

THE IMPACT OF HEALTH EDUCATION INTERVENTION ON SAFETY KNOWLEDGE AND PRACTICES AMONG BREWERY STAFF IN NIGERIA

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Abstract

This study investigated the impact of health education intervention on safety knowledge and practices among brewery staff in Nigeria. Pre-test, post-test control quasi experimental design was adopted for the study. The sample comprised 100 participants, drawn from three departments of champion brewery, Uyo using multistage sampling procedure. The instrument for data collection is a self-developed questionnaire and a reliability index of 0.85 was obtained using pre-test and post-test method. Copies of the questionnaire were administered at pre-test and post-test after 6 weeks of health education interventions. Moreover, lessons on safety practices were taught in experimental groups; and a lesson on benefits of physical exercise was taught to the control group. Four research hypotheses were tested in the study, using analysis of covariance (ANCOVA). The findings revealed that health education intervention strategies were effective on safety knowledge and practice among staff.

Keywords: *Health education, Intervention strategies, Brewery staff, Safety knowledge and practice, Workplace.*

Introduction

Health and education are the basic objective of development and closely related. They are important ends in themselves. Health is central to wellbeing and education is essential for a satisfying and rewarding life (Ekpu, George and Udoh, 2019). Hence, the desirable changes in the health behaviour of persons remain the fundamental goal of health education at every location, community, home, school, workplace, hospital and other places. Moronkola (2017) noted that health education takes place at different settings, home, school, hospital, industries etc. Hence we have school health education, community health education, industrial/ occupational health education, patient (health) education etc. According to Moronkola (2017), the main aim of health education is viz; to inform and educate people on the need for healthful life for quality living that will facilitate high productivity; encourage people to change negative attitude and practices to positive ones that promote personal and community health; Encourage people to be aware and use available health care services; Make people see the need to prevent diseases rather than spending more time and money to treat them and encourage people to continue in their local ways that

promote health. Ramachandran and Darmalingham (2006) saw health education as an active process that should enable individual or groups to realize their health needs and match them into relevant behaviour to achieve positive health.

According to Jegede (2002) health education intervention is concerned with creating awareness and knowledge about health phenomenon such as personal, environmental and food hygiene. Similarly Cottrell, Girvan and Mckenzie (2009) posited that health education intervention involves consciously contracted strategies involving some form of communication designed to improve knowledge and develop life skills which are conducive to individual and community health. Effective health education information may produce changes in knowledge and understanding or way of thinking; it may influence practices and facilitate the acquisition of skills that may affect changes in the behaviour and/or lifestyle of people towards unhealthy practices (Tones, 2002; Owie, 2005).

Occupational (industrial) health is an aspect of public health. Its basic objective is to ensure that the health and wellbeing of individuals in any form of occupation are protected, maintained and promoted. Industrial health could also be defined as the science of the anticipation, recognition, evaluation and control of health hazards arising in or from environment with the objectives of protecting the health and well being of workers and surrounding. The goal of industrial health and safety programmes is to foster a safe environment as a secondary effect to protect co-workers, family members, employers, customers, suppliers, nearby communities and other members of the public who are impacted by the workplace environment (ILO, 1995). Ogundele (2017) viewed industrial health education as an art of preventive medicine that involves the recognition measurement and control of health and safety hazards in the work place or working environment.

Work is meant to be a means of economic survival and source of satisfaction, happiness, social status and companionship but can also result in stress, dissatisfaction and threat to workers health and well-being (Achal, 2000). According to Achalu (2000), the best way to position any occupation for efficiency is to create a healthy workplace and healthy work force. Unfortunately, millions of workers all over the world suffer double or triple tragedies. Report of work related fatalities, injuries and loss of properties as a result of workplace hazards is common in both developed and developing countries.

Fajana (2010) cited in Amanze and Agu (2014) stated that not less than two hundred cases of industrial accidents occurs in the workplace in Nigeria daily with an equal high rate of fatalities. The author noted that Nigerian workers across all sectors of the economy have become more endangered and susceptible to accident which ranges from minor to fatal as some have lost their lives in the line of duty, while others have lost vital organs. Gupta (2013) noted that about 45 percent of the world population and 58 percent of the population over 10 years of age constitute the global workforce and their contribution sustains the society

economically and materially. Thus occupational health and well-being of the working class people are crucial preconditions for productivity, socio-economic and sustainable development

Jackson and Suami (2004) averred that the workplace is the physical location where someone works. Such a place can range from a home office to large office building or factory. The workplace is one of the most important social spaces other than the home, constituting a central concept for several entities, the worker and his/her family, the employing organization and the society as a whole. The workplace can be grouped into three environmental; the built environment, physical environment and also the social environment. Any of these can greatly influence the performance (output) of the worker. A friendly, safe and focused workplace gives rise to a healthy and vibrant workplace, thus, translate to high productivity and output. A high production workplace will obviously lead to positive development of any nation.

Hazards in the workplace can jeopardize the health of the workers especially those who are ignorant of such. Accidents may occur as a result of exposure to hazards in the workplace. Gupta (2010) saw hazard as something that has the potential to harm. The harm can affect people, properties and processes, as follows: People – injury, illness, death, psychological trauma; Property – damage, contamination, theft and wastage; and Processes – work disruption and interruption to production. Accordingly, Gupta (2010) believed hazards may be classified into two broad categories as follows: hazards dealing with safety (safety hazards) and hazards dealing with health (occupation health hazards). Safety hazards include: material handling hazards, machine hazards, energy hazards, workplace practice hazards and confined space hazards. According to the author, hazard also include any practice, behaviour or condition or illness of people or damage to property and also an unsafe condition or practice that could cause an injury or illness to an employee and it is preventable. Oluwagbemi (2007) classified occupational health hazards into five categories viz: physical hazards, chemical hazards, biological hazards, psychosocial hazards and ergonomic or work design hazards. The author posited that the physical aspects of a workplace environment can have a direct impact on the productivity, health and safety, comfort, concentration, job satisfaction and morale of the people within.

Safety connotes freedom from danger, harm or injury. It is state of being certain that an adverse effect will not be caused by some agents defined condition. According to Prashar and Bansal (2005) cited in Amanze and Agu (2014) safety is the science and art of identification, evaluation and control of workplace hazards which include measures of preventing human exposure to adverse agent, as well as faulty or unsafe practices. Similarly Ekenedo, (2010) affirmed that safety is achieved when individuals make efforts to preserve their health by removing dangers in the environment and compensating for those that

cannot be removed. Safe living requires the ability to function at optional level in the presence of hazards. Safety therefore is the responsibility of everyone at workplace, however it should be noted that management is in direct control of safety in the workplace through issuance of orders and direction of work and provide every necessary gadgets to protect the employees. Management must accept responsibility in elimination of injuries and make prevention an integral part of all activities.

Accidents are undesirable, unplanned, uncontrolled, unexpected events that can cause injury, death to human and damage to property (Amanze and Agu, 2014). The authors further asserted that accidents are events that could have been prevented if the circumstances leading to it had been recognized, and acted upon before its occurrence. Accordingly, Stack and Elknow as cited in Obiyemi and Oyerinde (2015) averred that an accident is a perfect natural product of an organized way of life. Hence, disorder in the environment is a basic cause of accident. The authors furthers stated that in the developed countries occupational health and safety is given priority attention because of its importance in the reduction of mortality and morbidity of workers and hence help in economic growth of a nation. However, nation in the developing countries who though are aware of the outcome poor occupational safety and health practices are not as concerned, and therefore are left with lots of preventable accidents in the workplace.

Consequently, premature death of most resource and skillful individuals in the workplace lead to economic loss and dwindling economy of these nations (Agbatogun & Taiwo, 2010). Many economists have attributed the correlations of life span studies on longevity and increases productivity to the effects of health education arguing that more informed people and more educated people on health related issues are better able to understand and use health information and are better equipped to be efficient in their skills (Noah & Peter, 2013). Incapacitations resulting from accidents are greater than those from disease. Accordingly, Okeke as cited in Amanze and Agu (2014), investment in safety has the advantage of reducing medical bills, spent annually due to unforeseen accidents, reduction in man hours lost, elimination of damages of machinery and infrastructure and enhance optimum utilizations of both human and material resources. Earlier studies on impacts of health education on safety and wellbeing of staff in the workplace: (Bolarinwa, 2004, Etuk, 2006 and Ekenedo (2010) had the same findings.

Safety and health statistics, published by International Labour Organization (ILO) reveals that every 15 seconds, a worker dies from work-related accident or disease; and at the same time 153 workers have a work-related accident. Everyday, 6300 people die as a result of occupational accident or work-related diseases and that more than 2.3 million death per year 317 million accidents occurs on the job annually; many of these resulting in extended

absences from work. The human cost of this daily adversity is vast and the economic burden of poor occupational safety and health practices is estimated at four percent of global gross domestic product (GDP) each year worldwide (ILO, 2016). This research is delimited to champion brewery Uyo. Champion brewery is a work place for over 300 people who work to produce alcoholic and non-alcoholic beverages. The research is delimited to work practice hazards as injuries may occur as a result of failure to follow safe work practices such wearing safety boots, hand gloves, protective glasses, ear pieces, helmet, and facemask among others. It is a fundamental procedure to work in accordance with established safe work rules as a means of safety hazard control. Health education intervention strategies considered were demonstrations, discussion, recitation, health and safety talks. The purpose of the study is to determine the impact of health education, intervention strategies on safety knowledge and practices among staff in Nigeria. Specifically the study tend to determine the impact of health education intervention strategies on safety knowledge and practices (e.g. use of safety boots, safety goggles, reflective safety jackets and safety gloves) among brewery staff.

Methodology

Research design: the pre-test, post-test control group quasi- experimental design was adopted for this study. The purpose of using this design was to compare the safety knowledge and practice of the staff before the health education intervention, and after the health education intervention activities. The population of this study consist of all staff in champion brewery in Uyo. A sample size of 100 (Brewing staff) where drawn for the study. Using (sample random sampling and purposive sampling techniques). Three brewery departments were randomly selected, and purposive sampling technique was used to select 100 staff from the breweries. A sixteen item self-developed instrument titled “Health Education Intervention Strategic and Safety Knowledge/Practice Questionnaire (HEISASKPQ)” was used to collect data for the study. It is divided into three sections, namely, sections A which contain – items measuring the characteristics of the respondents such as age, sex, etc., Section B contain – items measuring health education interview which section C contain – items measuring safety knowledge and practices. The items were isolated from 2019. It yielded value. Three research assistants who are undergraduates and trained by the researcher assisted the researcher in data collection. The instruments were content validated by three experts (two from the department of physical and health education and one from the department of educational foundations), Faculty of education, University of Uyo, Uyo.

A pilot study was conducted by the researchers using twenty (20) brewery staff not included in the study. A reliability coefficient index of .85 was obtained for the instrument. The questionnaire was administered to the staff (pre-test) to

assess their knowledge and practice on safety practices. During the treatment protocol, lessons were conducted to the staff by the researchers with help of research assistants using different teaching techniques (demonstrations, discussions and recitation) and health and safety talk, while health talk on benefits of physical exercise was given to the control group for about six (6) weeks. Koundiya and Martin (2011) supported the idea that health education teaching methods can be effective for six weeks and above. Revision of all that have been taught in six weeks was conducted in week seven. After the six weeks, the same questionnaire given at the pre-test was also administered to them to assess the effectiveness of the treatment protocol on their knowledge and practice of safety measure of post-test. The research hypotheses were tested at 0.05 level of significance, using analysis of covariance (ANCOVA).

Results

Hypothesis One

There is no significant impact of health education on the use of safety boots among brewery staff strategy.

Table 1: Analysis of Covariance of Brewery Staff Post-responses on Utilisation of Safety Boots Using Pre-responses as Covariate.

Source of Variation	SS	df	MS	F _{cal}	P-value _{cal}
Pre-responses	0.76	1	0.76	0.13	.72 ^{NS}
Strategy	626.25	1	626.25	105.14	.00*
Residual	577.75	97	5.96		
Total	1204.75	99	12.17		

* =Significant at .05 level of significance NS = Not Significant at .05 level of significance

As shown in table 1, the analysis of the pre-response scores of the two groups of brewery staff is not significant since the calculated p-value (.72) is greater than the alpha (.05), indicating the groups were statistically equivalence. The table also showed that the calculated p-value (.00) of Strategy is less than the alpha level (.05). Therefore, the null hypothesis is rejected. This implies that there exists significant impact of health education on the use of safety boots among brewery staff.

Hypothesis Two

There is no significant impact of health education on the use of safety goggles among brewery staff strategy.

Table 2: Analysis of Covariance of Brewery Staff Post-responses on Utilisation of Safety Goggles .Using Pre-responses as Covariate.

Source of Variation	SS	df	MS	F _{cal}	P-value _{cal}
Pre-responses	153.42	1	153.42	29.73	.00
Strategy	1216.14	1	1216.14	235.65	.00
Residual	500.60	97	5.16		
Total	1870.16	99	18.89		

* =Significant at .05 level of significance

As shown in table 2, the analysis of the pre-response scores of the two groups of brewery staff is significant since the calculated p-value (.00) is less than the alpha (.05), indicating the groups were not statistically equivalence. However, analysis of covariance would regress the pre-response and post-response scores. The table also showed that the calculated P-value (.00) of strategy is less than the alpha level (.05). Therefore, the null hypothesis is rejected. This implies that there exists significant impact of health education on the use of safety goggle among brewery staff.

Hypothesis Three

There is no significant impact of health education on the use of safety reflective jackets among brewery staff strategy.

Table 3: Analysis of Covariance of Brewery Staff Post-responses on Utilisation of Safety Reflective Jacket Using Pre-responses as Covariate.

Source of Variation	SS	df	MS	F _{cal}	P-value _{cal}
Pre-responses	9.13	1	9.13	1.38	.24
Strategy	475.26	1	475.26	71.96	.00
Residual	640.65	97	6.61		
Total	1125.04	99	11.36		

* =Significant at .05 level of significance NS = Not Significant at .05 level of significance

As shown in table 3, the analysis of the pre-response scores of the two groups of brewery staff is not significant since the calculated p-value .24 is greater than the alpha (.05), indicating the groups were statistically equivalence. The table also

showed that the calculated p-value (.00) of strategy is less than the alpha level (.05). Therefore, the null hypothesis is rejected. This implies that there exists significant impact of health education on the use of safety reflective jacket among brewery staff.

Hypothesis Four

There is no significant impact of health education on the use of safety gloves among brewery staff strategy.

Table 4: Analysis of Covariance of Brewery Staff Post-responses on Utilisation of Safety Gloves Using Pre-responses as Covariate.

Source of Variation	SS	df	MS	F _{cal}	P-value _{cal}
Pre-responses	2.76	1	2.76	0.32	.57
Strategy	269.90	1	269.90	31.54	.00
Residual	830.08	97	8.56		
Total	1102.75	99	11.14		

* =Significant at .05 level of significance NS = Not Significant at .05 level of significance

As shown in table 4, the analysis of the pre-response scores of the two groups of brewery staffs is significant since the calculated p-value (.57) is greater than the alpha (.05), indicating the groups were statistically equivalence. The table also showed that the calculated p-value (.00) of strategy is less than the alpha level (.05). Therefore, the null hypothesis is rejected. This implies that there exists significant impact of health education on the use of safety gloves among brewery staff.

Discussion of Findings

Findings in this study as shown in analysis of data in tables1-4, indicate that health education intervention strategies shows significant improvement on safety knowledge practice among brewery staff. From the findings, the experimental group where more knowledgeable and put same to practice about safety as compared to the controlled group who had no such education.

This finding collaborate those of Tones (2002) and Owie (2005), who observed that effective health education information may produce changes in knowledge and understanding or way of thinking, and also it may influence practices and facilitate the acquisition of skills that may affect changes in the behaviour and/or lifestyle of people toward unhealthy practices. Similarly, these findings support those of Bolarinwa (2004), Etuk (2006), Ekenedo, (2010) and

Noah and Peter (2013) who observed that more informed people and more educated people on health related issues are better able to understand and use health information and are better equipped to be efficient on their skills. Also, Obiyemi and Oyerinde (2015) averred that safety issues through health education bring forth safety knowledge and can be used in training and instructional strategies that lead to the development of good attitude towards safety attitudes. The authors submitted that proper control of hazardous conditions of the environment can be effective means of preventing the avoidable losses through accidents.

Conclusion

The economic and social implications of accident are so great that no effort is too much towards the prevention of accidents. Any condition that results into deaths, injuries and destruction of properties should not be treated with levity. The major keys to safety and survival are thus, the development of right attitude and behaviour in anticipating danger and being adequately prepared. It is the function of safety education to develop public consciousness of the need for accident control and management.

From the results, it showed that health education has a positive impact on safety knowledge and practices, thereby ensuring that workers are free of hazards and injuries for better productivity. Hence, the need for regular use of health education (safety education and practices) as the key to productivity in the workplace. Besides, health education in the workplace (occupational health education) helps in reducing disability, morbidity and mortality of the workforce, family and enabling environment. Based on the outcome of this study, the following recommendations are made:

- i. Occupational health education should be made compulsory in industries and workplaces by government and relevant agencies.
- ii. Employers should provide every safety gadgets for their employees and the employees should also endeavour to use same when applicable and workers who observe best safety practices should be awarded annually.
- iii. Employees that defaults in the use of safety gadgets should be punished/sanctioned accordingly.
- iv. Health educators should be invited to companies and industries to give health talks on safety and safety practices at least twice a year.

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