

African Research Review

An International *Multidisciplinary Journal, Ethiopia*

Vol. 8(4), Serial No. 35, September, 2014:153-165

ISSN 1994-9057 (Print)

ISSN 2070--0083 (Online)

DOI: <http://dx.doi.org/10.4314/afrrrev.v8i4.13>

Safety Management and Organizational Sustainability: A Study of Selected Pharmaceutical Companies in Anambra State, Nigeria

Ndife, Chinelo

Department of Business Administration

Federal Polytechnic Oko, Anambra State, Nigeria

E-mail: chinelo.ndife@yahoo.com

Abstract

The thrust of this study was to determine the impact of safety management on organizational performance with a specific objective of determining the effects of safety policies, safety planning and safety practices on organizational performance. Three pharmaceutical companies from Anambra state were used for the study. Structured questionnaire was used to obtain information from a randomly sampled respondents and the Chi-square test of independence was used to analyze the responses at 5% level of significance. The results show that safety policies and planning have significant impact on organizational performance while safety practice does not, hence the conclusion that the management's effort towards safety improvement as captured by safety policies and safety planning have significant effect on organizational sustainability while the safety practices on the side of employees do not affect organizational sustainability. It is therefore recommended that: organizations should emphasize the need for employees to observe safety rules. Again safety measures should be well communicated to the workers. Finally organizations should plan safety measures with their employees that are at risk of such hazards.

Key words: safety management, organizational sustainability, safety planning, safety procedures

Introduction

There are dangers and threats in every occupation, and it is imperative that managers and workers alike become acutely aware of the hazards associated with their jobs, as well as the preventive measures necessary for minimizing them. Many workplace fatality investigations point out the same areas of concern regarding worker safety, the primary contributing factors to these fatal workplace injuries are human error, procedural insufficiency, and equipment insufficiency (Pitt, 2007).

Today, technology pressure and intense global competition not only bring tremendous changes in organizational safety but also threaten it (Rollah, 2010). In many countries, workplace accidents have received big attention as early as 100 years before due to the fact that it is enormously costly (Pitt, 2007). Stromgren & Andersson (2010) claim that making good business could be proven through the increase of productivity and profit in an accident-free working environment as Durrishah, (2009) argued that inconsistent understanding of safety responsibility between management and employees has contributed to unsafe working environment.

The importance of risk and safety management is increasingly emphasized in enterprises, and the importance of overall safety in the company's profitability, business and competitiveness is significant. The world's leading companies have started to increasingly invest in different sectors of safety, and safety is a central precondition of competitiveness, as well as an integral part of high-quality business operations (Pekka, 2009). This study focuses on safety management and organizational sustainability of selected pharmaceutical companies in Anambra State. The findings from this study will be useful in planning and managing safety measures in the pharmaceutical industries. The study will also add to existing literature on safety management.

Statement of the Problem

Unexpected releases of toxic, reactive, or flammable liquids and gases in Pharmaceutical processes involving highly hazardous chemicals have been reported for many years (Jefress, 2000). Regardless of the industry that uses these highly hazardous chemicals, there is a potential for an accidental release any time they are not properly controlled. This, in turn, creates the possibility of disaster and accident for both employees and properties of the industry. Controlling these hazards becomes a big burden on the output and overall organizational performance.

Oedewald and Reiman (2006) argued that unsafe acts, unsafe conditions and accidents are all symptoms of something wrong in the organizational system and that

it is the top management who is responsible for building such management systems that can effectively control the hazard associated with organizations operation. In this, safety and risk management is the duty of the management as well as the individual employees. The thrust of this study therefore, is to determine the effect of safety management on the side of the organization and as individuals on organizational sustainability in some selected pharmaceutical companies in Anambra State.

Objective of the Study

The aim of this study is to determine the effect of safety management on organizational sustainability of some selected pharmaceutical companies in Anambra State. The specific objectives are:

1. to determine the effect of safety policies on organizational sustainability
2. to examine the effect of safety planning on organizational sustainability
3. to ascertain the effect of safety procedures and practices on organizational sustainability

Research Hypothesis

This research seeks to test the following null hypotheses

1. Safety policies do not have significant effect on organizational sustainability
2. there is no association between Safety planning and organizational sustainability
3. Safety procedures and practices do not have significant effect on organizational sustainability

Review of Related Literature

The study adopts the industrial accident causation theory commonly known as Domino theory presented by Heinrich (1931) which states that in most cases accidents are caused by two things: the human act and the condition of the physical or social environment. Peterson (1988) extended the causation theory from individual and local conditions to management systems arguing that unsafe acts, unsafe conditions and accidents are all symptoms of something wrong in the organizational system and that it is the top management who is responsible for building such management systems that can effectively control the hazard associated with organizations operation.

Varonen and Markku (2012) assessed 22 safety variables associated with organizational practices and the work environment in eight wood-processing companies. Three factors of safety climate studied in relation to accident rates were a)

safety activities of management and safety personnel, b) anticipation of hazards, and c) safety training. Their study confirmed the hypothesized relationship that higher scores on safety climate and accidents correlated with lower accident rates. Some of the company practices consisted of “organizational responsibility, workers’ safety attitudes, safety supervision, and company safety precautions”.

Silva, Lima, and Baptista (2004) established measures of safety climate according to the four culture orientations of the Competing Values Framework. The instrument was administered in 15 industries to 930 employees. Confirmatory factor analysis revealed that the questions were “compatible with the four safety orientations” and that “structures could be applied to companies in several industries”. In addition, they examined the differences among the newly established safety climate dimensions and low and high accident and severity rates in 1999. Strong correlations existed between the following safety-related practices and accident frequency and severity rates: a) safety as an organizational value, b) management safety activities, c) communication related to safety d) learning from accidents, and e) employee involvement in promoting safety

Katsuro, Gadzirayi, Taruwon and Suzanna (2010) studied the impact of occupational health safety (OHS) on productivity in the commercial food industry. Questionnaires, interviews and observations were used as research instruments to collect data. Their study found out that OHS related problems negatively affect workers’ productive capacity in the food industry resulting in reduced worker output, also that Workers develop a negative attitude and low morale towards work.

Pekka, Haapasalo and Niemelä (2009) studied evolution of safety management and systems in a steel production organization. They assessed the present situation of the corporate safety and security means of an applied version of Capability Maturity Model Integration. They observed that personnel safety, crime prevention, security of premises and safety in case of nondomestic activity are on a low level, occupational and environmental safety are on a highest level, while recommending that safety actions should be more proactive and systematic.

Wu, Chen, & Li (2008) studied CEO’s safety commitment, managers’ safety commitment, employees’ safety commitment, emergency responses, perceived risk, safety caring, coaching, and controlling Safety leadership, safety climate Faculty and staff of laboratories in 4 Taiwanese colleges/universities using Multiple Regression, Path Analysis and Canonical Correlation Analysis “Aim was to investigate the correlation among safety leadership, safety climate and safety performance in university and college laboratories”. “Two paths were found that affect performance. One goes from safety leadership, through safety climate, to safety performance, where the other goes from safety leadership to Policies and procedures accounted for 45% of the variance of the perceived safety climate.

Fernandez-Muniz, Montes-Peon & Vazquez-Ordas (2007) applied the Structural Equation Modeling to Safety policy, incentives, training, communication, planning, control, and managers' commitment Safety management system 455 Spanish firms in the construction, industrial, and service sectors Propose a model of a positive safety culture. The goodness-of fit indices of the suggested model shown may be considered satisfactory since they are very close to the recommended values".

Agwu (2012) studied total safety management (TSM) as a strategy for improving organizational performance in selected construction companies in Nigeria, the research question addressed the extent of implementation and influence of total safety management on better organisational performance in the six selected construction companies. The study was based on Ken Wilber's Integral Safety Model which views construction safety from the perspective of the construction worker as an entity consisting of four inter-dependent and complementary dimensions. The research concluded that implementation of total safety management at the organizational level in construction companies in Nigeria will improve organizational performance.

Research Methodology

This study adopts the descriptive research design. Descriptive studies are aimed at portraying accurately the characteristics of a particular individual, situation or group and also in determining the frequency of a particular event or characteristics.

The study used both primary and secondary data. The primary data was gotten through the use of structured questionnaire built on five point scale (strongly disagree, Disagree, Undecided, agree and strongly agree) was used to obtain information from the respondents. The questionnaire has sections comprising of Demographic information of respondents and impact of safety management on organizational performance. The secondary data were sourced from journals, texts and other online resources.

The population of study consists of 350 employees of selected pharmaceutical companies in Anambra State. The simple random sampling technique was used to select the population units used as sample. In probability sampling bias is eliminated and no particular unit of the population is favoured during selection. Sample size was determined using the Taro Yamane sample size formula.

The proportionate allocation formula was used to allocate each organization using the proportion of size of each organization to the overall population size:

$$\frac{\text{population of organization}}{\text{overall population}} \times \text{sample size}$$

The chi-square test was used in testing the hypotheses that the variables of classification are independent. Oyeka (2009) stated that in testing for independence using chi-square, the observed data are usually presented in a table called contingency table in which the level of one variable represent the column and the level of the other variable represents the rows.

$$X_{cal}^2 = \sum \frac{(O - E)^2}{E}$$

At α -level of significance and (row-1) x (column-1) degrees of freedom

Where: Expected Frequency = $E = \frac{\text{row total} \times \text{column total}}{\text{overall total}}$

And O is the observed frequency in each cell

E is the expected frequency in each cell

\sum is a summation sign.

$$X_{tab}^2 = X_{\alpha, (r-1)(c-1)}$$

Whenever a significant relationship exists between variables, there is need to measure the degree of relationship by using the formula of coefficient of contingency.

$$C = \sqrt{\frac{X_{cal}^2}{X_{cal}^2 + N}}$$

Hypothesis Testing

178 valid questionnaires were returned and subsequently used for analysis

Hypothesis 1

H₀: Safety policy does not have significant effect on organizational performance

The resulting contingency table is given below with the expected values in parenthesis ()

Table 1: Contingency table of safety policy and organizational performance

SAFETY POLICY	SD	D	U	A	SA	ROW TOTAL
QUS 1	19(26.6)	26(24)	5(8.2)	84(71)	44(48.2)	178
QUS 2	41(26.6)	29(24)	10(8.2)	43(71)	55(48.2)	178
QUS 3	19(26.6)	22(24)	7(8.2)	89(71)	41(48.2)	178
QUS 4	30(26.6)	14(24)	14(8.2)	62(71)	58(48.2)	178
QUS 5	24(26.6)	29(24)	5(8.2)	77(71)	43(48.2)	178
TOTAL	133	120	41	355	241	890

Source: Field survey 2013

$$X^2 = 51.169, DF = 16 X^2_{tab} = 26.30$$

Decision: since $X^2_{cal} = 51.169$ is greater than $X^2_{tab} = 26.30$, reject H_0 and conclude that Safety policy has significant effect on organizational performance

The contingency coefficient is $\sqrt{\frac{51.169}{51.169 + 890}} = \sqrt{\frac{51.169}{941.169}} = 0.2332$

Expressing the value in percentage gives $0.2332 \times 100 = 23.32\%$

Hypothesis 2

H_0 : Safety planning does not have significant effect on organizational performance

At 5 % level of significance

The resulting contingency table is given below with the expected values in parenthesis
()

Table 2: Contingency table of safety planning and organizational performance

SAFETY PLANNING	SD	D	U	A	SA	ROW TOTAL
QUS 1	55(39.40)	37(37.80)	7(10)	27(32.4)	52(58.4)	178
QUS 2	39(39.40)	24(37.80)	14(10)	29(32.4)	72(58.4)	178
QUS 3	17(39.40)	76(37.80)	10(10)	50(32.4)	25(58.4)	178
QUS 4	46(39.40)	19(37.80)	12(10)	27(32.4)	74(58.4)	178
QUS 5	40(39.40)	33(37.80)	7(10)	29(32.4)	69(58.4)	178
TOTAL	197	189	50	162	292	890

Source: field survey 2013

$$X^2 = 118.59, DF = 16$$

Decision: since $X^2_{cal} = 118.59$ is greater than $X^2_{tab} = 26.30$, reject H_0 and conclude that Safety practice has significant effect on organizational performance

$$\text{The contingency coefficient is } \sqrt{\frac{118.59}{118.59 + 890}} = \sqrt{\frac{118.59}{1008.59}} = 0.3429$$

Expressing the value in percentage gives $0.3429 \times 100 = 34.29\%$

Hypothesis 3

H_0 : Safety practice does not have significant effect on organizational performance

At 5 % level of significance

The resulting contingency table is given below with the expected values in parenthesis
()

Table 3: Contingency table of safety practice and organizational performance

SAFETY PRACTICE	SD	D	U	A	SA	ROW TOTAL
QUS 1	29(26.4)	34(26)	7(10)	58(49)	50(66.6)	178
QUS 2	26(26.4)	26(26)	14(10)	42(49)	70(66.6)	178
QUS 3	19(26.4)	22(26)	10(10)	53(49)	74(66.6)	178
QUS 4	29(26.4)	17(26)	12(10)	48(49)	72(66.6)	178
QUS 5	29(26.4)	31(26)	7(10)	44(49)	67(66.6)	178
TOTAL	132	130	50	245	333	890

Source: field survey 2013

$$X^2 = 22.9, DF = 16,$$

Decision: since $X^2_{cal} = 22.9$ is less than $X^2_{tab} = 26.30$, accept H_0 and conclude that Safety practice has no significant effect on organizational performance

Analyses of Findings

The trust of this study is to determine the impact of safety management on organizational performance with specific objectives of determining the effects of safety policy, safety planning and safety practices on organizational performance. Three pharmaceutical companies in Anambra state were used for the study. Structured questionnaire was used to obtain information from the respondents and the Chi-square test of independence was used to analyze the responses at 5% level of significance.

The analysis conducted shows that safety policy and planning have significant impact on organizational performance while safety practice does not. It was also shown from the contingency coefficient computed that 23.32% and 34.29% change in organizational performance are attributable to safety policy and safety planning respectively.

Conclusion

The study has shown that not all aspect of safety management have significant impact on organizational performance. The study shows that safety policy and safety planning have significant impact on organizational performance of the selected pharmaceutical companies while safety practice does not. This lead to the conclusion that management's effort towards safety management have significant effect on organizational sustainability while the safety practice on the side of employees does not affect organizational sustainability

Recommendations

Base on the findings of this work, the following recommendations will help improve safety measure in the pharmaceutical companies:

1. Since safety practices has been shown not to have significant contribution to organizational performance there is need to emphasize the need of employees to observe safety rules.
2. Again safety measures should be well communicated to the workers.
3. Finally organizations should plan safety measures with the employees that are at risk of hazards

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APPENDIX: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC INFORMATION

Please tick (✓) as appropriate

1. Gender Male Female
2. Length of service 0-1yr 2-4yrs 5-9yrs 10yrs and above
3. Employee's Department production administration marketing
 others specify
4. Employees Category junior intermediate senior staff

SECTION B: SAFETY MANAGEMENT AND ORGANIZATIONAL PERFORMANCE

In each of the questions below, kindly indicate your agreement or disagreement using the scale: Strongly Agree (SA); Agree (A); Undecided (UD); Disagree (D) Strongly Disagree (SD)

Safety Policy and Organizational Performance

1. Companies safety policy affects product quality
 SA A UN D SD
2. Safety policies are revised in line with performance plans
 SA A UN D SD
3. Employees with risky behaviours partake in safety policy formulation
 SA A UN D SD
4. Safety training improves job performance
 SA A UN D SD
5. Proper communication of safety policies help reduce accidents
 SA A UN D SD

Safety Planning and Organizational Performance

1. Hazards are properly identified during planning
 SA A UN D SD
2. Safety plans help reduce occupational hazards
 SA A UN D SD

3. Safety plans improve work conditions
 SA A UN D SD
4. Safety plans translate to improved performance
 SA A UN D SD
5. Safety plans affect employees job satisfaction
 SA A UN D SD

Safety practices and organizational performance

1. Safety at the work environment improves performance
 SA A UN D SD
2. Risky behavior of employees are minimal
 SA A UN D SD
3. Safety tasks and responsibilities affects productivity
 SA A UN D SD
4. The current health and safety level in the company is good enough for optimum performance SA A UN D SD
5. The employees risky behavior does not affect productivity
 SA A UN D SD