EFFECT OF SAFETY TRAINING ON IMPLEMENTATION OF OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT IN THE CONSTRUCTION INDUSTRY

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ABSTRACT

Despite considerable efforts directed at reducing the number of deaths, injuries and ill health, construction industry has remained one with the highest rates of fatal and major injuries. However, Occupational health and Safety training is key to implementation of an effective health and Safety system. In this regard the study sought to find out the impact of safety training on implementation of occupational health and safety. The study adopted a case study research design with a target population of 5160 employees drawn from the six sub counties of Kipkelion East, Kipkelion West, Belgut. Ainamoi, Bureti andSoin-Sigowet in Kericho County. Cluster random sampling technique was used with a sample size of 361 employees arrived at by use of Krejcie and Morgan table of 1970.Data was collected by use of questionnaires from the respondents. Quantitative data was analyzed by use of both inferential statistics such as multiple regression while descriptive statistics such as mean and frequencies using SPSS version 20. From the regression results safety training and induction explained $R^2 = 0.0.586$ indicated that the model explained only 58.6% percent variation on implementation of occupational health and safety. From the findings regression coefficient β values for safety training and induction 0.766 which was positive. The positive β values indicate the direction of relationship between predictor and outcome. The study therefore concludes that safety training and induction positively and significantly affect the implementation of OHS in the construction industry. The study therefore recommends safety training and induction in order to promote OHS in the construction sites.

Key words: Safety training, Induction and occupational health and safety

INTRODUCTION

Managing safety and health is an integral part of managing any business undertaking. In this regard the employer has a responsibility and duty to ensure employee occupational safety and health, including adhering to national laws and regulations. When it comes to OSH initiatives within the company, the employer should take a proactive leadership role, be fully committed, and make the necessary arrangements for the creation of an OSH management system (Reese, 2018). Occupational health and Safety training is key to implementation of an effective health and Safety system. The necessary OSH needs to be maintained to ensure that all persons, in particular new and young workers have been trained and are competent to carry out the safety and health aspects of their duties and responsibilities (www.ilo.org., 2022).

Safety training to the employees in the construction industry clearly stipulates the rules and regulations that provide information on potential risks and hazards and how to avoid them. This is in part a preventive program done through; Induction course, Transfer to new job or change in working methods, Refresher course and training should be provided to deal with aspects of health and safety to employees (Armstrong, 2009). Preventive training and induction procedures in the workplace environment are important tools in preventing accidents at work as it helps inculcate in employees a positive health and safety culture. All employees who are new should receive a full induction as soon as possible after starting a new site so that they are made aware of potential hazards and given instruction on how to avoid the possible risks. Working with dangerous equipment, working around hazardous and unstable materials or simply putting your body through demanding work and strain could lead to a construction accident (Hughes & Ferrett, 2011). This is because construction sites pose a large variety of risks, making the possibility of an accident quite high due to, changes in job responsibilities, the introduction of new work equipment, introduction of a new

system of work, or even the employment of more vulnerable persons such as young and disabled.

According to Oluoch (2015), Every employee should be made aware of any risks from new technologies, imminent danger and ensuring that every person employed participates in the application and review of health and safety measures as stipulated in article 6(c) of the Occupational Safety and Health Act, (2007), where it states that: it is the duty of the employer to ensure the health, safety and welfare at work of all persons in the workplace and this involves the provision of such information, instruction, training and supervision as is necessary to ensure that health and safety at work of every person employed.

The management should personally get involved in health and safety inspections and audits, health and safety consultation meetings and also in the investigation of accidents, ill-health and incidents. Supervisory and management training will play a pivotal role in avoiding common managerial failures such as, lack of health and safety awareness, enforcement and promotion, lack of supervision and communication with employees and lack of understanding of the extent of the responsibility of the supervisor (Shamsuddin, Ani, Ismail & Ibrahim, 2015).

Job specific training ensures that employees undertake their jobs in a safe manner. Skill training can be conducted 'on the job' or 'toolbox training' to cover issues like emergency procedures, correct use of protective personal equipment (PPE) and work activities which are more hazardous. Health and safety training includes training on personal protective equipment, emergency preparedness and documentation of accident courses (Floyde, Lawson, Shalloe, Eastgate & D'Cruz, 2013). Some activities in a construction site require specialist training such as first aid, fire prevention, forklift truck driving, overhead crane operation, scaffolding inspection and statutory health and safety inspections.

Induction training is mandatory and should be provided to new employees to enhance their

awareness regarding health and safety policy of the organization, the accident reporting procedures of the organization, the fire and other emergency procedures and a brief summary of the health and safety management system in the organization and employee responsibility for health and safety (Akpan, 2011). An important aspect to be brought to the awareness of the employees is published disciplinary procedures such that a particularly serious accident is followed by some disciplinary action or a penalty. 'Dirty Construction Workers', Murray (2002) cited in Kirombo (2012), brings out the negative stereotypical attitudes associated with the building industry that construction workers are characterized by images of dirt, unsafe working practices, macho and sexist behavior and unsatisfactory workmanship. The study further concludes that, such perceptions are known to have damaged the image of the construction industry and may have led to large sections of the construction workforce being stigmatized and hence carry out their tasks without morale.

Statement of the Problem

Despite considerable efforts directed at reducing the number of deaths, injuries and ill health, construction industry has remained one with the highest rates of fatal and major injuries. This evidenced by DOHSS, (2011) which reported that the construction industry in Kenya in the year 2011 accounted for 16% of fatal accidents (40 cases reported for 100,000 workers) and 7% of non-fatal cases. However, in many cases, occupational health and safety practice still remains ineffective (Neale & Waters, 2012). These altogether rationalized the need for designing the current study to assess the

effect of safety training and induction on implementation of OHS management in the construction industry in Kericho County, Kenya.

Purpose of the study

This study established the effect of safety training on implementation of Occupational Health and Safety in the construction industry in Kericho County, Kenya.

METHODOLOGY

The study adopted quantitative research design which seeks to describe a unit in detail, in context and holistically. Quantitative research involves the collection of data so that information can be quantified and subjected to statistical treatment in order to support or refute alternative knowledge claims (Apuke, 2017). The design was appropriate because its objectivity is critical in collecting data on predetermined instruments that yield statistical data that can be used to make general comments regarding factors affecting the implementation of occupational health and safety management in the construction industry in Kericho County.

The study targeted employees of public funded building construction projects in the county. According to records from county works office Kericho County. The total number of Public funded building construction projects which are on course are on average of 8 sites per ward. There are 30 wards in number. According to the clerk of works report in Kericho county works office; these sites have an average of 20 construction workers grouped into foremen, skilled labourers and unskilled labourers. The total target population therefore was 5160 workers.

Table 1: Target population

Groups	Target population
Ainamoi	920
Belgut	810
Bureti	665
Kipkelion East	932
Kipkelion West	838
Sigowet–Soin	995
Total	**5160**

Source: *Kericho County Works office (2016)*

A sample size refers to the number of people in the respondent group determined by the scope of the research (Boddy, 2016). According to Choy (2014) Sample frame is the number of population participants and how this is accessed. In this study the Sample size was 361 which was determined by use Krejcie and Morgan Table (1970) to calculate the sample size.

Table 2: Sampling Size

Group	Target population	$n_i = (N_i \times n)/N$	Sample size(n)
Ainamoi	920	(920/5160)x361	64
Belgut	810	(810/5160)x 361	57
Bureti	665	(665/5160)x 361	46
Kipkelion East	932	(932/5160)x 361	65
Kipkelion West	838	(838/5160)x 361	59
Sigowet–Soin	995	(995/5160)x 361	70
Total	**5160**		**361**

A sample size of 361respondents was used for this survey consisting of foremen, skilled and unskilled labourers.

A structured and pre-tested questionnaire based on the specific objectives was used to gather primary data quantitatively. A pre-test of the questionnaire was conducted by using a panel of colleagues familiar with the research purpose and did not take part in the final research for feedback purposes. Besides piloting was also conducted in Government funded projects in Uasin Gishu County. It involved 10% of the size of the sample population (Kothari & Garg, 2014). This means that 36 respondents participated in the piloting of the data instrument. The 36 respondents were selected randomly from the county funded projects.

Data was analyzed using descriptive and inferential statistics. Descriptive statistics involved the use of frequencies, percentages and mean was adopted while in inferential statistics multiple regressions was used to determine the effect of Safety training and induction (independent variable) on dependent variable (implementation of OHS), coefficient of correlation using the Statistical Package for Social Sciences (SPSS)version 25.0 package.

The regression model is as follows:

$$y = \beta_0 + \beta_1 x_1 + \varepsilon \dots\dots\dots\dots\dots\dots\dots\dots\dots.\dots\dots.(1)$$

Where y is Implementation of OHS, dependent variable$x$ is Safety training and induction,β is the standardized regression coefficient.

X_1=Safety training and induction.

FINDINDS

Effects of safety training and inductions on implementation of OHS

Descriptive analysis of Safety training and Inductions
Research sought to establish the effect of Safety training and Inductions on OHS in the construction industry. The study conceptualized that Safety training and Inductions had an effect on OHS. Thus; five questionnaire items that were used to examine the prevailing status of Safety training and Inductions in the construction industry as indicated in table 3.

Table 3: Safety training and Inductions

STATEMENTS	SA	A	UD	D	SD	MEAN	Std. Dev.
There is safety briefing before commencement of any new work on site.	14.9	49.1	0	25.3	12.6	3.26	1.328
Lack of training and Education will increase injury rates	34.5	35.5	10.3	16.1	3.4	3.82.	1.172
Most of the employees prefer short term trainings than long term trainings	24.1	46.0	6.9	11.5	11.5	3.60	1.284
Language barriers of the illiterate workers affect the efficiency of training	24.1	25.3	4.6	41.1	4.6	3.23	1.330
Ineffective training is a barrier to implementation of OHS	36.8	21.8	5.7	26.4	9.2	3.51	1.440

Results presented in Table 3 revealed that the respondents were undecided that there is safety briefing before commencement of any new work on site. (M=3.26 SD=1.328). Besides, a majority of the employees tended to agree that lack of training and Education will increase injury rates (M=3.82 SD=1.172).Some respondents also tend to agree that most of the employees prefer short term trainings than long term trainings. (M=3.60 SD=1.284).Some respondents were undecided whether language barriers of the illiterate workers affect the efficiency of training (M=3.23 SD=1.330). Lastly the respondents tended to agree that Ineffective training is a barrier to implementation of OHS (M=3.51 SD=1.440).These findings imply that the construction industry should seriously indulge in safety trainings so that the workers can be more enlightened on safety measures to promote accident free environments in the construction industry.

Regression Analysis

The model summary presented in table 4 involves safety training and induction (X3) as the only independent variable. The coefficient of determination (R square) of 0.586 indicated that the model explained only 58.6% of the variation or change in the dependent variable with the remainder of 41.4% explained by other factors other than safety training and induction. Adjustment of the R square did not change the results substantially, having reduced the explanatory behavior of the predictor to 58.5%.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.766[a]	0.586	0.585	0.391	2.103

Predictors: (Constant), safety training and induction
Dependent Variable: Implementation of OHS

The ANOVA output was examined to check whether the proposed model was viable. Results shown in Table 5 revealed that the F-statistic was highly significant (F= 366.760 p <0.05), this shows that the model was valid. From the finding of the study the F statistic was highly significant hence the null hypothesis that there is no significant effect of training and induction on the implementation of OHS was rejected. The study therefore failed to reject the alternative hypothesis that training and induction significantly affects implementation of OHS.

Table 5: ANOVA of safety training

Sum of Squares	Df	Mean Square	F	Sig.
56.185	1	56.185	366.760	0.000[b]
39.677	259	0.153		
95.862	260			

Predictors: (Constant), Safety training and induction

Dependent Variable: implementation of OHS

The model significantly improved the ability to predict implementation of OHS. Thus, the model was significant.

Result on Regression Coefficients of implementation of OHS

Results of the regression coefficients presented in Table 6 shows that the estimates of β values and give an individual contribution of a predictor to the model. The β value tells us about the relationship between implementation of OHS with the predictor. The positive β value indicates the positive relationship between the predictors and the outcome. The β value for safety training and induction (0.766) was positive. The positive β values indicate the direction of relationship between predictor and outcome. From the results (Table 4.17) the model was then specified as:-

$y = \beta_1 X_1 + \varepsilon$……………………………………………………. (2)

Implementation of OHS= 0.766 Safety Training and induction $+\varepsilon$ …………………………………………………… (3)

The coefficient of the variable indicates the amount of change one could expect in implementation of OHS given a one-unit change in the value of that variable, given that the variables in the model are standardized basing on the standardized coefficients. Result reveals standardized regression coefficient for safety training and induction (β=0.766), implies that an increase of 1 standard deviation in safety training and induction is likely to result in a 0.766 standard deviations increase implementation of OHS. T-test was used to identify whether the predictor was making a significant contribution to the model. When the T-test associated with the β value is significant, then the predictor is making a significant contribution to the model. The results show that the safety training and induction (t =19.151, P<.05).

Table 6: Regression Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	β			Tolerance	VIF
(Constant)	1.991	0.090		12.211	0.000		
Training	0.475	0.025	0.766	19.151	0.000	1.000	1.000

Dependent Variable: implementation of OHS

According to Chen and Chan (2010) Preventive training and induction procedures in the workplace environment are important tools in preventing accidents at work as it helps inculcate in employees a positive health and safety culture. From the findings of the study safety training positively and significantly related to implementation of OHSwhere r= 0.766[**] and P<0.01 with β= .766.This findings are in line with the findings of (Leiter, Zanaletti & Argentero, 2009;Mearns, Whitaker & Flin, 2003) who also found a positive correlation between safety training and occupational health

and safety management.This implies that there is a need for proficiency training on some safety management practices for both employees and management of construction industry to reduce official accident rates and respondents reporting accidents thus efficient implementation of OHS.

CONCLUSION AND RECOMMENDATION

Training for workplace safety is just as important as workplace safety itself. It makes it possible for management to maintain a secure and healthy workplace. The study therefore concludes that safety training and induction remains key in effective implementation of OHS. This is justified by the fact that safety training and induction significantly affects implementation of OHS. Based on training and induction employers and employees in the construction industry should be enlightened on OHS rights and obligations through training. Safety officers provide OHS training and supports to workers and non-workers to improve their implementation of OHS. Additionally, it aids in identifying and addressing safety issues within the workforce. It makes it possible for them to comprehend standards and optimal safety procedures.

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