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# Effect of Safety Culture on the Occurrence of Accidents in the Ghanaian Oil Marketing Companies – A Case Study of Three Oil Marketing Companies: Methodology and Analysis of Results

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**Abstract:- Accidents at the work place provide a huge cost to employers and the economical disadvantages are enormous. Minor accidents affect production in variety of ways and major accidents can cause the whole company to shutdown Safety culture is a complicated structure in an organization that includes values and attitudes of employees, most of which are potentially changeable and also related to actual accident behavior. It is important to institute safety culture by putting in place measures to minimize the occurrence of accidents at the work place. The objectives of this study were to understand how safety culture influences the occurrence of accidents in the Ghanaian Oil Marketing Industry .the variable that were measured in this study included management commitment to safety, developing safety training for employees and employees' personal safety experience. A total of 105 respondent from three oil marketing companies participated in the study out of 123 employees. Questionnaires based on a five-point-Likert scale were the primary tool used to collect data for quantitative and qualitative analysis. The Pearson's correlation and Multiple Regression Analysis were used to establish a relationship between safety culture and the occurrence of accidents. The results showed that there was an inverse relationship between safety culture and the occurrence of accidents. The study thus recommended that policy makers ensure that safety practices are fully adhered to by industries and sanctions given to defaulter as the research showed that a strong safety culture will reduce the occurrence of accidents.**

## I. INTRODUCTION

➢ *Research Objectives*

The General study objective of the research is to contribute to the general body of knowledge in the area of safety culture and it effect on the occurrence of accidents in the Ghanaian Oil Marketing industry.

➢ *Specific Objectives*

1. To examine the safety procedures employed by individual Oil Marketing Companies
2. To examine whether the safety procedures in the industry are in compliance with the National Safety Law
3. To determine whether employees fully comply with the safety measures of the industry and the exposure to accidents

➢ *Research Questions*

1. To what extent does management concerns for safety influence the occurrence of accidents at the work place?
2. To what extent does safety training for employees influence the occurrence of accidents at the work place?
3. To what extent does employees' personal safety experience influence the occurrence of accidents?

➢ *Research Hypothesis*

1. If management concerns for safety are increased, then occurrence of accidents at the work place will reduce.-----(H1)
2. If health and safety training for employees increase, then the occurrence of accidents at the work place will reduce.-----(H2)
3. If employees have enough experience on personal safety, then the occurrence of accidents will reduce.----(H3)

➢ *Problem Statement*

Safety culture implicitly demands that measures are put in place to minimize the occurrence of accidents at any workplace. The Oil marketing industry deals in highly inflammable substances in the discharge of their duties. This industry is responsible for the direct retailing of petroleum products to consumers. The companies thus employ the use of

sophisticated machinery in the discharge of their duties. These machines and gadgets could be dangerous during operations and thus safety precautions must be instituted to prevent and/or minimize workplace accidents.

In their daily routines, employees are exposed to a wide range of risks that could be detrimental to their health in either short term or long term basis. Moreover, the compliance to the National Safety guidelines is of prime importance. This is because adherence to these measures reduces the risks and likelihood of the occurrence of accidents.

This research therefore aims to fully examine the safety culture practices employed by the oil marketing industry and to also find out if there is any possible linkage between these guidelines and the occurrence of accidents.

## II. METHODOLOGY

This introduced the methodology or the approaches used highlighting on the Study Area, Study Population, Sample Size, Sampling Technique, Data and Information Collection Instruments, Pre-testing of Questionnaire and Quality Control, Ethical Considerations and Data Analysis. Three oil marketing companies will be used for the research

➢ *Study Design*

This study examined the responses of workers at three oil marketing companies' to close ended questionnaires. This was made to try to identify prevalent factors and variables—if any—may resonate across the different respondents and demographic barriers in promoting safety culture and the occurrence of accidents. The research methodology incorporated a multifaceted survey design approach which sought ways to identify and analyze behavioral patterns, safety culture practices, personal safety measures of employees and the occurrence of accidents. This will be used to augment an instructional framework for more effective monitoring and evaluation of local economic development programmes.

Sampling survey which dealt with a subset of individuals from the whole population was selected for study. This method was employed because the data generated were smaller and thus ensured homogeneity and improved accuracy and data precision.

➢ *Study Area*

The study area was selected oil marketing companies in the Western Region specifically Takoradi.

➢ *Study Population*

The study population obtained was 123 employees. Participants of this study were mainly workers and employers of the selected companies. Recruitment for the study was solely based on voluntary participation and respondents were briefed on the benefits of the study. The companies involved were as follows;

- Capstone Oil Limited
- Glory Oil Limited
- Ghana Oil Company

➢ *Sample Size*

The ideal number of persons sampled were the whole population being 123 because the employees were few in number so census was ideally used for the study.

➢ *Sampling Technique*

The Sampling technique employed in this study was the simple randomized sampling for recruiting respondents. The simple random sampling technique was employed because it offered the opportunity to sample respondents only once and offered the same probability of chance to every member in the company. It also removed the element of bias and as such the sampled opinions of the respondents were a true representation of the views of all the workers.

➢ *Data and Information Collection Instruments*

The main instruments employed in the collection of data were the closed-ended questionnaire. The questionnaires were administered by a team of young graduates conversant with the area and fluent in the language of the people. Respondents were interviewed in a language which could easily be understood.

➢ *Pre-testing of Questionnaire and Quality Control*

The questionnaire was pre-tested on a small number of persons in the study sites to assess any challenges and hiccups that could arise during the main collection periods. All notable challenges encountered were addressed effectively during the main collection period.

➢ *Ethical Considerations*

Research participants took part without coercion in a voluntary process (Economic and Social Research Council, 2011; Kimmel, 2009). All participants were informed before recruitment of the advantages of the research and reserved the right to cancel the survey at any moment of the day. The identity of all those participants was extremely anonymous as enshrined in the Laws of Ghana. The final surveys gathered were also kept strictly locked and held in place to refuse unauthorized access

The investigator ensured that all required authorizations were obtained from the firms from which information were collected with the main method of compilation (Rossi, et.al., 2009).

➢ *Data Analysis*

The data obtained was analyzed using Microsoft Excel and SPSS statistical package version 16. Non parametric data was also analyzed using Chi square test to measure the degree of association between the variables. Linear logistic regression was used to analyze the degree of association between

variables dependent and autonomous. The results obtained were represented in tables, graphs and figures so that it can be easy to understand and interpret.

## III. RESULTS

➢ *Results of Study*

The results that were generated from the data collection. SPSS version 16 was used to process and analyzed raw information. Measure of Reliability of Variables.

In order to assess the reliability of the variables and recognize any bottleneck which may have created significant barriers during information collection, questionnaires were pre-tested on a tiny sample of 40 participants.

➢ *Socio-Demographic Characteristics*

The socio-demographic information from participants demonstrated a male to female ratio of 1:10. The majority of those surveyed were also between 21 and 30 years old (53.3%) and hence a greater majority (50.5%) had been employed in the company for between 1-2 years. This is clearly illustrated in Table 1.

| Characteristic | Number Involved | Percentage |
|---|---|---|
| **Sex** | | |
| **Male** | 75 | 71.4 |
| **Female** | 30 | 28.6 |
| **Total** | 105 | 100.0 |
| **Age** | | |
| **Below 20 years** | 18 | 17.1 |
| **21-30 years** | 56 | 53.3 |
| **31-40 years** | 16 | 15.2 |
| **41-50 years** | 15 | 14.3 |
| **51-60 years** | 18 | 17.1 |
| **Total** | 105 | 100.0 |
| **Employment years** | | |
| **Below 6 months** | 16 | 15.2 |
| **1-2 years** | 53 | 50.5 |
| **3-4 years** | 16 | 15.2 |
| **5 years and above** | 20 | 19.0 |
| **Total** | 105 | 100.0 |
| **Work specification** | | |
| **Fuel Attendant** | 86 | 81.9 |
| **Lube Bay Attendant** | 7 | 6.7 |
| **Tanker Driver** | 4 | 3.8 |
| **Super Market Attendant** | 8 | 7.6 |
| **Total** | 105 | 100.0 |

Table 1:- Socio-demographic detail of respondents
Source: Personal Data (2019)

➢ *Management Concerns on Safety at the Workplace.*

The respondents were interviewed on their personal observations at the workplace on how management addresses safety related issues. This was done in an attempt to find out if possibly, how management places much emphasis on safety related issues at the workplace

- *Management perceiving Safety as important in the Organizations Culture*

A greater majority of the respondents (47.6%) strongly agreed to the view that management at their workplace regarded Safety as an important part of the Safety Culture of the organization.

| Response | Frequency | Percentage |
|---|---|---|
| **Strongly disagree** | 9 | 8.6 |
| **Disagree** | 8 | 7.6 |
| **Fairly Agree** | 4 | 3.8 |
| **Agree** | 34 | 32.4 |
| **Strongly agree** | 50 | 47.6 |
| **Total** | 105 | 100.0 |

Table 2:- Response generated on whether management perceives safety as important in an organization
Source: Personal Data (2019)

➢ *Essential Safety Policies Adopted by Management*

The respondents were interviewed on whether or not management in their workplace has adopted essential safety policies at the workplace. 65.1% of the respondents opined that the management at their workplace has instituted guidelines that serve as a safety policy in their workplace. There was however no record of any respondent who was of the opinion that, there were no policies about safety guidelines adopted at their workplace.

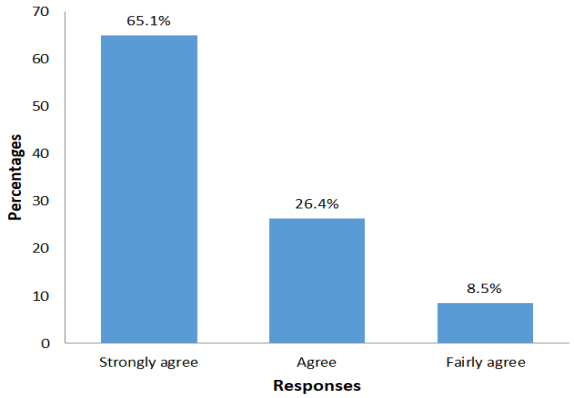


Fig 1:- Respondent's stance on management adopting a Safety policy at the workplace

➢ *Safety guidelines enacted to ensure that workplace safety practices are strictly adhered to at the workplace.*

The respondents were further asked whether there were any guidelines and policies that have been documented to ensure that safety practices in the workplace are strictly adhered to. A majority of the respondents (42.9%) strongly agreed to this assertion stating that their workplace has instituted mechanisms to ensure that safety guidelines are strictly adhered to. This is clearly illustrated in Figure 2.

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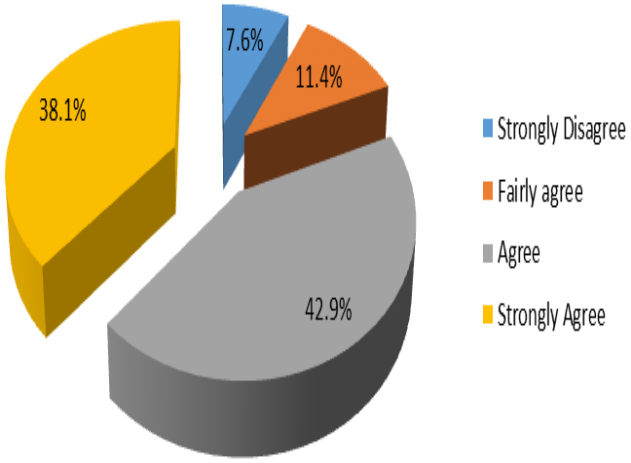


Fig 2:- Response of workers on the safety procedures enacted at the workplace.

| | Frequency | Percent |
|---|---|---|
| Strongly Disagree | 6 | 5.7 |
| Disagree | 13 | 12.4 |
| Fairly agree | 14 | 13.3 |
| Agree | 54 | 51.4 |
| Strongly Agree | 18 | 17.1 |
| Total | 105 | 100.0 |

Table 3:- Workplace safety policies are communicated clearly and reinforced in everyday activities
Source: Personal Data (2019)

- *Practices adapted to management to increase Safety at the Workplace*

Management practices to guarantee that safety culture instituted at the workplace is not compromised were assessed. Various variables were assessed and all of the responses generated showed that the management at the study sites has instituted various practices that ensure that safety at the workplace is practiced. This is clearly illustrated in Table 3.

| Variable | Response | Frequency | Percentage |
|---|---|---|---|
| **Supervisors go on regular inspection at the workplace** | Strongly disagree | 6 | 5.7 |
| | Disagree | 4 | 3.8 |
| | Fairly Agree | 10 | 9.5 |
| | Agree | 55 | 52.4 |
| | Strongly agree | 30 | 28.6 |
| **Laid down procedures on reporting accidents** | Strongly disagree | 10 | 9.5 |
| | Disagree | 14 | 13.3 |
| | Fairly Agree | 19 | 18.1 |
| | Agree | 44 | 41.9 |
| | Strongly agree | 18 | 17.1 |
| **Prompt action by management on accidents after investigation** | Strongly disagree | 8 | 7.6 |
| | Disagree | 12 | 11.4 |
| | Fairly Agree | 22 | 21.0 |
| | Agree | 35 | 33.3 |
| | Strongly agree | 28 | 26.7 |
| **Rewards for workers excelling in safety practices** | Strongly disagree | 15 | 14.3 |
| | Disagree | 20 | 19.0 |
| | Fairly Agree | 22 | 21.0 |
| | Agree | 28 | 26.7 |
| | Strongly agree | 20 | 19.0 |
| **Safety culture is given equal importance as other regulations** | Strongly disagree | 10 | 9.5 |
| | Disagree | 16 | 15.2 |
| | Fairly Agree | 18 | 17.1 |
| | Agree | 41 | 39.0 |
| | Strongly agree | 20 | 19.0 |

Table 4:- Practices employed by management to increase safety culture awareness
Source: Personal Data (2019)

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➢ *Health and Safety Training at the Workplace*

A section of the questionnaire sought to obtain information of the state of health and safety training at the workplace. This was done in an attempt to fully appreciate whether or not the management has instituted training schedules at the workplace.

➢ *Regular safety training courses for workers by management*

From the responses generated, it was evident that Most of those surveyed (53.8%) strongly agreed to the assertion that management organized regular training courses for the workers. However 1.8% of the respondents (6/318) disagreed with this assertion with half that number (0.9%) strongly disagreeing.

| Response | Frequency | Percentage |
|---|---|---|
| **Strongly disagree** | 8 | 7.6 |
| **Disagree** | 20 | 19.0 |
| **Fairly agree** | 20 | 19.0 |
| **Agree** | 31 | 29.5 |
| **Strongly agree** | 26 | 24.8 |
| **Total** | **105** | **100.0** |

Table 5:- Management organizes regular training programmes for the workers
Source: Personal Data (2019)

➢ *Importance of training and appropriateness to the workplace*

Respondents were quizzed on various questions that sought to solicit responses as to whether the type of training they received from the training schedules was appropriate to their work-related needs or otherwise. The responses generated showed that Most of the participants believed that the training they received is important and that the training also creates awareness. 32.4% of participants agreed heavily that training raises consciousness of safety related issues at the workplace.

| Variable | Response | Frequency | Percentage |
|---|---|---|---|
| **Management organizes regular safety training for workers** | Strongly disagree | 8 | 7.6 |
| | Disagree | 20 | 19.0 |
| | Fairly agree | 20 | 19.0 |
| | Agree | 31 | 29.5 |
| | Strongly agree | 26 | 24.8 |
| | Total | 105 | 100.0 |
| **Training creates safety awareness** | Strongly disagree | 4 | 3.8 |
| | Disagree | 2 | 1.9 |
| | Fairly agree | 12 | 11.4 |
| | Agree | 53 | 50.5 |
| | Strongly agree | 34 | 32.4 |
| | Total | 105 | 100.0 |

Table 6:- The importance of training at the workplace
Source: Personal Data (2019)

➢ *Perceptions of health and safety training*

The general perception of the workers towards safety culture was assessed by asking a variety of questions. 47.6% of interviewees highly agreed that at work, the training programme was compulsory and mandatory for all the workers. A majority of the workers (50.5%) also strongly disagreed with the assertion that training sessions were boring, monotonous and unnecessary. 7.6 % of the respondents also strongly disagreed that it has been a long time since they received training. General details are presented in Table 7.

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| Variable | Response | Frequency | Percentage |
|---|---|---|---|
| **Workers take training seriously** | Strongly Disagree | 8 | 7.6 |
| | Disagree | 4 | 3.8 |
| | Fairly Agree | 20 | 19.0 |
| | Agree | 31 | 29.5 |
| | Strongly Agree | 42 | 40.0 |
| **Compulsory training at the workplace on safety practices** | Strongly Disagree | 10 | 9.5 |
| | Disagree | 4 | 3.8 |
| | Fairly Agree | 4 | 3.8 |
| | Agree | 37 | 35.2 |
| | Strongly Agree | 50 | 47.6 |
| **Training is boring and unnecessary** | Strongly Disagree | 53 | 50.5 |
| | Disagree | 40 | 38.1 |
| | Agree | 6 | 5.7 |
| | Strongly Agree | 6 | 5.7 |
| **It's been long since I received training on safety** | Strongly Disagree | 8 | 7.6 |
| | Disagree | 34 | 32.4 |
| | Fairly Agree | 10 | 9.5 |
| | Agree | 31 | 29.5 |
| | Strongly Agree | 22 | 21.0 |

Table 7:- General perceptions of workers towards safety and health training at the workplace
Source: Personal Data (2019)

➢ *Personal Safety Experience of workers*

Also, a section of the questionnaire tackled the issue about the personal safety experience of the workers in relation to their job requirements. This was done to solicit information on the occurrence of accidents at the workplace and the packages put in place by management for accident victims

➢ *Incidence of accidents*

Most of the respondents interviewed (38.7%) strongly disagreed that they have been involved in any accident at the workplace. 32.9% of the respondents had varying agreement to having been involved in an accident at the workplace. 9.4% strongly agreed to being involved in an accident with 16% and 7.5% agreeing and fairly agreeing that they have been involved in an accident before.

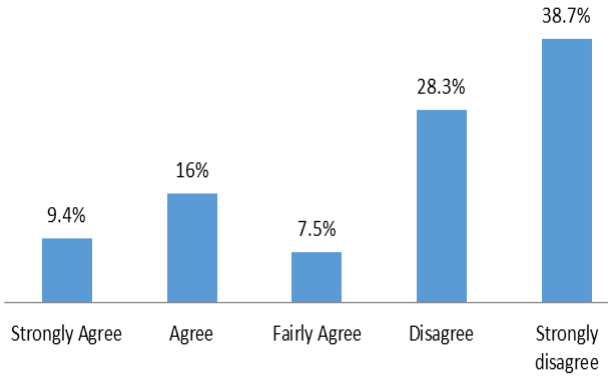


Fig 3:- The incidence of accidents at the workplace

➢ *Compensation for injuries at the workplace*

The responses generated when respondents were asked whether there was an institutionalized mechanism for compensating accident victims showed that most of the respondents agreed to this assertion. However, a total of 21.7% of the respondents disagreed to this assertion with 11.3% of this number strongly disagreeing.

| Response | Frequency | Percentage |
|---|---|---|
| Strongly Agree | 25 | 23.8 |
| Agree | 33 | 31.4 |
| Fairly Agree | 24 | 22.9 |
| Disagree | 11 | 10.5 |
| Strongly Disagree | 12 | 11.4 |
| **Total** | **105** | **100.0** |

Table 8:- Compensation for injuries to accident victims at the workplace
Source: Personal Data (2019)

➢ *Adherence to Safety Guidelines at the workplace*

The workers were further asked whether they personally adhered to the safety guidelines instituted at the workplace. 46.2% of participants highly agreed that the safety directives were strictly respected at the workplace. However, 5.7% strongly disagreed stating that they did not strictly adhere to the laid down rules. 40.6% of the respondents also strongly agreed to adhere to all procedures that are necessary for reporting accidents and complaints linked to safety and health

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| Variable | Response | Frequency | Percentage |
|---|---|---|---|
| **Active safety guidelines specific to the worksite are strictly adhered to** | Strongly Agree | 48 | 45.7 |
| | Agree | 42 | 40.0 |
| | Fairly Agree | 8 | 7.6 |
| | Disagree | 1 | 1.0 |
| | Strongly disagree | 6 | 5.7 |
| **Operating procedures for handling workers complaints on safety and health are adhered to.** | Strongly Agree | 43 | 40.9 |
| | Agree | 45 | 42.9 |
| | Fairly Agree | 10 | 9.5 |
| | Disagree | 2 | 1.9 |
| | Strongly Disagree | 5 | 4.8 |

Table 9:- Adherence to safety culture at the workplace by the employees
Source: Personal Data (2019)

➢ *Inferential Statistics*

In order to determine if there were important associations correlation and regression analyses were performed on multiple different variables. Pearson's analysis of correlation was performed to recognize connections between different variable groups and the regression analysis was done to predict the degree of association between a dependent variable and an independent variable.

- *Correlation Analysis*

The correlation between different variable groups that is age, gender, duration of employment, Health and safety training, Personal Safety Experience and occurrence of accidents.

| Variables | Mean | Std. Dev. | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| **Management concerns on Safety** | 14.08 | 4.07 | 1.00 | | | |
| **Health and safety training** | 17.81 | 2.99 | .310 | 1.00 | | |
| **Personal safety experience** | 6.22 | 2.45 | .290 | .182 | 1.00 | |
| **Occurrence of accident** | 10.80 | 3.25 | -.388 | -.169 | -.264 | 1.00 |

Table 10:- Means, Standard deviations and Inter-correlations among Study Variables (N=105)
Source: Personal Data (2019)

➢ *Management Concerns on Safety at the Workplace*

From Table 1.10, the Pearson's correlation coefficient showed that there was a negative significant relationship between management concerns on safety and the occurrence of accident ($r = -.388$, $p < 0.001$). This therefore shows that there is an inversely relationship between management concerns on safety and the occurrence of accidents. Thus, as management concerns on safety issues increase, it is very obvious that, the rate or frequency of accident at the workplace would reduce.

➢ *Health and Safety Training at the Workplace*

A section of the questionnaire sought to obtain information of the state of health and safety training at the workplace. This was done in an attempt to fully appreciate whether or not the management has instituted training schedules at the workplace. Surprisingly, from table 9 above there was a negative relationship ($r =.-169$; $p < 0.01$) between health and safety training and the occurrence of accidents. Thus, as health and safety training for employees keeps increasing, the rate or the frequency at which accidents occur in the organization decreases.

➢ *Personal Safety Experience of workers*

Also, a section of the questionnaire tackled the issue about the personal safety experience of the workers in relation to their job requirements. This was done to solicit information on the occurrence of accidents at the workplace and the packages put in place by management. However, from Table 2, the Pearson's correlation coefficient showed that there was a negative significant relationship between personal safety experience and the occurrence of accident ($r = -.264$, $p < 0.001$). This further implies that, as employees become aware of safety culture issues and ensure working under good, safe and healthy environment, the less the frequency of the occurrence of accidents at the workplace.

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| | | Health and Safety Training | Personal Safety Experience | Occurrence of Accidents |
|---|---|---|---|---|
| **Gender** | Pearson Correlation | .204 | .248 | .020 |
| | Sig. (2-tailed) | **.000**$^{***}$ | **.000**$^{***}$ | .726 |
| | N | 318 | 318 | 318 |
| **Age of Respondents** | Pearson Correlation | -.008 | -.019 | .127$^{**}$ |
| | Sig. (2-tailed) | .882 | .736 | **.024**$^{*}$ |
| | N | 318 | 318 | 318 |
| **Duration of employment** | Pearson Correlation | -.128 | -.077$^{**}$ | .079 |
| | Sig. (2-tailed) | **.023**$^{*}$ | .170 | .161 |
| | N | 318 | 318 | 318 |
| **Management concern for safety** | Pearson Correlation | .310 | .290 | -.388 |
| | Sig. (2-tailed) | **.000**$^{***}$ | **.000**$^{***}$ | **.000**$^{***}$ |
| | N | 318 | 318 | 318 |
| **Health and Safety Training** | Pearson Correlation | 1 | .182 | -.169$^{*}$ |
| | Sig. (2-tailed) | | **.001***$^{*}$ | **.003**$^{**}$ |
| | N | 318 | 318 | 318 |
| **Personal Safety Experience** | Pearson Correlation | .182 | 1 | -.264 |
| | Sig. (2-tailed) | **.001**$^{**}$ | | **.000**$^{***}$ |
| | N | 318 | 318 | 318 |
| **Occurrence of accident** | Pearson Correlation | -.169 | -.264$^{*}$ | 1 |
| | Sig. (2-tailed) | **.003**$^{**}$ | **.000**$^{***}$ | |
| | N | 318 | 318 | 318 |

Table 11:- Correlations analysis of variables

**Source: Personal Data (2019)**

Note: $^{***}$ $p < 0.001$ $^{**}$ $p < 0.01$ $^{*}$ $p < 0.05$

➢ *Regression Analysis*

To determine further how a dependent variable is linked to independent variables, Regression analysis was also performed to find out if the dependent and the independent variables are significantly associated. Table 12 below obviously shows the outcomes of the regression analysis.

| Model | B | Beta | T | Sig. |
|---|---|---|---|---|
| Constant | 16.54 | | 15.65 | .000 |
| Management concerns on safety | -.26 | -.33 | -5.94 | .000 |
| Health and safety training | -.04 | -.04 | -.68 | .498 |
| Personal safety experience | -.21 | -.16 | -3.00 | .003 |

Table 12:- Unstandardized B Value, Standardized Beta Coefficient for the Dependent Variable Occurrence of Accident.
Source: Personal Data (2019)

A multiple regression assessment was used to determine how important variance in the dependent variable accident event could be explained by the safety culture elements. From Table 12 above, the regression analysis showed that management concerns on safety was a significant predictor of occurrence of accidents, ($\beta = -.33$, $t = -5.94$, $p < 0.001$).

In addition, the research aimed to determine that, health and safety training was a significant predictor of the occurrence of accident. Table 10 revealed that safety training ($\beta = -.04$; $t = -.68$, $p > .05$) was not a significant predictor of the occurrence of accident in the workplace.

Finally, the study sought to establish the relationship between personal safety experience and the occurrence of accident in the workplace. The results of the multiple regression analysis showed in Table 4 indicated that personal safety experience was a significant and negative predictor of the occurrence of accident ($\beta = -.16$; $t = -3.00$ , $p < 0.01$).

## IV. SUMMARY, CONCLUSIONS AND RECOMMENDATION

❖ *Summary of Key Findings*

The major findings of this study were in three categories. The first category sought to find out whether there was a relationship between management concerns for safety and the occurrence of accident at the workplace. At the end of the study, it was established that, there was a strong relationship between the dependent variable which was occurrence of accident and the independent variable, management concerns on safety. Thus, the findings confirm that, the hypothesis was supported and therefore was accepted.

The second major findings of this study also sought to establish whether there was a relationship between health and safety training and the occurrence of accidents at the workplace. However, this hypothesis was also supported and further accepted because, it was concluded that there was a significant relationship between the two variables under study.
The last major findings of this study also sought to find out how personal safety experience could relate to the occurrence of accidents at the workplace. The results obtained showed that personal safety experience and the occurrence of accidents at the workplace were inversely related. In light of the above, the third and final hypothesis was also supported and accepted. Form these key findings, it could be concluded that, when managements in the various organizations become more committed issues pertaining to safety at the workplace, occupational accidents which incur economic cost on both management and the employee could be reduced drastically, if not totally eradicated.

Furthermore, to ensure accident-free organizations, stakeholders such as government and public regulatory bodies should show some level of commitment in matters concerning the health of employees in all categories at the workplace. Also, various organizational managements should consider occupational health and safety issues as critical and train current employees and newly recruits on safety issues whiles they see to organizing refresher training courses on health and safety periodically for employees.

➢ *Discussion*

The population and housing census for 2010, demonstrated that out of Ghana's total population of about 24m, there are more females in Ghana than males. Thus, women totaled, 12, 633,978 representing 51.2% whiles men also totaled 12,240,845, which also represented 48.8% of the total population. With this information, it could be concluded or anticipated to see more women at most organizations, but this not a reality and especially in the oil marketing companies. The companies are however dominated by men with a ratio of 1:3.

The broad disparity between the proportion of men and women could, however, be ascribed to the intensity of the working nature and to the type of risk workers are exposed to. Furthermore, it might be because society itself dictates or classifies the sort of job that is appropriate for both males and females. African and Ghanaian societies see females as weaker and consequently fail to allow females to work hard, for which petroleum marketing businesses are no exception.
Again, it became quite interesting when the data gathered revealed that, most of the respondents were young and between the ages of 21-30. It could be argued from the data such companies will require high labour intensive work thus it is dominated by the youth.

➢ *Findings on Hypotheses Testing*

The thesis sought to find out three main hypotheses which are the first hypothesis which aimed to find out whether there is a negative relationship between safety culture and how management shows commitment on safety which will go a long way to increase the frequency of the occurrence of accident at the work place. This hypothesis was analysed with Pearson's Correlation and it revealed a significant association, but a negative relationship between the two variables with P value ($P < 0.05$), ($P = 0.00$) and a (correlation coefficient) Pearson's Correlation value $r= -0.388$. Furthermore, a multiple regression analysis was conducted to ascertain the measure of dependency between management concern on safety culture and the occurrence of accidents.

The results obtained showed that management concern for safety was a significant predictor of occurrence of accident ($\beta = 0.263$, $R^2=0.177$, Adjusted $R^2 = 0.169$). The result above demonstrates clearly that there was a negative correlation value between the two variables. There is therefore no doubt that, the hypothesis was supported and also accepted for the study. The implication here is that, management concern for safety culture and the occurrence of accidents are inversely related. It is very obvious that, in every organization, management is the pivot around which the various departments and units in the organization rallies. However, it is therefore no doubt that, when management becomes committed to safety culture in the organization, it will reduce the rate or frequency of accidents at the workplace.

Also, when there is an effective management which puts in place measures such as effective and regular safety culture training, creating the awareness of occupational accidents and how they could be prevented, ensuring effective supervision by supervisors at the various departments and units in the organization, creating a good and reliable reporting systems where employees could comfortably report cases of accidents and near misses, and also encourage effective and two-way communicating systems. The two-way communicating system allows employees to communicate with management on safety issues and as well as management also communicating freely with employees on safety culture issue. A two-way communication channel could serve as a great advantage to management since they have the knowledge of employees' grievances on safety addresses them appropriately.

Finally, it could be argued that, management concern on safety and occurrence of accident when placed on a weighing scale there should be a form of balancing. Thus, as one variable such as management concern for safety increases, the other variable such as the frequency of accident decreases. Moreover, the results obtained for the test for H1: is in consistency (confirms) earlier works done by Lee and Harrison (2000), Pidgeon and O'Leary (1994), Peterson (1993) Rundmo *et al.,* 1998, Thompson *et al.,* 1998 and Toellner (2001).

Again, the research work sought also to find if there will be a negative relationship between Health and Safety Training and the occurrence of accidents at the workplace. This was also analysed using Pearson's Correlation. The result showed a significant association and a negative relationship between Health and Safety Training and the occurrence of accidents with $P < 0.05$ and Pearson's Correlation value r= -0.169. To further find out the measure of dependency between health and safety training, a multiple regression analysis was run on the test. The results obtained showed that, health and safety training was a significant predictor of the occurrence of accident indicating ($\beta$ = -0.40, $R^2$= 0.177, Adjusted $R^2$ = 0.169).

From the results obtained the hypothesis was supported and was also accepted. This also implies that, health and safety training is inversely related to the occurrence of accidents at the work place. Thus, the more employees receive health and safety training programmes at regular intervals, the better their awareness about occupational accidents. Some scholars such as Fleming et al., (2000) examined the role of health and safety training in the organization and confirmed that, regular health and safety training programmes at the workplace will reduce the frequency of accidents at the workplace. Employees who receive safety training programmes at regular intervals and also relevant to their job specifications would become aware of both shorn d long term effects of occupational accidents on both the organization and the individual employees as well. Employees would become cautious and try and work in accident free environment as they try to minimize its frequent occurrence, if not total eradication.

The approach to the practice of health and safety training is very necessary to both management and the employees alike. Therefore, in as much as management would want to record less or no accidents in their organizations, there should be a well-organized and a regular health and safety training programmes which will sensitize and sustain and develop the interest of employees in safety precautions. Also, management has to be committed to safety training programmes and implement them at the various departments and work stations. This idea is in support with Akinson (2000) who stated that, although it is necessary to train employees on safety culture, the onus however does not fully lie on the employee to ensure safety at the workplace since issues on safety is a multi-faceted approach for all stakeholders.

Employees must be supplied with appropriate and re gular training and education in order to comply with and take these matters seriously. In the nutshell, it could be argued that, a main element of the prevention program is health and safety training. It should begin as part of the course of induction. It should also take place after the change of working techniques or the move to a fresh job. Training in safety specifies the laws and gives data on and how to prevent future risks. Additional training and special courses should be provided to address new aspects of health and safety or areas where safety challenges have emerged. (Michael Armstrong 2006).

Finally, the hypothesis three of the work is looking at the relationship between personal safety experiences of employees and the occurrence of accidents was also analyzed with Pearson's Correlation. It was released, a significant association and a negative relationship between the two variables were established with a P value, $P < 0.05$ and a Pearson's Correlation value r = -0.264. Also, to further ascertain the measure of dependency between the two variables, multiple regression analysis was conducted. The findings from the multiple regression analysis, it was established that, personal safety experience was a significant predictor of the occurrence of accident at the workplace, indicating ($\beta$ = -214, $R^2$ = .0177, Adjusted $R^2$ = 0.169). However, from the results obtained it shows clearly that, hypothesis was supported since there was a negative correlation value. This implies that personal safety experience and the occurrence of accidents are inversely related. Thus, it is very obvious to note that, there is a possible relationship between personal safety experience and the occurrence of accident at the workplace because, the more employees have knowledge about the negative effects of accidents on both the organization and their personality and therefore the more careful they will be. When employees are careful with occupational accidents, the frequency of accident will automatically reduce. Again, with most employees adhering to safety culture practice and putting them in practice by using personal safety equipment and operating or going strictly by every instructions on working machines at the workplace will the frequency of accident occurrence at the workplace.

❖ *Conclusions of the Study*

Safety cultures are now usually recognized as "healthy things" and the primary characteristics of positive safety culture have been agreed more and more. Health and safety regulations differ from one country to the other. Whiles health and safety regulations are not existence in some countries, others also have very stringent regulations. The importance placed on health and safety somehow is related to the level of regulations and other factors in each country

However, attitudes, both personal and organizational, affect the development of safety culture in an organization. The achievement of a positive safety culture does not occur in a vacuum, the working environment, the machine which employees always work with, the systems and processes in an

organization are all factors which influence the achievement of safety culture. Therefore, all of these elements must be considered by each organization in the development and maintenance of a safety culture that fits its organization and staff.

The level of industrialization in Ghana has risen, leading to the physical, chemical, biological and psychological stresses caused by occupational accidents on a large amount of Ghana's labor force. Though Ghana's employers are needed to "take every practical step to guarantee that the worker is free of the danger of private or health injuries during the commitment of the worker or while legally at the employing premises" by Act 651 of the Ghana Labor Act of 2003, this Act has not been fully implemented in oil-marketing businesses. Despite the need to protect the health of employees in a country such as Ghana, The Environmental Protection Agency Act 1994 (Act 490), Mining Regulations Act 1970 LI 665 and the Offices and shops of the factories, LI 328, Ghana Labor Act 2003, Act 651 and others are not effectively implemented (Annan, 2010).

In the words of Mrs. Rose Karikari Anang, Ghana Employers Association's Executive Director emphasized that, the safety culture of the nation is very appalling. *"We only get to wake up to it when there is a major disaster or accident, mostly fire related. Organizations regularly flout safety rules and expose their employees to lots of hazards thereby breaching their "duty of care" to the employees. Individual employees also compromise their own safety at work place by acting 'unsafely'. "Most companies lack Health and Safety facilities and though there were some laws binding Occupational Safety and Health, the environment of enforcement and sanctions regime made it very difficult to be complied with". If our developmental agenda is to be realized, then there need to be a safety culture paradigm that is proactive and holistic in nature. This could be achieved through; –Education i.e. safety orientation and awareness creation, Encouragement by motivating employers and employees to pursue safety, re-Engineering of processes and modifying them to suit peoples"* culture and finally - Enforcement with the whip" (Sheqafrica.com, 28 October, 2008)

However, employees are also required to exhibit their duty of care in ensuring that they work as per the employers' standard operating procedures which must contain Safety and Health requirements.

❖ *Recommendations*

Reviewed literature, in this study noted that, Ghana as a country does not have a solid, efficient and effective occupational health and safety policies particularly in the oil marketing companies. The only occupational health and safety policy that Ghana could boast off is the one pertaining to the mining companies which was even not quite effective. All staff should be provided with health and safety policies by email and handouts on the various notice boards of the organization.

Also, occupational health and safety policies should be reviewed frequently to ensure that new dangers and threats are taken account of and also to keep in the minds of employees the need to be safety conscious. Finally, for future research, the study should include more organizations in the study, go further to establish how effective a reporting system and a two way communication may impact positively towards safety culture.

Finally, it is recommended that, management in various organizations especially at the oil marketing companies should put in place policies, rules and regulations regarding health and safety and safety culture. Management should not just put these regulations in place but also ensure its implementation through safety auditing, effective supervision, providing the necessary safety equipment to employees and also instituting rewarding systems for best safety practices. The study therefore made recommendations to policy makers, those in the academia and organizations, especially, those in the oil marketing companies.

➢ *General Academic Recommendations and Further research*

Academically, it is high time health and safety be included as part of the curriculum to be studied in schools, it should be a major examinable course if possible. This will create the awareness of students who would fill the industries after school about the issue of their health and the need to work under safe environment. Conversely, the knowledge of health and safety practice in school would prompt these future managers to create a responsible management in the companies in respect to health and safety in particular. Further research could be done in respect to this study area.

➢ *Recommendations for Policy Implementation*

To the policy makers, government should enact laws that are effective and binding on employers to ensure safety of employees in whichever category at the workplace. The shop, office and factory Act should be reviewed and amended to cover a wide range of work force in the country. Not only should it be reviewed and amended but there should also be some mechanisms in place to enforce the laws, such that offenders would be brought to book and the laws applied appropriately.

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