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MITIGATING ADVERSE EFFECTS ON HEALTH, SAFETY AND ENVIRONMENT (HSE) IN NIGERIAN OIL AND GAS INDUSTRY THROUGH SAFETY INCENTIVES

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Abstract:
High priority is given to safety and health in the oil and gas industry because accidents in the industry usually have severe consequences on personnel, equipment and the environment. One of the steps taken is the use of safety incentive programme due to the perception that it motivates the workforce for improved safety and health management. Some oil and gas production has resulted in serious accidents and work-related illness. The effects on the oil and gas companies of such accidents and work-related illnesses include both direct economic costs and damage to company reputation. In the light of the above, this this study was conducted to find out how safety incentives programmes can be used to mitigate adverse effects on health, safety and environment (HSE) in the Nigerian oil and gas industry. Quantitative method using questionnaire was used for data gathering through multi-stage application of probability-based sampling method involving firstly, cluster and then simple random sampling. The data from the study were analysed using descriptive statistics. Findings of the study showed that that tangible and intangible rewards are the most commonly used incentives and that positive incentives are used with the intention of improving proactive monitoring while negative incentives are used to discourage violation of safety rules. It also establishes that safety incentive programme is effective in health and safety improvement

Keywords: Behaviour, Incentives, Oil and gas, Reporting, Safety.

INTRODUCTION

Oil and gas industries are always looking for new ways to keep employees safe and in line with international standards and best practice. This involves strict compliance with federal or state Occupational Safety and Health Administration (OSHA) regulations, Environmental Protection Agency (EPA) regulations, National Fire Protection Association (NFPA) guidelines and International Standards Organization (ISO) controls (Antonsen, Almklov and Fenstad, 2008). With these high standards, it is still difficult to make employees realize how important it is for them to work safely (Green, Fry and Myerson, 1994; Ayres, 2010), as simple injuries such as a cut or a muscle strain can end up costing the company thousands of dollars in workers' compensation, medical expenses, lost time, and loss of production. Work-related ill health is a significant problem for individuals, employers and societies around the world. This can include sudden injuries, such as a slip or 'slow' injuries, such as the development of repetitive strain injury or the ill health effects of stress at work (Tompa *et al.*, 2008). For the affected individual, financial problems, health problems, the possible risk for stigmatization and the risk for a reduced quality of life are evident (Clancy *et al.*, 2011; Silpasuwan *et al.*, 2017; Xue *et al.*, 2019). Besides the individual consequences of work-related ill health, there are also consequences for the society and the employer, such as the economic burden on public health-care systems, social welfare systems due to disability, pension and sick leave costs, occupational safety and health (OSH) practices due to rehabilitation costs, and the negative economic effects of presentism, absenteeism, and turnover at the workplace (Goetzel, et al., 2003; ILO, 2012; Lohela-Karlsson et al., 2013).

Workers as rational actors can assess the level of risk inherent in a job and balance those risks against the benefits associated with the job. If benefits are not sufficient to compensate for the risks, then workers may not sign up for the job (Geller, 1996). Accordingly, employers will have to increase wages and incentives to a level that will encourage sufficient numbers of workers to perform the job. The added wage level that needs to be paid to

compensate for a higher level of risk constitutes an additional cost to the employer. If it is too high the employer can avoid it by increasing the level of safety (Harunavamwe and Kanengoni, 2013). Such an incentive to make jobs safer will exist to the extent that the marginal cost of increasing job safety is less than the corresponding wage differential that will have to be paid if no such change is made.

In order to reawaken the consciousness of employees towards safety standards, most organisations introduce safety incentives programs as part of their overall safety plans. In the last few years, incentive programs, which are an aspect of behavior-based safety management (BBSM), have garnered increased public awareness. Safety incentive programs are a growing trend throughout many different industries. Formal incentive programs are a much-debated topic in the world of safety (Downing and Norton, 2004), as a majority of safety professionals and companies employ some method of incentivizing safety. However, there is a vocal minority who speak out against the use of incentive programs. Their contention typically is that safety should be an integral part of the work being performed. Thus, if the worker is appropriately trained and managed, an incentive is not necessary. Considering that the motivation needs of individuals are different, it is therefore challenging having an incentive programme that has what it takes to motivate all members of the workforce, hence achieve the desired result (Nelson 2012; Wilson 1999). The unique and complex set of values, personality traits and attitudes that must be understood in order to effectively motivate people therefore presents a big challenge (Gostick and Elton 2007). In view of the above, this study was conducted to find out how safety incentives programmes can be used to mitigate adverse effects on health, safety and environment (HSE) in the Nigerian oil and gas industry.

RESEARCH METHOD

A survey research design was adopted in the study. A correlational research strategy was adopted with an attempt to demonstrate that a relationship exist between the variables of the study. A multi-stage application of probability-based sampling method was used to select the samples (Walliman, 2005). First, a clustered sampling method was used to select the organizations to be sampled. In the second stage, within each cluster, a simple random sampling method was applied to select the study samples in a totally random fashion without replacement. This process was considered as a fair and unbiased process, giving equal chances of selecting the study participants. A questionnaire designed to obtain a fair representation of the perception of all categories of workers using a five-point Likert-type scale (Strongly disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5) was used for the data collection process. The questions were phrased such that "Strongly disagree" indicated negative relationship between applicable variable whereas "Strongly agree" indicated a strong positive relationship. The "Neutral" option was given for those without sufficient information to justify an opinion or were indifferent to the subject or may think the good and bad points were about equal.

A sample size of 50 was used for the study from the oil and gas industry in the Nigeria Niger Delta. Eligibility for participation considered employees direct involvement in the organisation's safe system of work, applying the procedures in daily operations and maintenance activities. Hence, eligible participants were those in core operations and maintenance work. The locations sampled run 14-day shift rotation; hence the workers on duty were the accessible population. Descriptive statistics was used to analyse the obtained data as it provides a clear indication on the applicability of the incentives (Fricker, 2013).

RESULTS AND DISCUSSION OF FINDINGS

Figure 1 shows the summary of respondents to indicate the types of incentive programmes implemented in the industry. It highlights the summation of the percentages of respondents that agreed at varying levels (denoted as applicable) to the application of the types of incentive programmes. Those that disagreed at varying levels (denoted as not applicable) and those that were neutral (denoted as indifferent). This helps to define the level of prevalence of different safety incentive programmes in the industry, hence the understanding of the one with potential impact on the health, safety and risk performance indicators.

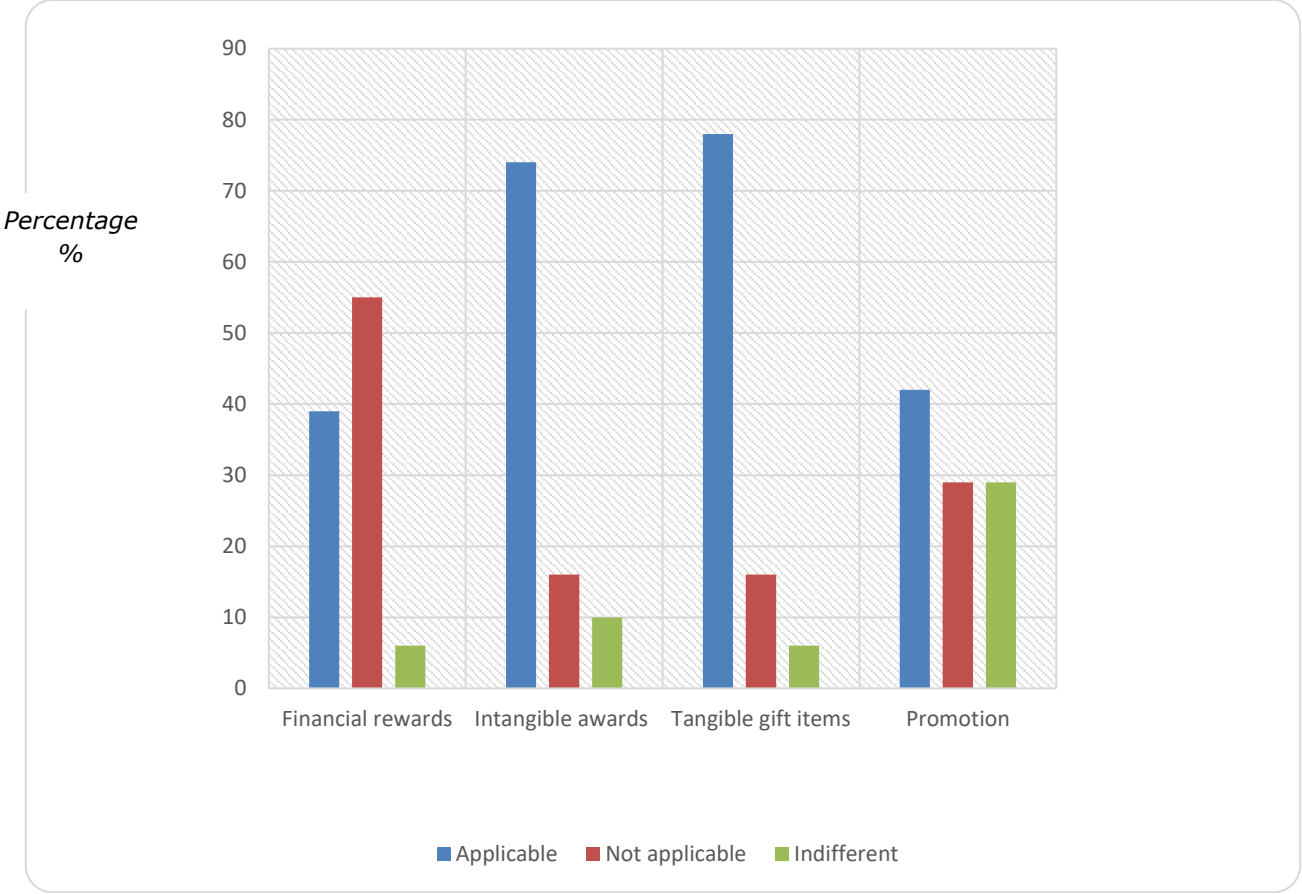

Figure 1: Types of Incentive Programme
Tangible gift items and intangible awards were found to be more prevalent in the oil and gas industry. Promotions and financial rewards were also found to me avenues used for incentive programme in the industry.

The summary of the responses on the criteria for application of safety incentive (or disincentive) programmes implemented in the industry is presented in Figure 2. This helps to define the aspect of health and safety that the industry tries to improve through application of safety incentives or discourage through disincentive programme (that is, by punishing individuals or teams that are involved in it).

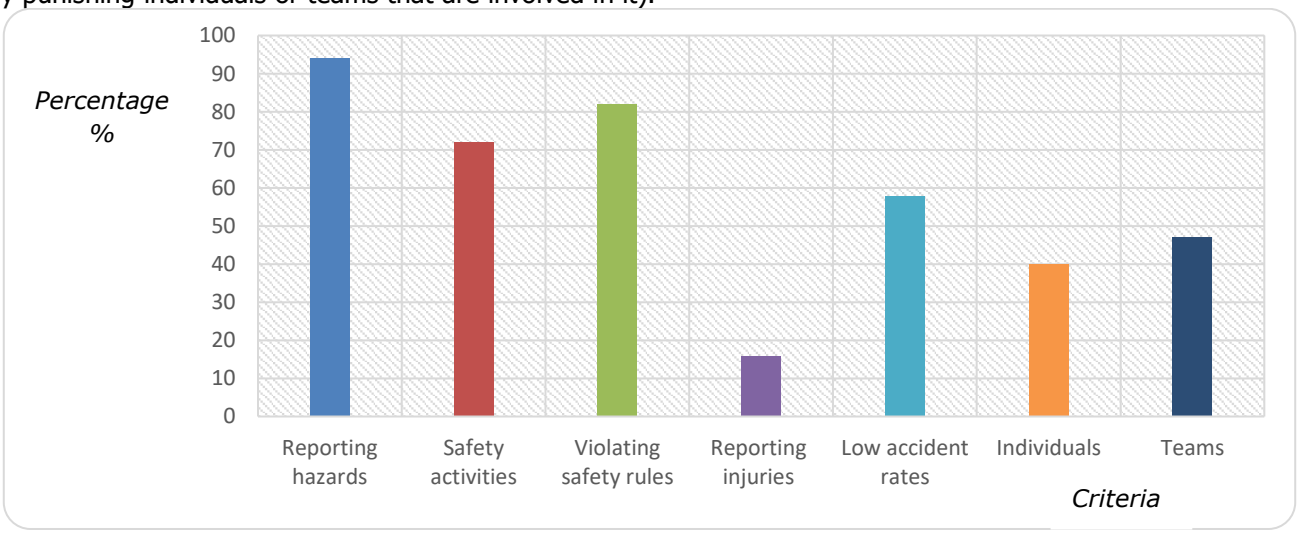

Figure 2: Criteria for Application of Incentive/Disincentive Programme
Figure 2 shows the summary of the responses to the questions to indicate health and safety performance indicators (hazard reporting, participation in safety activities such as safety meetings, accident reporting, and safety and health improvement) impacted by implementation of safety incentive programmes. It highlights the summation of the percentages of respondents that agreed at varying levels (denoted as *Impacts*) to the, those that disagree at varying levels (denoted as *Does not impact*) and those that are neutral (denoted as indifferent). The specific areas that are directly influenced by the implementation of safety incentive programmes could be inferred from the chart.

Figure 3 shows the approach (Individual vs. team reward/recognition; incentives vs. Disincentives for injury) used in implementation of safety incentive programmes in the industry.

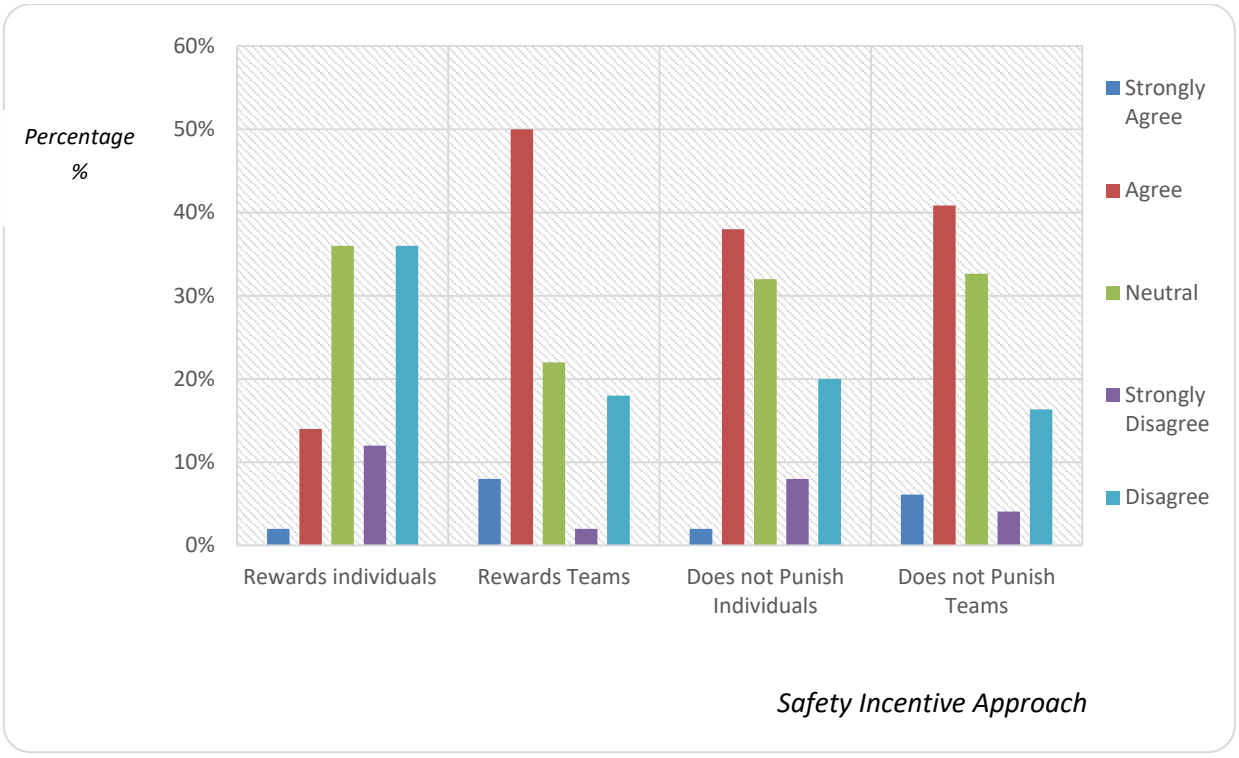

Figure 3: Approach Used in Application of Safety Incentives/Disincentives

Figure 3 shows the summation of the respondents that agreed and strongly agreed to the different questions touching on rewards for the teams and individuals.

As can be seen from the figures, about 70% and above respondents generally agreed that tangible (78%) and intangible (74%) rewards are the most prevalent in the industry. On application of incentives programmes, the most prevalent (94%) is on reporting of unsafe acts and conditions, while the most prevalent disincentive programme is punishing people who violate safety rules (84%).While 84% of respondents agreed that safety incentives impacts on safety and health improvement, only 20% agreed that it impacted on proactive reporting, while only 12% perceived impact on injury reporting.

About 84% of respondents agreed at varying levels (34% of which strongly agreed) that implementation of safety incentives improves health and safety at the workplace. There was also consistency in response when respondents were analysed based on work group, job level and work type. With 12% of respondents being neutral and only 4% disagreeing at varying levels. It was obvious that respondents generally accept that implementation of safety incentive programme contributes to improvement in health and safety in the oil and gas industry. This observation is in line with Prichard (2001), Nelson (2012), Potter and Potter (2007) claims that incentive programme builds and maintains employee interest in working safely. It also agrees with Ferrante (2011), Goodrum and Gangwar (2004) research findings that incentives improve workers' motivation for safety and health; and Galonek (2012), Leichtling (1997), and McAfee and Winn (1989) finding that the programmes encourage workers' safety and promotes safe behaviours.

CONCLUSION

This research established that safety incentives contributes to the effectiveness of health and safety and does not impact on proactive or reactive reporting. On the impact of incentives, this research establishes that proactive reporting in not impacted by implementation of safety incentive programmes and that the programme, unlike the findings from some past researches, does not result in reduction in reactive (injury and accident) reporting in the Nigerian oil and gas industry.

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