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Full Length Research Paper

Safety Training and Road Accident: Opinion Survey of Petroleum Tanker Drivers in Awka South, Anambra State, Nigeria

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ABSTRACT: The safety attitudes of petroleum tanker drivers (PTD) operating on Nigerian roads constitute a threat to the lives of road users. The mandate of this paper is to assess the views of petroleum tanker drivers operating in the organized petroleum transportation industry on the effect of training on road accident. Specifically, it examined; the impact of pre-employment training on safety knowledge, factors that militate against the understanding of pre-employment training, unsafe driving attitude and assimilation level, and reasons for low adherence to implementation of road safety procedures among drivers. Domino Accident Theory was adopted to elucidate the research and 38 respondents were selected using a convenience sampling technique. Results showed that only 1 (2.6%) PTD agreed that the knowledge gained from pre-employment training has reduced his alcohol and drug abuse. In Figure 2, (50%) respondents opined that a low level of education negates proper comprehension of pre-employment training offered by their organizations. In Figure 3, the majority of the respondents, (26.3%) regard multiple vehicles overtaking as the major unsafe driving attitude exhibited on the job, while Figure 4 indicated that the belief in fatalism is primarily responsible for low adherence to safety procedures among most (39.4%) PTD. To eradicate these challenges, management should: adopt practical methods to address drug and alcohol abuse among petroleum tanker drivers, evaluate post-training programs, employ drivers with requisite formal education, and formulate training policies that will eradicate the belief that accident prevention is beyond human control.

Keywords: Safety, training, accident, tanker drivers

INTRODUCTION

The maxim 'safety first', depicts the importance of safety in human endeavours. A safe workplace is an ideal condition for organizational productivity, as workers cannot achieve their full potentials in an unsafe environment, hence, the need for employees' safety training. Training is a structured learning process that equips employees with requisite knowledge needed to reduce job errors, eliminate obsolescence and increase organizational output (Alyahya and Norsiah, 2016; Udeh and Nnonyelu, 2019). Safety training is therefore a systematic learning approach put in place by an employer to increase employees' knowledge, skills and performance and minimizes the risk of injury at the workplace (ILO, 2005; Sari, 2009; Akpan, 2011). It identifies, assesses and controls risk situations in job operations. Safety focuses on the development of programmes aimed at protecting employees in the course of performing their duties to maximize productivity and improve overall organizational performance (ILO, 2005).

To achieve safety objectives, the standard practice in the global organized petroleum haulage industries is the emphasis on safety as far reasonable as possible through pre-employment training. Without requisite training, employees will muddle through their jobs (Udeh

and Nnonyelu, 2019). Pre-employment training is therefore designed to assess the driving abilities of potential employees' before an offer of employment is made (*https://wwww.fleetdrivingsolutions.com*). Pre-employment gives drivers a knowledge of job demands, challenges and safety procedures that can reduce vehicular accident to the barest minimum. Successful trainees are thereafter evaluated and employed by the organization. Srivastava et al. (2018) explained that training evaluation is the process of analyzing the level of efficiency and effectiveness of adaptation of employees to training. Evaluation seeks to gather, examine and interpret the information gained about any aspect of a program of training for providing a judgment on its effectiveness and efficiency and any other outcomes it may have (Ellington et al., 1993; Srivastava et al., 2018). Pre-employment training is pointless if it fails to evaluate criteria such as: physical functions, vision, cognition, reaction time and self-control of petroleum tanker drivers (PTD).

No doubt, driving is an intricate job, and petroleum tanker driving is more complex because it requires constant use of bodily organs to transport highly inflammable and refined petroleum products from one destination to another through a continuously complex and changing environment, hence the need for safety training. The essence of safety training in the transportation sector is to eliminate accident by providing drivers with on-the-job and off-the-job knowledge aimed at eliminating all human and organizational losses. When accidents occur, organizations suffer damage to equipment and materials, reduced productivity of injured workers, lowering the morale of co-workers, recruitment and training cost for replacement of workers and diminished competitive advantage position of the firm (Akpan, 2011). Others include loss of vehicles and petroleum products, loss of man hour and running cost when accidents and fire disaster occur. Drivers and their family suffer most, vis-à-vis loss of life, which also has direct emotional and economic effect on the dependent's relatives. Incessant road accidents involving petroleum tankers evoke serious concerns over the state of safety training given to PTD.

Various factors are responsible for road accidents. These include; human, mechanical, and environmental factors (Afolabi and Gbadamosi, 2017). Human factor accounts for 80 percent of road accidents in Nigeria (The Nation, 2019). Human factors arising from the activities of PTD have been a thorn in the flesh of many Nigerians. Report shows that 80 percent of drivers on Nigerian roads do not have the requisite training to drive safely (The Nation, 2019). Driver's license obtained from Nigeria's Federal Road Safety Corp (FRSC); the agency charged with road safety and licensure no longer assures that the holder is trained in safety regulations. The high rate of corruption which pervades virtually every sphere of Nigeria's national life may not guarantee that every licensed driver is eminently qualified to drive articulated trucks. Other challenges to road safety include the lack of structured pre-licensing theory and practical tests by the Directorate of Road Traffic Services, Vehicle Inspectors Officers (VIOs) before recommending candidates for FRSC capturing, absence of Driver License, Pre-Renewal Theory Test and physical assessment, absence of correctional training, and low interest of employers to subject their drivers to pre-employment and regular in-service safety training. The above challenges have created a league of "hired killers holding Nigeria driving license and dangerously practicing trial and error driving on the road" (The Nation, 2019), and this is evidenced from the casualty figures recorded. A total of 21,934 road transport accidents have occurred on Nigerian roads from 1990 to 2012. Of this staggering figure, 153,853 people have lost their lives, while 608,277 people were injured within the given years (Gbadamosi, 2015). Between 2007 and June 2010, a total of 4,017 tankers/trailers crashes were recorded on Nigerian roads with a yearly average of 1,148 cases and monthly average of 96 crashes with 2,974 persons either injured or killed (Olagunju, 2018), while the country lost 39 billion naira worth of goods to tanker crashes in 2018 alone.

In the second quarter of 2018, data obtained from National Bureau of Statistics revealed that 13 fatal accidents were recorded in Anambra State, with 27 serious and 3 minor casualties. Of the above figures, 16 cases were attributed to speed violation, 2 due to tyre burst, 1 was as a result of mechanical deficient device, 7 cases were of brake failure, 6 cases were attributed to dangerous driving, 2 cases of route violation, 1 case of road obstruction violation, and 1 case of sign light violation (NBS, 2018).

Selected cases of petroleum tanker crashes in Anambra State paint a grim picture of the dangers of poor safety precaution and training deficiency on accident occurrence among drivers. For instance, in October 2019, a 33,000-litre diesel tanker fell and caught fire, burning 6 residential buildings, shops and human casualties at Upper Iweka, Onitsha (Punchng, 2019). 48 hours later, another fuel tanker fell and caught fire at Omaba phase two, Onitsha, wreaking havoc on Ochanja Market. Many were burnt beyond recognition in the ensuing inferno, while several investments worth billions of Naira were consumed by fire (Premium Times, 2019). Despite the role of government regulatory agencies such as the (FRSC), Department of Petroleum Resources (DPR), Federal Fire Service Department (FFSD) and National Oil spill Detection and Response Agency (NOSDRA) in ensuring safety, Ambituuni et al. (2015) remarked that optimal success in road safety management is yet to be achieved.

The apparent failure of the above agencies in bringing tanker accident to the barest level therefore propels the need to assess the state of safety training given to PTD by their organization.

Statement of the problem

In Nigeria, formal training and requirements for issuance of driving license rests on candidates' ability to pass an off-on road training sessions after certification by a professional instructor, and thereafter receive certification from FRSC. Unfortunately, one can discern the worrisome occurrence of accidents as a result of poor training which manifests in unruly behaviours exhibited by petroleum tanker drivers on Nigerian highways. This therefore calls to question, the effectiveness of formal certification by the FRSC and exposes the need for the adoption of safety trainings by petroleum haulage companies. Victor et al. (2016) pointed out that, "If there is no framework for recruiting drivers, it can lead to the closure of the organizations that seek to employ them. In most cases, the goods carried by trucks are by far costlier than the cost of the trucks", and incessant rate of truck accidents will dwindle the fortunes of petroleum haulage companies. Therefore, firms ought to develop and adopt safety training measures in recruitment process in order to ensure effectiveness, efficiency and organizational continuity.

Despite the importance of safety management to organizational efficiency, many organizations, including petroleum haulage companies rely primarily on drivers' certification by FRSC. A careful observation reveals that petroleum haulage companies recruit drivers who lack a clear comprehension of vehicle dynamics and driving forces such as the effect of gravity, centrifugal force, centripetal force, kinetic energy and road condition, coupled with poor understanding of the importance of mental and physical wellbeing, brake management, load management and other factors that militate against road safety. These poorly-educated and untrained drivers, who brandish road safety certification exhibit reckless driving behaviours with attendant human and material losses on their companies and other road users (Gbadamosi, 2015). Haulage companies fail to see the importance of basic education and pre-employment training programmes as criteria for recruiting new employees. This has led to the employment of halt-fit illiterates who may not understand road signs and rules, but often result to trial and error, thereby spending considerable time in trying to understand defensive driving and safety standards.

Studies conducted by Okafor et al. (2013), and Victor et al. (2016) revealed that low literacy is a major challenge facing truck drivers in Nigeria. Ashiru (2019) cited studies which proved that "over 80% of truck drivers in Nigeria are illiterates. This is reflected in their poor attitude and behavioural pattern while driving, low maintenance culture and poor road safety awareness. A cursory observation shows that aside from their traditional languages, many petroleum tanker drivers can neither read nor write. They find it difficult to understand and comprehend languages and techniques used by resource persons contracted by their organization. The essence of safety training is undermined when PTD attend training programs without adequate knowledge derived from the exercise. Furthermore, there is a penchant to neglect training needs of low cadre and blue-collar employees in many organizations. Unfortunately, many organizations, especially blue-collar jobs regard training as a waste rather than an investment in human capital. Companies often neglect the training needs of their low skilled staff (Garlick and Federman, 2017). The implication is that road accidents, fire disasters, loss of lives and properties will remain unabated as tanker drivers carry on their job with little or no road safety knowledge advancement provided by petroleum haulage companies.

Theoretical viewpoint

The study adopted Domino Accident Theory to examine drivers' views on the effect of safety training on road accident among petroleum tanker drivers in Ugwuoba, Awka South, Anambra State. The theory was developed by William Heinrich in 1929 but later expanded by Bird and Loftus in1974 to include the role of management in safety and accident management. It works on the premise that safety measures are similar to a domino. The collapse of one domino, that is safety measures, will lead to a sequential collapse of another domino until accidents occur. Accidents follow a sequence of event built on a domino, as one likely cause of accident will lead to an eventual accident.

Bird and Loftus affirmed that accidents originate from the lack of control of people and equipment by management. Distortion in either of the rules of management, including planning, controlling, organizing and leading will result to a sequential collapse of the domino (Katsakioro et al., 2009). Implicitly, the failure of haulage companies to provide the right safety management trainings for drivers will create room for factors that will result to accidents. These factors include poor safety training and none adherence to safety measures.

The neglect of pre-employment training leads to employment of half-fit, uneducated and untrained petroleum tanker drivers. These drivers who do not have proper safety orientation become a menace on major highways. Failure to equip drivers with the rightful orientation of vehicular characteristics, the sanctity of safety checks and dangers of drug abuse during work hours will have negative effects on the operations of drivers which could lead to accidents. When accidents occur, management's inability to maintain a functional incidence department that should examine the immediate and remote causes will have a domino effect on chances of reoccurrence. Poor implementation of incidence reports will further lead to loss of man hours and properties, injuries, death, and other factors that have

negative effect on corporate efficiency and operations. Failure to also address the fall of a domino will have negative effects on traffic flow in ports hinterlands with attendant negative effects on corporate viability and efficiency owing to trucks breakdown and accidents. To address these, Sabet et al. (2013) advised that the easiest way out of the situation would be to salvage a domino from falling on the next one. Therefore, the first step in safety management in the haulage sector should be to augment licensure with adequate safety training organized by the haulage companies, and the detection of knowledge obsolescence should be followed by a planned in-service training exercise. Failure to address such will create safety problems in other key areas of a haulage company.

Human capital refers to the stock of knowledge, skills, habits, social and personality attributes, including expertise and creativity, embodied in the ability of an employee to produce economic value (Acemoglu and Autor, 2013). The human capital model suggests that an organization's decision to invest in training is based upon an examination of the net present value of the costs and benefits of such investment. Organizations are assumed to invest in training during an initial period and receive returns to the investment in subsequent periods. In Becker's view, human capital is similar to other means of production such as factories and machines. An organization can invest in human capital through training and employee's outputs depend on the rate of return on the human capital one owns. Thus, human capital is a means of production in which additional investment yields additional outputs.

Since human capital development is achieved through the development of employees, it follows that, training is the key to improved employee performance and organization's productivity. This is because; an improvement in training ultimately translates into an improvement in competence level and better performance (Husin and Gugkang, 2017). Jeanetta (2017) reveals that the benefits of investing in training of human capital include an increase in: employee satisfaction, employee retention rates, employee engagement, return on investment, organizational stability, recruitment of better personnel and company culture.

Objectives of the study

The aim of this study is to appraise the challenges and prospects of safety management practices among haulage companies in Apapa port hinterland. Essentially, the objectives of the study are to:

(i) Examine the impact of pre-employment training and adaptation among PTD.

(ii) Examine the factors that militate against understanding of pre-employment training among PTD.

(iii) Examine unsafe driving attitude and assimilation level among PTD.

(iv) Examine the reasons for low adherence to implementation of road safety procedures among PTD.

METHODOLOGY

This research is a cross sectional survey conducted among truck drivers in Ugwuoba, Awka South Local Government Area of Anambra State. The area of study is a transit rest-place for inter-state petroleum tanker drivers who pass through Anambra State to various destinations across the country. PTD were selected for the study because, as firsthand beneficiaries of safety training policies and programmes, their responses will be impartial, and validate the chances of obtaining reliable data on understanding of safety practices in their respective organizations. The study area, Ugwuoba, was specifically chosen because it is essentially a resting point from where PTD continue their journey through neighbouring states of Enugu and Delta, to other states in Nigeria. Commercial driving is essentially a male-dominated occupation; hence, the population of the study is made up of 38 adult male respondents which cut across economic, religious and ethnic affiliation. Due to the respondents' level of education, the researchers read out the question items and assisted respondents in filling them. The study was conducted in three weeks using convenience sampling method. Convenience sampling is most appropriate because truck driving is a highly mobile job, as such, only drivers who are available and are willing to participate in the research at the given time are selected. The researchers also employed none participant observation. Simple percentage was used to present basic information concerning safety management practices, and the results are presented in bar charts for easy comprehension.

The result in Figure 1 suggests that from the training received by PTD, 3(7.9%) said their night visibility was improved, 1(2.6%) abstinence from alcohol and drug abuse, 5(13.1%) post trip rest, 4(10.6%) maneuvering, 5(13.1%) post-trip vehicle inspection, 3(7.9%) pre-trip vehicle inspection, 7(18.4%) turning/ backing up, 3(7.9%) log book management, 3(7.9%)sign rules, and 4(10.6%)road rules were improved based on training received. Therefore, pre-employment training has not reduced the rate of alcohol and drug abuse among PTD.

The result in Figure 2 indicates that 12(3.2%) said the ambiguous training techniques are responsible for their inability to comprehend the training offered, 2(5.2%) said unqualified trainers, 5(13.1%) unavailability of training aids, and 19(50%) said their low level of formal education was responsible. Illiteracy is the major reason for poor understanding of pre-employment training among PTD.

The result in Figure 3 reveals that majority of the PTD, 10 (26.3%) agree that multiple overtaking is the major

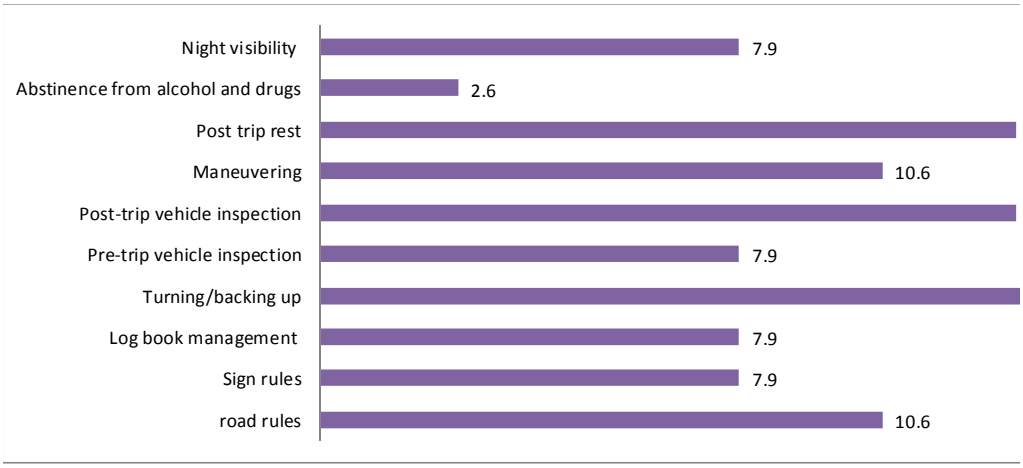

Figure 1: Areas of improvement on pre-employment training among PTD.
Source: Field Survey, 2020.

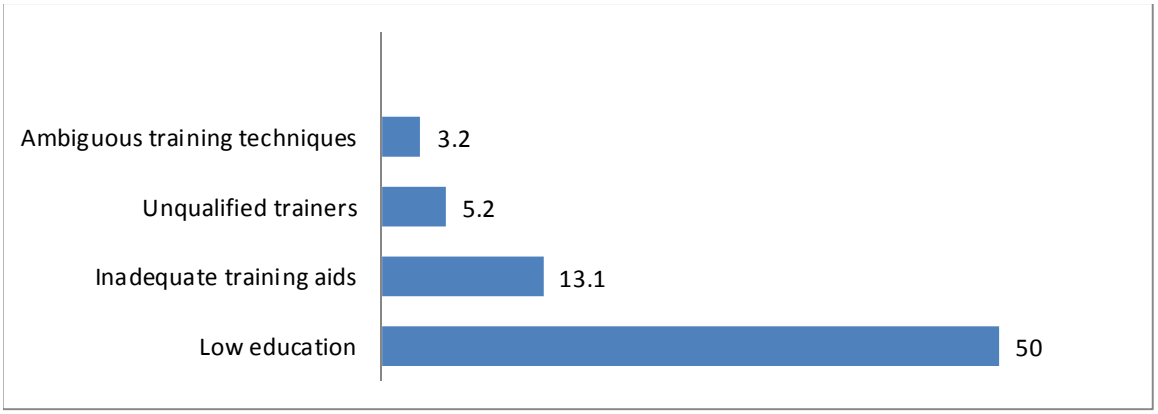

Figure 2: Factors that militate against understanding of pre-employment training among PTD
Source: Field Survey, 2020.

unsafe attitude they exhibit when driving. 1(2.6%) said lack of consideration for weather condition, 2(5.2%) use of mobile phone, 2 (5.2%) loud music distraction, 2(5.2%) use of incorrect lane, 1(2.6%) inappropriate speed, 3(8.0%) inconsideration for pre-maneuver space, 6 (15.9%) alcohol and drug abuse, 2(5.2%) fatigue, 1(2.6%) poor attention to road condition, 2 (5.2%) neglect of side mirror, 3 (7.9%) aggressive driving.

In Figure 4, majority of the PTD, 15 (39.4%) aver that the major reason for none adherence to road safety procedure is the belief that safety is beyond their control as only supernatural forces can avert accident occurrence. 2 (5.4%) said drug and alcohol abuse, 5 (13.1%) urgency to make return trip, 3 (7.9%) escape from previous misconduct, 12 (31.6%) perceived expertise from previous driving experience, 1 (2.6%) ignorance of the consequences of road accident.

RESULTS AND DISCUSSION

From the self-account of respondents, it is clear that, despite the efforts made by organized petroleum haulage companies in reducing accident occurrence through the implementation of pre-employment training, their efforts have not translated to a reduction in alcohol and drug abuse among haulage drivers. A major reason affirmed for this is that, long distance truck driving is a fatigue-prone job which requires attentiveness. PTD drivers abuse drugs with the intention of staying awake and alert on long distance journey. Nevertheless, it is difficult to specifically state how drugs affect driving because drivers tend to mix different substances which impairs cognition and has negative effects on job behaviour. Depressants such as alcohol and cannabis slow down the activity of the central nervous system, stimulants such as

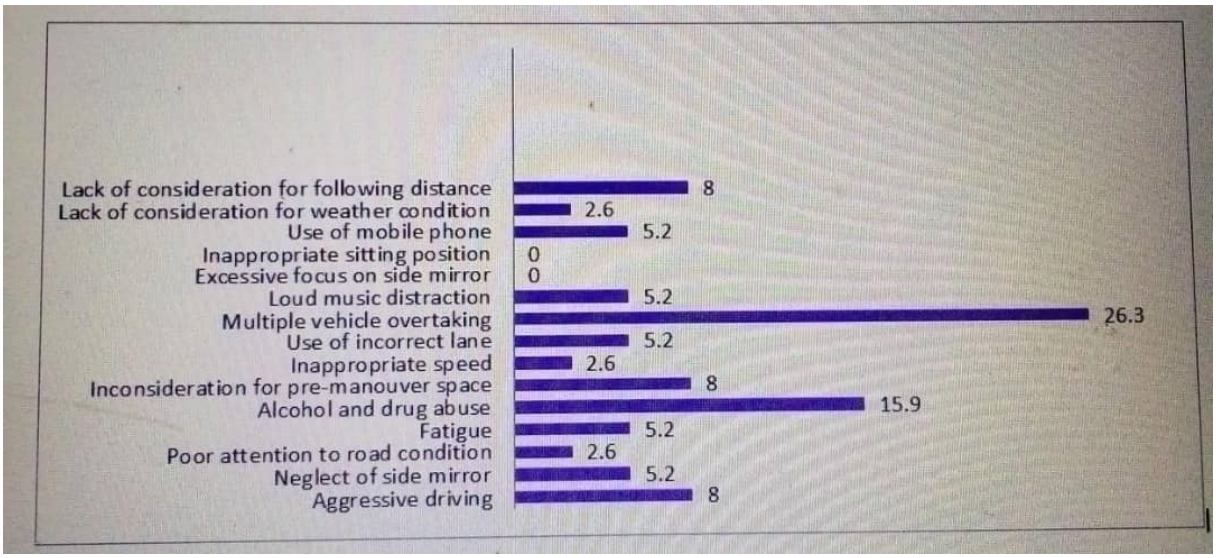

Figure 3: Unsafe Driving attitude and assimilation level among PTD.
Source: Field Survey, 2020.

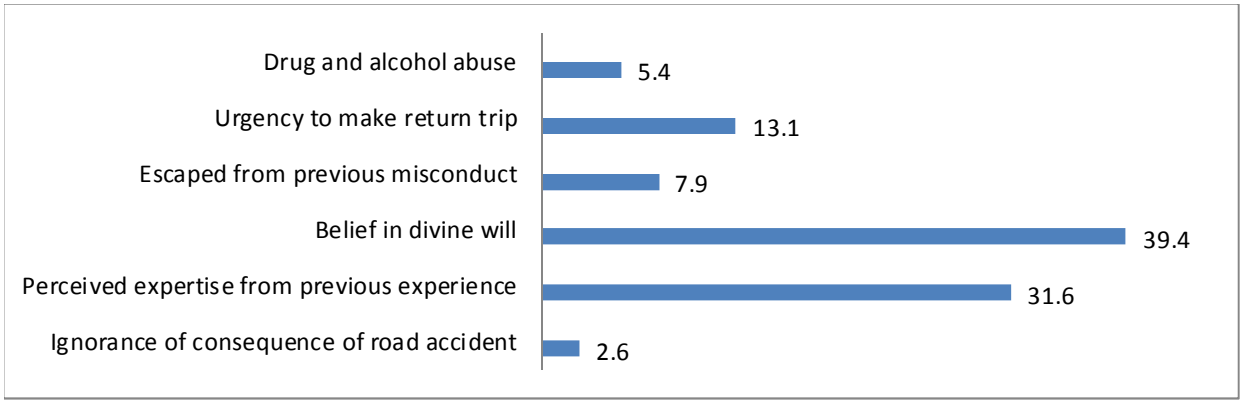

Figure 4: Reasons for low adherence to implementation of road safety procedures among petroleum tanker drivers.
Source: Field Survey, 2020.

amphetamines speed up the activity of the central nervous system, and psychedelic such as ketamine and mescaline distort the users' perception of reality (ADF, 2017). Drug and alcohol abuse have many implications such as increase in lane weaving, poor reaction time and coordination, increase in impulsive behaviour with tendency to take more risk, poor speed control, inability to accurately read signs, and difficulty in maintaining lane position (Hartman and Huestis, 2013; Okpataku, 2016). The result is that, drivers who are under the influence of drugs and alcohol do not consider the consequences of their actions on other road users, and driving under the influence of psychoactive drug abuse accounts for more crashes than other human factors including distraction and fatigue (ITF, 2017). Romano and Pollini, (2013) posit that the combination of rugged driving with alcohol and drug consumption increases the risk of fatal motor crashes.

This study also shows that low level of education is responsible for the inability of PTD to understand pre-employment training. No doubt, education is fundamental to development and growth, and it is a catalyst for unleashing the human mind and skill development. This is because, education facilitates quick learning and enables employees' to develop opinions and perspectives needed to assimilate training, and translate same into positive skills. Inadequate supply of skilled workers can serve as a drag on growth (Hulten, 2017).

The implication of low level of education is that, PTD do not understand the techniques adopted for pre-employment training. PTD may also neglect the dangers constituted by drug abuse and poor understanding of training especially in jobs that are as challenging as petroleum truck driving. Hence, PTD muddle through their job with severe implications on safety of lives and properties of road users.

Multiple vehicle overtaking was identified as the foremost inappropriate driving attitude from poor knowledge of training. Moscari (2009) remarked that overtaking is in itself, a hazardous subtask in transportation sector. Its indices include; consideration of vehicle spacing when the overtaking starts, length of one overtaking, length of overtaking time, and speed difference among vehicles (Moscari, 2009). However, these attributes are not factored where the cognitive abilities of the drivers are imprecise owing to substance abuse. The implication of this inappropriate driving attitude is that, with poor understanding of safety procedures occasioned by illiteracy, fatigue, poor weather and road condition, alcohol and drug abuse, PTD do not possess the cognitive abilities needed to make safety decisions on the wheel, thereby leading to accident (ADF, 2017; Hartman and Huestis, 2013; Okpataku, 2016).

The findings also show that PTD derive confidence from the belief that accidents are predetermined, and supernatural forces are the sole determinants of safety. The belief in fatalism is common in many African societies where witchcraft and accompanying mystical powers are thought to be responsible for accidents, sudden deaths and other misfortunes (Nyabwari and Kagema, 2014). PTD explained that they do not necessarily adhere to safety measures because road safety is beyond their control. They assert that, irrespective of whether they adhere to training and safety procedures offered by haulage companies or not, only divine forces can guarantee protection from road accidents. It was observed that to scare off evil magic and guarantee safety, drivers often have incisions, charms and other religious artifacts tied to their waist, steering and hidden places in the trucks. Others have Christian and Muslim insignias such as rosaries, church stickers and Quran inscriptions on their windscreen as accident protective measures. Fatalism, therefore, erodes the essence of safety training offered by organized haulage companies.

Conclusion

A study of this nature is plausible because it exposes the views of employees, who are the first beneficiaries of training policies and direct victims of road accidents. It is therefore the opinion of this paper that although, management of organized haulage companies have implemented pre-employment training as a veritable strategy towards reducing road accidents resulting from drivers negligence, the impact of safety training has not been felt as evidenced in cases of reported and unreported accidents involving petroleum tankers. This suggests that road safety goes beyond pre-employment training alone. It also shows that organized petroleum haulage companies have failed to establish strategies which will ensure that incessant cases of alcohol and drug abuse, recruitment of uneducated drivers, and inappropriate driving attitude are eradicated. The collapse of a domino, such as failure to ensure zero tolerance on alcohol and drug abuse, recruitment of uneducated drivers, among others, have led to reverberating collapse of other dominoes, hence culminating to road accident. This study also reveals that African religious worldview plays a crucial role in safety management, as fatalism was discovered to be a major determinant of safety adherence among PTD. Religious beliefs are systemic, like all systems, beliefs are enduring, but can change, given the right orientation, especially if they are not functional to the society. To this end, expected results on training will be meaningless if haulage companies fail to consider the implications of fatalism in their road safety trainings.

Recommendations

Based on the conclusion drawn, the study recommends that:

(i) Management should adopt a zero tolerance approach for alcohol and drug abuse. To achieve this, organizations should procure alcohol and drugs test kits, and conduct same on PTD at departure and arrival points.
(ii) Organized petroleum haulage companies should employ drivers with requisite formal education. This strategy will help to stem the tide in numbers of uneducated drivers who can barely understand training methods.
(iii) After pre-employment training, PTD should be evaluated to determine how knowledgeable they are with the training they received. This will ensure that only the qualified trainees are employed.
(iv) There is need to address the belief that accidents are caused by witches and other supernatural influences beyond human control. Reorientation exercises should be conducted and integrated into the training programmes of haulage companies. This will help to enlighten drivers on the point that accidents do not just happen. They occur as a result of interplays resulting from negligence of human, environmental and mechanical factors.
(v) Companies must ensure that PTD are given periodic in-service training and capacity building opportunities. This will help to obliterate job obsolescence and increase their performance in a safe working environment.

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