded by the inadequacy of facilities with equipment that could enhance best practice in developing countries. Occupational vulnerability of HCWs therefore threaten the quality health care delivery in developing countries, especially among Medical Doctors, Nurses and Nursing Assistants. There was a day the researchers went on a visit to University of Medical Science teaching Hospital in Ondo to visit a patience. As the researchers were outside observing the environment, there was a case of emergency, where an accident victim was rushed into the hospital, it was dishearten that the health workers that attended to the victim, carried the victim without using personal protective equipment and some were not with their gloves. The researchers were just ruminating about it, could it be a as result of their experience in the work force that made them to ignore the importance of PPE or what? this corroborated the findings of Osungbemiro, Adejumo, Akinbodewa and Adelosoye (2016) which stated that despite high awareness of Occupational Health and Safety in hospitals, the majority of the government health workers in Ondo had high occupational hazard risk, and poor compliance to

occupational safety measures. It was on this basis that the researchers investigated the knowledge and practice of occupational safety measures among emergency health workers in University of Medical Science Teaching Hospital in Ondo, Ondo State.

Hypotheses

The following null hypothesis were tested in the study

1. There will be no significant relationship between knowledge and attitude towards occupational safety measures among emergency health workers in University of Medical Science Teaching Hospital in Ondo, Ondo State.
2. There will be no significant relationship between knowledge and practice of occupational safety measures among emergency health workers in University of Medical Science Teaching Hospital in Ondo, Ondo State.
3. There will be no significant relationship between attitude and practice of occupational safety measures among emergency health workers in University of Medical Science Teaching Hospital in Ondo, Ondo State.
4. There will be no significant gender difference in knowledge of occupational safety measures among emergency health workers in University of Medical Science Teaching Hospital in Ondo, Ondo State.

Methodology

Descriptive survey research method was used for this study. This was considered appropriate because it enabled the researcher to describe the phenomena as they occur and it helps the researcher to obtain a first-hand information on the study

The population for this study comprised all emergency health workers in University of Medical Science teaching hospital in Ondo West Local Government. Purposive Sampling Techniques was used to select 5 units of emergency health workers while total enumeration technique was used to select all emergency health workers in of University of Medical Science teaching hospital in Ondo West Local Government.

Table 1, List of Emergency Units in UNIVERSITY OF MEDICAL SCEINCE Teaching Hospital in Ondo West Local Government

S/N	NAME of UNITS	NO. SELECTED
1	Medical	40
2	Surgical	44
3	Neonatal	26
4	Children	10
5	Obstetrics and Gynaecology	45

Source: Administrative department of the University

Research Instrument

The instrument for this study is a self-developed questionnaire designed by the researchers in line with the variables under the study. The questionnaire is in four sections, section A was used to gather information on demographical data of the respondents, while section B, C and D sought information on the variables selected for the study. The instrument was design in line with the modified Likert scale, and was related as follows:

The instrument was design in line with the modified Likert scale, and was related as follows:

SA- Strongly Agreed
A- Agree
D- Disagree

SD- Strongly Disagreed

To determine the reliability of the instrument, the validated version of the questionnaire was administered on a sample of twenty (20) emergency health workers of Obafemi Awolowo University Teaching Hospital Ile Ife that were not be part of the actual participants for the study but possess similar characteristics as the study population. Pearson Product Moment Correlation (PPMC) was used to determine the reliability of the instrument and a coefficient of 0.73 was obtained

The completed questionnaire were coded and analysed using both descriptive and inferential statistics. Descriptive statistics of frequency counts and percentage was used to analyse demographic data, while inferential statistics of Pearson Product Moment Correlation was used to test the hypotheses at 0.05 level of significance.

Hypotheses

The following null hypothesis were tested in the study

$H_0$1: There will be no significant relationship between knowledge and attitude towards occupational safety measures among emergency health workers in University of

Medical Science Teaching Hospitals in Ondo, Ondo State.

Table 2: Summary of correlation analysis between knowledge and attitude towards occupational safety measures

Variables (sub-scales)	Knowledge of occupational safety measures	Attitude towards occupational safety measures	**N**	**Sig**	**Remark**
Knowledge of occupational safety measures	1	.238**			
Attitude towards occupational safety measures	.238**	1	165	.002	Significant
Mean	48.7212	32.1030			
Standard Dev	6.29032	5.51564			

**Correlation is significant at 0.05 (2-tailed)

Table 2 showed that the relationship between knowledge and attitude towards occupational safety measures was tested significant ($r=0.238$, $p<0.05$). This implied that, there was a significant relationship between knowledge and attitude towards occupational safety measures among emergency health workers in University of Medical Science Teaching Hospitals in Ondo, Ondo State. Hence, the null hypothesis was rejected. The findings is in line with Vaz, McGrowder, Alexander-Lindo, Gordon, Brown, and Irving (2010) in the research carried out among Health Care Workers at the University Hospital of the West Indies, Jamaica reported that there was adequate knowledge and a fair level of awareness among medical doctors, medical technologists, and nurses towards universal precautions which influence their practice of safety precautions in the performance of their duties. Ayalu, Reda, Amae, Alemayehu, Belachew, Tiyou, Deribe (2011) also opined that adherence to the SP guidelines has been shown to be effective in curtailing occupational illnesses and injuries among HCWs in HCFs

$H_0$2: There will be no significant relationship between knowledge and practice of occupational safety measures among emergency health workers in in University of

Medical Science Teaching Hospitals in Ondo, Ondo State.

Table 3: Summary of correlation analysis between knowledge and practice of occupational safety measures

Variables (sub-scales)	Knowledge of occupational safety measures	Practice of occupational safety measures	**N**	**Sig**	**Remark**
Knowledge of occupational safety measures	1	.785**			
Practice of occupational safety measures	.785**	1	165	.000	Significant
Mean	48.7212	54.1455			
Standard Dev	6.29032	5.11961			

**Correlation is significant at 0.05 (2-tailed)

Table 3 showed that the relationship between knowledge and practice of occupational safety measures was tested significant (r=0.785, p<0.05). This implied that, there was a significant relationship between knowledge and practice of occupational safety measures among emergency health workers in University of Medical Science teaching hospitals in Ondo, Ondo State. Hence, the null hypothesis was rejected. The findings is in line withVaz, McGrowder, Alexander-Lindo, Gordon, Brown, and Irving(2010) in the research carried out among Health Care Workers at the University Hospital of the West Indies, Jamaica reported that there was adequate knowledge and a fair level of awareness among medical doctors, medical technologists, and nurses towards universal precautions which influence their practice of safety precautions in the performance of their duties. Ayalu, Reda, Amae, Alemayehu, Belachew, Tiyou, Deribe (2011) also opined that adherence to the SP guidelines has been shown to be effective in curtailing occupational illnesses and injuries among HCWs in HCFs

$H_0$3: There will be no significant relationship between attitude and practice of occupational safety measures among emergency health workers in in University of Medical Science Teaching Hospitals in Ondo, Ondo State.

Table 4: Summary of correlation analysis between attitude and practice of occupational safety measures

Variables (sub-scales)	Attitude towards occupational safety measures	Practice of occupational safety measures	**N**	**Sig**	**Remark**
Attitude towards occupational safety measures	1	.340**			
Practice of occupational safety measures	.340**	1	165	.000	Significant
Mean	32.1030	54.1455			
Standard Dev	5.51564	5.11961			

**Correlation is significant at 0.05 (2-tailed)

Table 4. Showed that the relationship between attitude and practice of occupational safety measures was tested significant ($r=0.785$, $p<0.05$). This implied that there was a significant relationship between attitude and practice of occupational safety measures among emergency health workers in University of Medical Science teaching hospitals in Ondo, Ondo State. Hence, the null hypothesis was rejected. The findings is in line with the findings of Hussen, Estifanos, Melese and Moga, (2017) in a research carried out among Health Care Workers in Wolaitta Sodo Otona Teaching and Referral Hospital reported that 93% of the respondents have good knowledge towards infection prevention which influence their good attitude and practice towards infection prevention.(Ayalu, Reda, Amae, Alemayehu, Belachew, Tiyou, Deribe (2011) also opined that adherence to the SP guidelines has been shown to be effective in curtailing occupational illnesses and injuries among HCWs in HCFs,

$H_0$4: There will be no significant gender difference in knowledge of occupational safety measures among emergency health workers in in University of Medical Science Teaching Hospitals in Ondo, Ondo State.

Table 5: t-test showing gender difference in knowledge of occupational safety measures

Variable (Gender)	N	Mean	Std. Dev.	df	T	Sig. (*p* value)	Remark
Male	53	52.9057	4.46897				
				163	6.596	.000	Significant
Female	112	46.7411	6.06535				
N=165							
t cal.=6.596							
t crit. =1.96							

Table 5 revealed that there was a significant gender difference in knowledge of occupational safety measures among emergency health workers in in University Teaching Hospitals in Ondo, Ondo State (t=6.596, $p<0.05$).The table further revealed that the calculated t-value of 6.596 was greater than the table value of 1.96 at df 163 (*t* cal.=0.163, *t* crit.=1.96; $p<.05$); which also indicated that gender difference was tested significant. Hence, the null hypothesis was rejected. It was further revealed that, male respondents ($\bar{x}$ =52.91) had a higher mean score than their female ($\bar{x}$ =46.74) counterparts. This means that, male health workers had a higher tendency to understand occupational safety measures than their female counterparts. This findings is in line with Gupta,Gupta, Palawi and Patel (2012) who reported that there were gender differences regarding care of wind direction during spraying, prior knowledge on safety measures, reading and understanding of pesticides labels, awareness of the labels and protective covers. Almost all respondents were aware of negative impacts of pesticide use on human health and environment irrespective of gender; however, females were at higher risk due to lower level of pesticide use safety and awareness. It is strongly recommended to initiate gender-sensitive educational and awareness activities, especially on pesticide use practices and safety precautions

Conclusion

Based on the findings of the study, the following conclusions were reached:

1. There was a significant relationship between knowledge and attitude towards occupational safety measures among emergency health workers in University of medical science teaching hospitals in Ondo West Local Government Area.

2. There was a significant relationship between knowledge and practice of occupational safety measures among emergency health workers in University of medical scienceteaching hospitals in Ondo West Local Government Area.
3. There was a significant relationship between attitude and practice of occupational safety measures among emergency health workers in University of medical scienceteaching hospitals in Ondo West Local Government Area.
4. There was a significant gender difference in knowledge of occupational safety measures among emergency health workers in University of medical scienceteaching hospitals in Ondo West Local Government Area.
5. There was no significant gender difference in attitude towards occupational safety measures among emergency health workers in Unimed teaching hospitals in Ondo West Local Government Area.
6. There was a significant gender difference in practice of occupational safety measures among emergency health workers in University of medical science teaching hospitals in Ondo West Local Government Area.

Recommendations

Based on the following findings, the following recommendations were made

1. Emergency health workers should be properly trained on the use of personal protective equipment
2. There must be adequate provision of quality personal protective equipment by the Government for the health workers
3. Proper monitoring of usage of PPE should be put in place on health workers during an emergency period

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