

THE EFFECTIVENESS OF HEALTH AND SAFETY PROGRAMMES IN ADDRESSING OCCUPATIONAL DISEASES AND INJURIES AT MANUFACTURING FACILITIES IN IBADAN SOUTHWEST LOCAL GOVERNMENT OF OYO STATE, NIGERIA

*Pedro Uwadum ADAGBOR¹, Abibat Motunrayo ADEBOLA²,
Bukola Linda OJEABURU³, & Wilfred Isioma UKPERE⁴
^{1,2&3}Department of Human Kinetics and Health Education,
Tai Solarin University of Education, Ijebu-Ode, Ogun State
E-mail: puwadum@gmail.com*

*⁴Department of Industrial Psychology and People Management, College
of Business & Economics, University of Johannesburg, South Africa
Email: wiukpere@uj.ac.za*

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Abstract

People now spend many years of their adult lives at jobs where they are exposed to various hazardous chemicals, unsafe acts, and other diseases because of population growth and rapid technological advancements. Occupational diseases and injuries may arise because of risk factors in the workplace. This study examined health education as panacea to occupational diseases & injuries in Ibadan Southwest Local government of Oyo state, Nigeria. Descriptive survey research design was adopted, and the population comprises of all workers in Ibadan South-West Local government of Oyo state. The sample size was 250 respondents selected using simple and multi-stage sampling techniques to cover the forty-eight manufacturing companies in the

area. A self-structured questionnaire was employed for data, which were analyzed using frequencies, percentages, and chi-square at 0.05 alpha level. It was found that the prevalence rate of occupational diseases in the facility had ($x^2=81.94$, $p<0.05$), the extent to which occupational health and safety programs was promoted had ($x^2=71.51$, $p<0.05$), the effectiveness of occupational health and safety programs had ($x^2=64.94$, $p<0.05$). Based on the findings, health education is a panacea to occupational diseases and injuries in Ibadan South-West Local government of Oyo state, Nigeria. It was therefore recommended that Government should provide regular health training programs to review, promote, and maintain occupational health strategies. Manufacturing companies/facilities should employ adequate qualified health educators to enlighten the workers on the risks associated with occupational diseases and injuries.

Keywords: *Health education, occupational diseases, workers, prevention*

JEL Classification: *113, 114, 118*

Introduction

Diseases and certain health conditions cause by work in the workplaces are occupational in nature and these could include musculoskeletal disorders, cancer, post-traumatic stress, and exposure to certain industrial chemicals that could lead to either immediate or long-term effects. By and large, health debilitations arise because of some work exposure in the work environment. This can be referred to as occupational disease. Boschman (2017) asserted that Occupational debilitations arise because of certain activities in the work environment. Over 160 million workers are afflicted by workplace diseases according to International Labour Organization (ILO, 2019). The International Labour Organization (ILO 2019) reported that Workplace accidents and diseases are the leading causes of death in the work environment. The World Health Organization (2019) added that 6% of every case of illnesses and fatalities aid economic losses across the globe today.

Health Education has been regarded as a way of transferring information pertaining to health thereby leading to the needed solution as stated by Oshodin (2000). This was corroborated by Nwana (2000), who regarded Health Education as a way of convincing workers towards accepting good practices that could enhance their health conditions. Igbudu, (2007) asserted that Health Education is aimed at ameliorating health challenges, thereby leading to a better life through

information. Action plan of workers is geared towards advancing work environment disease management (WHO, 2007). It is of high necessity for countries to make sure that the well-being of workers is guaranteed (Zhang, 2013). Consequently, the treatment and prevention of disease cases play very key role in the plan. Looking at the stake of the employer, occupational health institutions, professionals in the field are considered reasonable when they can help with this (Zhang, 2013).

Improper diagnosis has been regarded as one of the reasons why hearing-loss in the work environment has not been properly controlled (Spreeuero, 2008). The effect of noise pollution, therefore, has been regarded as a serious health challenge with economic repercussion. In Norway for instance, it has been recorded that hearing challenges is one of the major workplace diseases that are mostly reported.

In the 18th century Industrial Revolution, technological upgrade contributed to some unhygienic work environment and living conditions. This of course has led to a considerable rise in workplace reported cases of accidents due to the exposure of new equipment and hazardous substances or materials. Certain diseases have emerged due these technological strides and example of these diseases can be seen as lung disease due to asbestos inhalation and hemangiosarcoma, which is caused by vinyl chloride monomer (Baxter, Aw, Cockcroft, Durrington, & Harrington, 2010; Kazantzis, 2014). Furthermore, MSDS disorders, psychosocial problems, and other mental health disorders (European Agency for Safety and Wellbeing at Work, (EU-OSHA) 2019) are among the new worries that have been known.

Most Recorded Occupational Diseases

Environmental exposures that are considered as toxic have been associated with diseases of the organs. Rutstein, Berenberg, Chalmers, Child, Fishman, Perrin (1983) generated the idea of the patient safety cases that led to death, enduring harm, or astringent transitory harm to aid physicians in recognizing these connections. Work related conditions that are detected because of certain occupational exposures could be found in this catalog of workplace diseases and these could include, Occupational Lung Diseases, Neurological and Psychological Diseases etc. Musculoskeletal illnesses are a group of diseases that affect the joints and muscles. These disorders are common in the work environment than any other in environment (Leroyer 2006 & MOEL, 2014). When using a mouse or keyboard, the visual devices should be in such a way that the user's convenience is attained, especially the use of static pose can affect a musculoskeletal disorder, which is

common among office employees. It has been noticed that the most affected area of the body is the shoulder (Seo, 2007; Lee Han, Ahn, Hwang, & Kim, 2007). With the work done by Feyersteins (1997), a computerized workplace, excess workload, psychosocial tension, and behavioral responses covariates to a higher rate of musculoskeletal symptoms in the upper body. Khan et al. (2012), asserted that abysmally planned computer workstation is another factor that could cause both visual problem or musculoskeletal challenges. Furthermore, it was recorded from all the data that certain medical cases like headaches, back pain, weak muscles, and overall exhaustion have been shown to be on the increase considering the amount of time spent using machines (Nakazawa, Okubo, Suwazono, Kobayashi, Komine, Kato, & Nogawa, 2002). Among the people who used machines for longer period, it was noticed that wrist disorders were common (Jensen, 2003; Lassen, 2004; Kryger Andersen, Mikkelsen et al, 2003).

With the WHO report, a significant rise in the cases of work-related cancer could likely be expected in developing countries as work activities requiring materials of cancer origin have shifted to workplaces with little or no occupational safety and health regulations. The chemicals in the production of tires and dyes, chrysotile and antibiotics are examples of these processes. The use of these known carcinogens in the workplace is now severely restricted in some countries (Pandey, 2007). Due to the occupational exposure to these cancer-causing agents, the following cancer types are more frequent in the workplace: lung cancer, mesothelioma, bladder cancer, and leukemia (Siemiatycki, et al, 2004). Chronic respiratory diseases account for nearly 10% of all workplace diseases that have been registered in developed countries especially, the United Kingdom, and they tend to be much higher in rapidly industrializing developing countries like Nigeria (Cherry et al in Jeebhay, 2007). Death from lung cancer is closely linked to occupational complications, and employees that are laid bare to secondhand cigarette smoke at work are twofold to be expected to experience lung cancer (Pandey, 2007).

Many pharmaceutical employees and their allied industries are victims to certain diseases because of benzene contamination. These chemicals are used as solvent in productions. The World Health Organization recommends total avoidance to any cancer-causing agents in workplaces. Any cancer control program should be aimed at eradicating cancer causing agents within the work environment. To drastically reduce the rate of occupational cancer incident cases and deaths, WHO recommended the introduction of benzene-free organic solvent in place of

asbestos and the use of certain technologies that could transform harmful cancer agents to a harmless one. Following these recommendations, a statement discouraging the use of asbestos was passed (WHO, 2017). According to Szram (2012), the proportion derived from meta-analysis of epidemiological studies on asthma revealed one in ten in workplace exposures.

Employee who may not have had previous history of asthma could be stricken by it through exposure to occupational asthmatic causing agent and this is known as 'work-related asthma'. This work-related type of asthma can build up as a reaction to fluttering occupational activator. The essence of this high intolerance reaction occurs in a way that there is a dormant duration from the first subjection progression. Sensitivity to these agents of occupational asthma is a function of the exposure rate and underlining factors (Cullinan, Harris, Newman, 2000). Some of these work-related asthmas are induced by airborne proteins. The insusceptibility is distinguished by the release of certain antibodies that bind to the unwanted substances to eliminate them from the system. This work-related asthma can also arise from the inhalation of substances that can aggravate it, which can be better called substance-induced asthma (Brooks, et al., 2005).

Although, it is yet to be ascertained if less acute reactions to certain work-related irritants have leading effect, but it has been proven that exposure to household cleaning chemicals have been associated with asthmatic cases (Zock, Plana & Jarvis, 2007).

The right thing to do in a workplace is for the employer to create a conducive work environment for the employee, which will play a role in incident or illness reduction rate as stated in OSHA NO 85 of 1993 act. This was corroborated by Burton (2010) who maintains that a safe work frame is achievable and the way forward.

Health education is indispensable in accomplishing a healthy work environment (Bankole & Lawal, 2012). The review by Abiola, Nwogu, Ibrahim, Hassan (2012) on Health education intervention, was imperative to know that intervention programs significantly ameliorate the challenges posed to the non-positive practices of personal and workplace hygiene amongst respondents.

Problem Statement

According to Markowitz (2002), death certificate records are important document to consult when developing a more current measures or approaches to managing workplace illnesses. Here, the number of deaths that could be attributed to occupation in each of the six major categories are calculated. The common

workplace health problems according to Omokhodion (2009) are inflammation of the conjunctiva of the eye, MSD (musculoskeletal disorders), chronic bronchitis, eczema, scabies, scales, and injuries due to accident. These proximal factors do not assure that an occupational disease will occur, but they do indicate that a worker may be at risk of developing one at some point in the future.

Noise-induced hearing and occupational hearing disability have been regarded as under diagnosed and under-controlled occupational conditions (Squireuro, 2008). Occupational diseases report in Nigeria are incomplete, owing to factories failure to register cases to the appropriate government department. To plan and take important instructional measures to prevent and mitigate the occurrence of workplace diseases, it is therefore essential to clarify the causal factors, investigate the problems in entirety, reason why cases should be reported and the need to look at how creating health educational awareness programs could aid the prevention of occupational diseases in manufacturing industries in Ibadan Southwest Local Government of Oyo State.

Objective of the Study

The objectives of the study are to:

1. To determine the prevalent rate of occupational diseases in the facility.
2. To assess the impact of occupational safety and health programs on workers' health condition.
3. To evaluate the effectiveness of occupational safety and health programs in the facility.

Research questions

This research will be answering the following questions.

1. What is the prevalent rate of occupational diseases in the facility?
2. To what extent can occupational safety and health programs promote workers health condition?
3. How effective is occupational safety and health programs in the facility?

Methodology

A descriptive survey research design was employed because it involved an investigation where self-reported data was used, collected from the sample in explaining the population on the required variables. A multistage representation technique was employed to obtain sample from various manufacturing companies of interest. The simple random sampling techniques was used to select ten (10) manufacturing companies out of forty-eight (48) registered manufacturing companies in Ibadan Southwest local government of Oyo state, Nigeria. Twenty-

five (25) respondents were selected from each manufacturing companies giving rise to 250 respondents that were selected through stratified random sampling techniques.

The tool for gathering information for this study was a structured and self-developed questionnaire. The questionnaires were grouped to sections, namely A and B. section A dealt with demographic data of the respondents, while section B dealt with the variables for the study. Likert scale techniques was used to obtain responses. The four rating responses of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) was used. For section B, four points to one, will be allotted to positively worded items and the reverse for negatively worded items respectively. The questionnaires were administered using two research assistants who helped to cover the fifteen manufacturing companies in Ibadan Southwest local government of Oyo state, Nigeria. The administered questionnaires were collected on the spot to ensure high return rate and usability.

Data Analysis

Descriptive statistics of frequency counts and percentages were employed to analyze the demographic data while chi-square at 0.05 level of significance were used to test the research questions.

Results

SECTION A

TABLE 1: THE RESPONDENTS Gender

Gender	FREQUENCY	PERCENTAGE
Male	159	63.6
Female	91	36.4
Total	250	100

The table above shows that 159 respondents 63.6% were male, while 91 respondents 36.4% were female.

TABLE 2: THE RESPONDENTS MARITAL INFORMATION

MARITAL STATUS	FREQUENCY	PERCENTAGE
Single	102	40.8
Married	137	54.8
Divorced	11	4.4
Total	250	100

The table above shows that 102 respondents 40.8% were single, 137 respondents 54.8% were married, 11 respondents 4.4% were divorced.

TABLE 3: THE RESPONDENTS AGE

AGE	FREQUENCY	PERCENTAGE
20-30	96	38.4
31-40	52	20.8
41-50	84	33.6
51-60	18	7.2
TOTAL	250	100

The table above shows that 96 respondents 38.4% were between the ages of 20-30; 52 respondents 20.8% were between the ages of 31-40; 84 respondents 33.6% were between the ages of 41-50; 18 respondents 7.2% were between the ages of 51-60.

TABLE 4: THE QUALIFICATION OF RESPONDENTS

QUALIFICATION	FREQUENCY	PERCENTAGE
O' Level	50	20.0
ND	96	38.4
Bsc/HND	99	39.6
Msc/PhD	05	2.0
Total	250	100

The table above shows that 50 respondents 20% were O level holder; 96 respondents 38.4% were ND holders; 99 respondents 39.6% were BSC/HND holders; 5 respondents 2% were MSC/PHD holders.

TABLE 5: THE RESPONDENTS WORK EXPERIENCE

WORK EXPERIENCE	FREQUENCY	PERCENTAGE
10 Years	62	24.8
10-19 Years	118	47.2
20-29 Years	46	18.4
30 +Years	24	9.6
Total	250	100

The table above shows that 62 respondents 24.8% had 0-10 years working experience; 118 respondents 47.2% had 10-19 years working experience; 46 respondents 18.4% had 20-29 years working experience; and 24 respondents 9.6% had 30 years working experience.

TABLE 6: LEVEL OF STAFF OF THE RESPONDENTS

LEVEL OF STAFF	FREQUENCY	PERCENTAGE
Top Management	56	22.4
Middle Management	71	28.4
Lower Management	123	49.2
Total	250	100

The table above shows that 56 respondents 22.4% were top management; 71 respondents 28.8% were middle management, while 123 respondents 49.2% were lower management.

RESEARCH QUESTIONS TESTING

TABLE 7: What is the prevalent rate of occupational diseases in the facility?

Responses	Frequency	Percentage	Expected	Degree of freedom	Cal. Value (χ^2)	Table value
Very High	92	36.8%	62.5			
High	104	41.6%	62.5	3	81.94	7.82
Low	25	10%	62.5			
Very Low	29	11.6%	62.5			
Total	250	100%	250			

Table 7 reveals that out of 250 respondents, 41.6% of them confirmed that prevalent rate of occupational diseases in the facility is high, 36.8% of them also reported very high, 11.6% reported very low, while 10% of them confirmed low. This implies that majority of the respondents confirmed that prevalent rate of occupational diseases in the facility is high. The table further reveals that chi-square calculated value of 81.94 is greater than the table value of 7.82 with the degree of freedom (df) of 3 at 0.05 alpha level of significance shows that the prevalence of occupational diseases in the facility is significant.

Table 8: To what extent can occupational health and safety programs promote workers health conditions?

Responses	Frequency	Percentages	Expected	Degree of freedom	Cal. Value (x^2)	Table value
Very much	84	33.6%	62.5			
Moderately	106	42.4%	62.5	3	71.51	7.82
Slightly	31	12.4%	62.5			
Not at all	29	11.6%	62.5			
Total	250	100%	250			

Table 8 reveals that out of 250 respondents, 42.4% of them agreed that occupational health and safety programs promote workers health conditions moderately, 33.6% of them confirmed that to a very much extent, 12.4% of them reported slightly, while 11.6% of them reported not at all. This indicates that occupational health and safety programs promote workers health conditions moderately. The table further reveals that calculated chi-square value of 71.51 is greater than the table value of 7.82 with the degree of freedom (df) 3 at 0.05 alpha level of significance, which indicates that there is a significant association between occupational health and safety programs promoting workers health conditions.

Table 9: How effective is occupational health and safety programs in the facility?

Responses	Frequency	Percentages	Expected	Degree of freedom	Cal. value (x^2)	Table value
Highly effective	81	32.4%	62.5			
Moderately effective	105	42%	62.5	3	64.94	7.82
Rarely Effective	37	14.8%	62.5			
Never effective	27	10.8%	62.5			
Total	250	100%	250			

Table 9 shows that out of 250 respondents, 42% of them confirmed that occupational health and safety programs in the facility is moderately effective, 32.4% of them reported that its highly effective, 14.8% of them reported its rarely effective while 10.8% of them reported that its never effective. By implication majority of the respondents confirmed that occupational health and safety programs in the facility is moderately effective .The table further reveals that calculated chi-square value is 64.94 is greater than the table value 7.82 with the degree of freedom (df) 3 at 0.05 alpha level of significance indicates that there is a significant association between occupational health and safety programs in the facility.

Discussion of Findings

Based on the results presented in Table 7, it appears that a substantial proportion of respondents believe that the prevalent rate of occupational diseases in the facility is high or very high. These findings are consistent with previous research that has identified occupational diseases as a significant and widespread problem in many workplaces. A study by Bener et al. (2015) found that the prevalence of occupational diseases in the United Arab Emirates was high, with musculoskeletal disorders and respiratory disorders being the most commonly reported conditions. Similarly, a study by Akanbi et al. (2019) found that occupational injuries and diseases were prevalent among workers in the Nigerian construction industry, with inadequate safety measures and poor working conditions identified as contributing factors. The high prevalence of occupational diseases in the facility reported by the respondents in the present study is a cause for concern, as it suggests that workers in this facility may be at risk of developing serious health problems as a result of their work. This highlights the importance of implementing effective occupational health and safety programs that can help to prevent and manage occupational diseases.

The results presented in Table 8 suggest that a majority of the respondents believe that occupational health and safety programs promote workers' health conditions to a moderate or very much extent. These findings are in line with previous research that has identified occupational health and safety programs as important mechanisms for promoting and protecting worker health. Several studies have investigated the impact of occupational health and safety programs on worker health outcomes. For example, a systematic review by Al-Dubai et al. (2016) found that occupational health and safety interventions can improve workers' health and well-being, reduce work-related injuries and illnesses, and enhance productivity.

Similarly, a study by Kim et al. (2019) found that participation in occupational health and safety programs was associated with a lower risk of work-related musculoskeletal disorders among Korean workers.

The moderate level of agreement among respondents in the present study regarding the extent to which occupational health and safety programs promote workers' health conditions may reflect the fact that these programs are not always effective in achieving their intended goals. Factors such as inadequate funding, insufficient training, and poor program design and implementation can all contribute to the ineffectiveness of occupational health and safety programs (Lamontagne et al., 2017).

The findings from Table 9 reveal that the majority of respondents perceived occupational health and safety programs in the facility to be moderately effective. This is consistent with previous research that has shown that effective occupational health and safety programs can improve worker health and well-being (Loh, 2015). Occupational health and safety programs are designed to prevent work-related injuries and illnesses, reduce absenteeism, and improve worker productivity (Azizi et al., 2017). Thus, a moderately effective program may still yield positive benefits for the workers and the organization.

Similarly, the high percentage of respondents who reported that the program is highly effective is encouraging and suggests that the facility has implemented effective measures to promote worker health and safety. This is consistent with previous research that has shown that effective occupational health and safety programs can lead to a reduction in work-related injuries and illnesses (Kim et al., 2019). However, the percentage of respondents who reported that the program is rarely or never effective is concerning. This may indicate a lack of awareness or understanding of the program among workers, or a failure on the part of the organization to implement effective measures. Further investigation is needed to determine the reasons for this perception and to identify areas for improvement. The significant association between occupational health and safety programs in the facility, as indicated by the chi-square analysis, underscores the importance of effective occupational health and safety programs in promoting worker health and safety. This finding is consistent with previous research that has shown a positive relationship between effective occupational health and safety programs and worker health and safety outcomes (Kiani et al., 2021).

Conclusion and Recommendations

This study was geared towards examining the effectiveness of health and safety programmes in addressing occupational diseases and injuries at manufacturing facilities in Ibadan Southwest local government of Oyo state, Nigeria. Based on the findings obtained from this study, it is evident that occupational health and safety programs have a significant impact on worker health conditions and safety in the facility. Most respondents perceived the prevalence rate of occupational diseases to be high, indicating the need for effective occupational health and safety programs. Additionally, a majority of respondents reported that the occupational health and safety programs at the facilities are moderately effective, and there is a significant association between the programs and worker health and safety outcomes.

Given these findings, it is recommended that the facility should prioritize the implementation of measures aimed at reducing the prevalence of occupational diseases and promoting worker health and safety. Regular training and education on health and safety practices can help to ensure that workers are equipped with the necessary knowledge and skills to identify and address potential hazards in the workplace. Risk assessments can also help to identify areas of potential risk and enable the development of strategies to mitigate or eliminate those risks.

In addition to these measures, it is important for the facility to promote a culture of safety that emphasizes the importance of health and safety for all workers. This can involve creating an environment where workers feel comfortable reporting safety concerns and taking an active role in promoting a safe and healthy work environment.

Regular evaluations of occupational health and safety programs can help to ensure that they remain effective and relevant. Gathering feedback from workers and stakeholders can provide valuable insight into the strengths and weaknesses of the program, while regular audits can help to identify areas for improvement. Monitoring key performance indicators related to worker health and safety outcomes can also help to identify areas where improvements are needed and ensure that the program is achieving its intended objectives.

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