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HEALTH SAFETY ENVIRONMENT: A CRITICAL SUCCESS FACTOR FOR OPERATIONAL PERFORMANCE

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Abstract
The study sought to investigate the effect of health safety environment on the operational performance of Astral waters Nigeria limited, Lagos State. Although, the manufacturing sector is perceived to be the real life of the economy and the engine that drives economic growth in the country, the increased number of work-related injuries and accidents has increased operational cost for the firm thereby leading to a decline in the operational performance of the firm. A cross sectional survey research design was adopted, and a survey of 40 employees was carried out using a validated questionnaire. The findings showed that health safety environment has a positive and significant effect on operational performance of the sampled firm. The study therefore recommends that manufacturing firms and others along the same value chain must strive to adapt and sustain health safety environment that will ensure environmental standards, show commitment to safety by establishing a positive culture, ensure employees are actively involved and participate in safety-related activities that will ensure workers have a sense of safety while carrying out their tasks, in order to enhance the firms' operational performance.

Introduction
The economic benefit of increased water quality, production and supply far outweighs the investment costs. The water industry provides drinking water and wastewater services to manufacturing, residential, and commercial sectors of the economy. There are significant challenges in the overall public and private investment needs in the water manufacturing sub-sector and rising global pressures on the water industry. The water industry is a sub-sector of the manufacturing industry. The manufacturing industry is currently faced with the ban of imported manufactured products in Nigeria. Hence, the need for efficient operational performance in the general manufacturing industry in Nigeria becomes crucial today. The population increase and rapid urbanization rates in the country has created a serious deficiency in the operations of the water manufacturing sub-sector. The quality of life of an average Nigerian with its dire consequence on sanitation, food, security, health, employment and living standards is related to the water production and supply operations, it is the recognition of this critical issue and gap that led to the need for the re-birth of the Nigerian water sector reform (Federal Ministry of Water Resources, 2011). Given the enormous role the water industry sub-sector is expected to play in the growth of the economy, the question that arises is can the Nigerian water industry sub-sector's health safety environment support such role?

Operational performance is the measurable aspects of the outcomes of an organization's processes, such as reliability, production cycle time, and inventory turns (Azim, Ahmed & Khan, 2015). The most common indicators for measuring operational performance include cost, quality, delivery, and flexibility (Ahmad & Schroeder, 2003). Other operational performance indicators include new products, flexibility, overtime, inventory turnover, lead time, and setup (Bento, & Tontini, 2018). In accessing the performance of the manufacturing sector Ku & Goh, (2010), posited that the performance of the manufacturing sector of the country through the years and the overall productivity level of the Nigerian manufacturing sector over the years has seen very little increase and most of these companies have even experienced both a decline in productivity and profitability. However, conducting a comprehensive analysis of the Nigerian manufacturing sector is a complex issue because there is a lack of adequate data about the productivity levels of the Nigerian economy. In particular, there are little authentic data related to the productivity of the Nigerian manufacturing sector. This work therefore narrows down to the water manufacturing industry.

In the wake of upcoming technology, social conflicts and terrorism; water infrastructure facilities remain vulnerable and easy points of access to acts of terror. Despite the role played by these workers in national development, they face life threatening challenges such as poor working conditions/ environments that may lead to safety and health problems (Oluoch, Njogu & Ndeda, 2017). This affects the operational performance of the water industry. Some critical success factors for operational performance in the manufacturing industry have been

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highlighted in previous researches such as Environmental Sustainability (ES) (Yu, Chavez, Jacobs, Wong, & Yuan, 2019), adoption of lean practices (Jabbour, Teixeira, Freitas, & Jabbour, 2013), and benchmarking (Voss, Åhlström, & Blackmon, 1979). Although health safety environment is one of the basic objectives of firms in the manufacturing industry, unfortunately, only 5%-10% of workers in developing countries and 20%-50% of workers in industrialized countries have access to adequate occupational health services (Oluoch, *et.al.* 2017). Though the manufacturing subsector has become increasingly important as the engine and driver of economic growth in both developing and developed economies (Oburota, & Ifere, 2017), it is challenged by an average work place accidents every year of about 22 employees, and more than 4,000 sustain injuries that keep them out of the workplace for a week or more (Malley, 2018). The impact of industrial accidents on the quality of the products of the water industry, have a far reaching effect on not just the workers within the facility, but also the consumers of these products. Ratna & Kaur (2017) affirmed that health safety environment plays a crucial role in the maintenance of mental, physical and social well-being of the workforce. However, the rise in the cost of health safety environment is a daring challenge (Muazu & Tasmin, 2019). Hence, searching for new solutions and arrangements that would improve the performance of Occupational safety and health management systems OSHMS, proffers a positive contribution to greater acceptance of these systems among employers, employees and other stakeholders (Podgorski, 2015).

This study therefore, seeks to examine the effect of health safety environment on the operational performance of the water industry. The acceptance and adoption of health safety environment is a challenge to Nigeria water industry sub-sector. No one wants to get hurt and no one wants to be responsible for someone else getting hurt. Also, the implementation of these health safety environment policy is a challenge that needs a proactive approach, and should be addressed using the right attitude, right communication and right tools. The health safety environment issues are of great concern and complexity. The question posed by this work is will health safety environment affect operational performance of the manufacturing industry? There is, therefore, a need to investigate the effect health safety environment has on operational performance of Astral waters Nigeria limited, Lagos State. The paper is structured in the following order: introduction, literature review, methodology, presentation of results and discussion of findings, conclusions and recommendations.

Literature review

Various literature were reviewed in order achieve a more robust understanding of the concepts and empirical works reviewed in this study.

Health Safety Environment

The manufacturing sector is made up of a range of diverse industries with estimated 2.8 million workers and over the past 5 years, each year an average of 31 workers died in workplace accidents. There was an average of more than 4500 reports of major injuries and about 19500 reports of injuries that kept workers away from work for three days or more. Many manufacturing workers also suffer ill health from workplace exposures. The focus on manufacturing sector is explained by the continued high incidence of fatal incidents, major injury and reportable injuries. International Labour Organization (ILO, 2012) reported that, every day, 6,300 people die as a result of occupational accidents of work-related diseases more than 2.3 million deaths per year, 317 million accidents occur on the job annually; many of these resulting in extended absences from work. The human cost of this daily adversity is enormous and the economic burden of poor occupational safety and health practices is estimated at 4 percent of global Gross Domestic Product each year. “Most of these deaths and injuries occur particularly in developing countries where a large part of the population is engaged in hazardous activities taking severe toll on these economics. Hence this study will discuss extensively on healthy safety environment and operational performance of the manufacturing industry.

Safety is one of the efforts to create a workplace that is safe, comfortable, healthy, and free from environmental pollution (Giovanni, Pujiarti, Fidellis & Suhendar, 2020). Health and Safety or Occupational Health and Safety (OHS) is a form of regulation, according to Windapo (2013), regulations are products of legal efforts designed to instill law and order in the society. They should be: properly enforced, unambiguous, updated as required and properly complied with if the purposes for design are to be achieved. Therefore, OHS is defined by Kalejaiye (2013) to be an interdisciplinary area mainly burdened with protecting the safety, health and welfare of people in the workplace and people that will be affected directly or indirectly by the activities in a workplace. As such, OHS regulations are enforceable, unequivocal and compliable legal products designed to enforce the protection of safety, health and welfare of people that may be directly or indirectly affected by the activities in a workplace.

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Occupational health and safety is a discipline with a broad scope involving many specialized fields (ILO, 2012). Example of such disciplines include medicine, physics, chemistry, as well as physiology, ergonomics, toxicology, technology, law, economics and management. Others are industrial hygiene, engineering safety and education. Alli (2008) defined Occupational health and safety as comprising 'the activities designed to facilitate the coordination and collaboration of workers' and employers' representatives in the promotion of occupational safety and health in the workplace.' The concept according to him defines rights, roles and responsibilities regarding the identification of hazards and risks and the implementation of control or preventive measures. This definition highlights the significant role employers and employees have to play for the success of a health and safety management system. Kalejaiye (2013) opines that managing health and safety at work is usually a matter of developing health and safety policies, conducting risk assessment which defines the hazards and assessing the risks attached to them, carrying out health and safety audits, and inspections, implementing occupational health programs, managing stress, preventing accidents, measuring health and safety performance, communicating the need for good health and safety practices and organizing health and safety programs . This definition brings to fore the fact that health and safety management involves the early detection of possible hazards by conducting regular risk assessment and health and safety audits and implementing other programs that will forestall their occurrence.

According to Idubor and Oismoje, (2013) cited in Nnaji-Ihedinmah & Ugwu (2016), health and safety management is an area that is concerned with ensuring the safety, health and welfare of people engaged in work or employment. It goes further too to protect co-workers, family members, customers, suppliers, nearby communities and other members of the public who are impacted by the workplace environment. Every occupational health and safety program should, among other things, ensure a safe working environment for employees of the organization and other stakeholders affected by their activities. The health, safety and welfare of people engaged in work should be a paramount policy objective of every organization. This ensures that the employer has the responsibility of putting in place a good occupational health and safety management system to protect employees from hazards resulting either from unsafe work condition' or 'unsafe work behaviors'.

Kalejaiye (2013) defined occupational health and safety simply as being concerned with the detection, evaluation and control of environmental health and safety hazards associated with working environment. Occupational safety and health management comprises the activities designed to facilitate the coordination and collaboration of workers' representatives in the promotion of occupational safety and health in the workplace (Alli, 2008). In their broad definition of the subject, ILO cited by Hesapro (2013), submits that OSHM should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; (i) the prevention among workers of leaving work due to health problems caused by their working conditions; (ii) the protection of workers in their employment from risks resulting from factors adverse to health; (iii) the placing and maintenance of workers in an occupational environment adapted to his or physiological and psychological capabilities; (iv) and, the adaptation of work to the person and of each person to their work.

Attitudes towards the integration of health Safety Environment (HSE) management depend on the size of the company. Large companies naturally run integrated management systems that are (also) used for environment, health and safety. Medium-sized companies object to the administrative complexity of introducing these systems. Responsibilities in the different fields (health, safety or environment) are more directly linked to personal competences. Persons appointed to these different fields may be acting in isolation and lack coordination. So, although the costs of integration of HSE in medium-sized companies would be high relative to turnover, the benefits could be large. In small companies, integration naturally takes place since all HSE-responsibilities are covered by a single person. This person may, however, be obliged to carry out other tasks concurrently, which may then lead to a conflict of priorities.

Operational Performance

Operational performance refers to the measurable aspects of the outcomes of an organization's processes, such as reliability, production cycle time, and inventory turns. Profitability is the benchmark of financial performance of a company. Effective operational activities, investment activities and financing activities are essential to get a best financial performance. Operational performance in turn affects business performance measures such as market share and customer satisfaction (Voss, Åhlström, & Blackmon, 1997). Profitability is the ability of a business to earn a profit. A profit is what is left of the revenue a business generates after it pays all expenses directly related to the generation of the revenue, such as producing a product, and other expenses related to the conduct of the business' activities (Grimsley, 2015).

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Performance measurement systems were developed as a means of monitoring and maintaining organizational control, which is the process of ensuring that an organization aims at strategies that lead to the achievement of its overall goals and objectives. Performance measures, the key tools for performance measurement systems, play a vital role in every organization as they are often viewed as forward looking indicators that assist management to predict a company's economic performance and many times reveal the need for possible changes in operations (Cambon, Guarnieri, & Groeneweg, 2005). The choice of performance measure is one of the most critical challenges facing organizations (Hasel, Madsen, Hansen, & Maalouf, 2019). Poorly chosen performance measures routinely create the wrong signals for managers, leading to poor decisions and undesirable results. There are enormous hidden costs in misused performance measures. Shareholders pay the bill each day in the form of overinvestment and acquisitions that do not pay off etc. It is not that management is poor. Simply, it is the wrongly chosen performance measures, which in turn push management to take improper decisions (Ferguson & Leistikow, 1998). Performance measures may be characterized as financial and non-financial.

The operating cycle ratio involves three aspects of the company's finances; the days inventory outstanding, the days sales outstanding and the days payable outstanding. A shorter operating cycle means that a company collects money from customers efficiently, has good payment terms with businesses and other entities to which it owes money and is moving inventory at a pace that keeps up with average production ability and customer demand. The revenue per employee ratio indicates how much revenue each employee is producing for the company. A high revenue per employee ratio means that employees are generating adequate sales or revenue for the company, while a low ratio is often a sign of low productivity (Treadwell, 2015).

Health Safety Environment and Operational Performance

This study is anchored on Heinrich's Domino theory of accident causation (1931). The theory states that accidents result from a chain of sequential events which he referred to as 'Dominoes' falling over. He stated that when one of the dominoes falls, it triggers the next one and the next continuously. He proffered advice on how to minimize or eliminate their presence in the sequence and added that by removing a key factor (such as unsafe condition or unsafe act) the start of the chain reaction is prevented. The "dominoes" were used metaphorically to represent a chain of events that lead to accidents or injury in the workplace. He identified a chain of events or circumstances that ultimately lead to accident/injury in the workplace as follows: (i) Social environment and ancestry; (ii) Fault of person; (iii) Unsafe act or mechanical or physical hazards (unsafe condition); (iv) Accident; (v) and Injury. According to the theory accident or injury in the workplace is caused mostly by preventable chain of events principally caused by unsafe acts or unsafe condition in the workplace which can be avoided with the right attitude.

This brings to fore the role of employers and employees who must work together to ensure a safe work environment while employees on their part will ensure compliance with safety rules which ensures that potentially risky conditions or attitudes are avoided to prevent accidents.

In examining the impact of health and safety policies on employee's performance in the Ghana's timber industry Wumoo, Owusu & Addo (2013), adapted case study approach was adopted for the study. Their results showed that health and safety measures put up by the company positively correlates with employees' performance despite that the correlation is weak. There is also inverse relationship between reducing the number of accidents and injuries through health and safety promotions and employees performance. From the findings, it was concluded that organizations need to pay much attention to their health and safety measures since apart from the fact that in other jurisdictions it is backed by law and is mandatory, it is classified as an existence need for which other motivational factors meant to improve employees' performance revolves.

Looking at the effect on occupational health and safety policy on employees' performance, Lim (2012) added that when workers understand the health and safety rules and procedures of their job and the tools used for working, it helps them to work effectively and efficiently resulting in better performance of employees. The Australian National Commission for Health and Safety (2002) writing the benefit of promoting health and safety in organizations indicated that when employees are provided with safe working environment through the use of effective occupational health and safety management systems, it reduces employees absenteeism, and employee turnover and this has direct effect on increase in productivity, employee/customer relationship, subordinate/ management relationship which the end result will be increase in profitability for the organization.

Looking at a report by Safe Work Victoria (2006) on health and safety of various organizations, they share similar view of the literature provided by Australian National Commission for Health and Safety. To them, in organizations where health and safety policies are highly promoted, employees feel valued because they are kept

from danger at work. This provides opportunities for employees to perform very well on the job to achieve organizational success. This is supported by Hudson (2012), who also sees health and safety promotion at the workplace as having direct positive impact on employees' performance. A written good occupational health and safety management practices would help to build a positive workplace culture and this will enhance performance of all employees. It also gives room for high employee performance that encourages creativity and innovation.

A research provided by Ward, Haslam & Haslam (2008) support the many writers who see organizations enjoying direct benefit in promoting occupational health and safety. To them in an organization where employees within feel that management 'cares' for them, there is an indication of positive management of occupational health and safety system and as such results in safer working practices and also have positive impact on employee outcomes (example, job motivation, job involvement, safety climate, organizational commitment, job satisfaction, mental health and well-being). Similarly, Ogbo and Ukpere (2013), in their study of safety adherence model for the Nigerian work environment sampled 111 manufacturing firms in the south-east zone of Nigeria submitted that safety management implementation has an influence both on safety and on the performance of firms. Okoye and Okolie (2014), in an exploratory study of the cost of health and safety performance of building contractors in South East Nigeria, established a correlation between health and safety performance of building contractors and project outcome. Studying the impact of occupational health and safety policies on employee's performance in the Ghana's Timber industry, Dwomoh, Owusu and Addo (2013), affirmed that organization's investment in health and safety programs has a link with employees' performance.
Machabe and Indermun (2013) conducted a study on management perceptions of the occupational health and safety system in a steel manufacturing firm. The authors looked at how the management perceived their roles as managers and how their interpretation of this role influenced occupational health and safety in the workplace. The findings of the study revealed that there is a strong relationship between management perception and safety in the workplace. The study therefore concluded that the human factor can have a huge impact on safety performance within the plant. While Bankole and Ibrahim (2012), examined the perceived influence of health education on occupational health of factory workers in food and beverage industry in Lagos State, Nigeria and revealed that vulnerability to occupational hazard differed significantly between those factory workers exposed to regular health education and those who were not. The study therefore concluded that there is a significant relationship between health education and occupational health of respondents.

Nnaji-Ihedinmah & Ugwu (2016) studied that the concept of Occupational Health and Safety Management (OHSM) involves the identification of hazards and risks in the workplace and the definition of the rights, roles and responsibilities of stakeholders in the implementation of control and or preventive measures. The study identifies 5 different classes of hazards to include – chemical, biological, physical, ergonomic and psychosocial hazards. The study also identified effective safety and Health committees and Health and safety promotion, Education and training as key ingredients to effective implementation of OHSM. A survey method was adopted while a structured questionnaire was deployed in the collection of data. The results of the study show that the level of awareness of occupational health and safety management among employees in the plastic industry is high. Also, that the level of implementation of occupational health and safety management in the plastics industry is high.

Asikhia, and Emenike (2013) examines occupational health and safety in the oil and gas industry in Nigeria. The study investigated the various types of hazards that oil workers are exposed to, the effects of these hazards on the health of the workers, the effectiveness of the existing means of mitigating these hazards, and the adequacy of the legislation that impacts on the provision of occupational health and safety in the oil gas industry in the country. In the course of the study, two hundred and seventeen (217) workers in the oil and gas industry were randomly selected for the purpose of questionnaire administration. Analysis of data was carried out using the SPSS. The results showed that workers are exposed to various hazards in their workplaces. The authors therefore, recommended the provision of fire extinguishers in workplaces, health assessment of all workers, the provision of appropriate health facilities and the enforcement and strengthening of existing legislation to mitigate these hazards.

Afube, Nwaogazie, and Ugbebor, (2019) carried out a study in both a petrochemical and an oil refining companies of Nigeria, identified industrial hazards and assessed safety measures in the Chemical Industry (CHI) of Nigeria. A well-structured questionnaire instrument was used for data collection. The study was carried out amongst technical staff and management staff of the chemical industry whose day to-day duty is such that they are exposed to one form of hazard or the other in the industry. The questionnaire was administered to 96 technical staff and management staff in the CHI out of which 84 (88%) were completed and returned. The study focused on types of

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hazards, hazards and risk awareness, implementation of control measures and effectiveness of safety hazards and risk management programmes in the chemical industry of Nigeria. Modified Proportional Importance Index (PII) and a four-point Likert scale were adopted in data analysis. Results revealed that loud noise, working at heights, machines and equipment vibration, high voltage areas and chemical spills are the most high-ranking hazards in the chemical industry. A high level of safety hazard awareness was found among workers in the industry. The outcome of the intervention showed that Chemical Industry Number 1 (CHI-1) improved from 87.90% to 98.09%, Chemical Industry Number 2 (CHI-2) improved from 81.53% to 95.54% on worker's knowledge on the identification and assessment of hazards and risk in the chemical industries. These hazards pose threats to the safety of workers and should be effectively controlled to reduce associated risks to as Low as Reasonably and Practically Achievable (ALARPA) which leads to reseachers to hypothesize that Health safety environment has no significant effect on operational performance of Astral waters Nigeria limited, in Lagos state, Nigeria..

Methodology

Cross sectional survey research design was employed for the study and it is considered appropriate because of its ability to compare different variables at the same time and it has unique way of describing events (Rahiman & Kodikal, 2017). Data was collated from a sample of 40 workers of Astral waters Nigeria Limited, located in Lagos state Nigeria. The research instrument used for the study was a standardized and validated questionnaire. The choice of this plant was made because of the strategic nature of her services to the populace and the water industry is generally prone to several safety and environmental issues that have led to the closure of several firms in the business. Total enumeration sampling technique was adopted for the study due to the small number of frontline staff directly involved in the daily operation of the equipment.

The survey instrument used was an adapted six-point likert-type scale instrument covering the two main constructs. In this study, Health, safety environment was measured by five items adapted from a previously published safety climate (Bankole & Ibrahim, 2012).

The model specified for the study is captured below:

$$Y = f(X)$$

$$OP = f(HSE) \ldots\ldots\ldots\ldots\ldots\ldots functional\_relationship$$

$$Y_i = \alpha_0 + \beta_1 X_i + \ell_i \ldots\ldots\ldots\ldots\ldots \text{mod}el\_equation$$

$$OP_i = \alpha_0 + \beta_1 \text{HSE} + \ell_i \ldots\ldots\ldots\ldots\ldots \text{mod}el\_equation$$

Where:
Y (OP) = Operational Performance
X (HSE) = Health Safety Environment

Result Presentation, Analysis and Discussion

This study researched on health safety environment and operational performance. The data generated on these variables from respondents through questionnaire was reported in the table that follows both descriptive and inferential.

Table 1: Descriptive statistics on health safety environment

Question items on health, safety environment	**Mean**	**Standard Deviation**
Senior management listens to and cares about employees' safety concerns.	4.00	0.934
The plant's management drives the workforce to be a safety-centered organization	4.25	0.588
The plant's management acts upon the employees' suggestions regarding safety matters.	4.85	0.362
The employees encourage each other to report any safety concerns they might have	4.23	0.620
Employees' safety is constantly reinforced as a priority.	3.68	1.207
GRAND	**4.20**	**0.742**

Source: Field survey, 2020

From table 1, the responses from the respondents gave a mean value of 4.00 which shows majority of the respondents agreed that senior management listens to and cares about employees' safety concerns with a standard deviation of 0.934 converging around the mean. Also in an attempt to give a response to the plant's management

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drives the workforce to be a safety-centered organization a mean of 4.25 revealed that indeed the plant's management drives the workforce to be a safety-centered organization with a standard deviation of 0.588. Furthermore, respondent's response on the plant's management acts upon the employees' suggestions regarding safety matters showed a mean of 4.85 which implies that the respondents concurred thar plant's management acts upon the employees' suggestions regarding safety matters with a standard deviation of 0.362 which shows a greater convergence around the mean. A mean value of 4.23 was seen on the item employees encourage each other to report any safety concerns which shows a high response rate with a standard deviation of 0.620. Finally, respondent's response on Employees' safety is constantly reinforced as a priority clearly reveals a mean value of 3.68, which implies moderately high for respondents' rate of Employees' safety is constantly reinforced as a priority and a standard deviation of 1.207 which shows some level of divergence from the mean. A grand mean of 4.20 indicates that on average, respondent's rate of satisfaction with all the items that measured health safety environment is high (shown by the high scale responses) and a standard deviation of 0.742 reveal a high level of convergence around the mean.

Table 2: Data response on operational performance

Questionnaire items on operational performance	**Mean**	**Standard Deviation**
The organisation return on assets is well above the industry average	4.95	0.733
The organisation productivity is above the industry average	5.47	0.590
The organisation gross profits margin is above the industry average	4.50	0.802
The organisation return on investment is well above the industry average	5.53	0.634
The organisation sales volume is above the industry average	5.56	0.655
GRAND	**5.20**	**0.683**

Source: Field Survey, 2020

Table 2, provides answers to the question item raised on the operational performance of the firm. The first item on the scale gave a mean value of 4.95, which shows that respondents gave a high rating that the firms return on assets is well above the industry average with a standard deviation of 0.733. Also a high response rate of 5.47 was seen on the statement that the organisation productivity is above average with a standard deviation of 0.590. Furthermore, respondent's response on the organisation gross profits margin is above the industry average showed a mean of 4.50 with a standard deviation of 0.802. which implies that the respondents agreed that the organisation's gross profit margin is high. A mean value of 5.53 for the organisation return on investment is well above the industry average shows that the respondents rated their organisation's return on investment to be well above the industry average with a standard deviation of 0.634. Finally, respondent's response to the organisations sales volume clearly reveals that the organisations sales volume is above the industry average with a mean value of 5.56 and a standard deviation of 0.655. A grand mean of 5.20 indicates that on average, respondent's rate of satisfaction with all the items that measured operational performance is high (shown by the high scale responses) and a standard deviation of 0.683 reveals the level of convergence around the mean.

A careful analysis of Tables 1 and 2, reveals a similar trend of increase in health safety environment and operational performance with their grand mean as 4.20 and 5.20 respectively. The descriptive result shows a high index level on the health safety environment and operational performance in the selected water manufacturing company which suggest that there is the likelihood for health safety environment to affect operational performance.

Regression Analysis

In this section, we performed a regression analysis of health safety environment and operational performance.

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Table 3: simple regression revealed effect of health safety environment on operational performance

Model one $OP = a_0+HSE+\mu_i$		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.137	3.055		7.246	0.000
	Health safety environment	0.053	0.142	0.061	0.374	0.0001

a. Dependent Variable: operational performance

b. R=0.061 R^2 = 0.004 F=(1,39)=0.140 P<0.05

Source: Researcher's Study, 2020

The result presented in table 3, shows that health safety environment have a positive significant effect on operational performance of selected water manufacturing company in Lagos state, Nigeria ($\beta = 0.053$, $t = 0.374$, $p<0.05$). The R value in Table 3 for the regression model is 0.061 which shows that health safety environment has a weak positive but significant relationship with operational performance. Furthermore, the R square value for the regression model is 0.004 which indicates that health safety environment only accounts for a variation of 0.4% changes in operational performance of selected water manufacturing company in Lagos State Nigeria, while the remaining could be attributed to other factors not included in the model. This finding is supported by a positive and significant unstandardized β coefficient in Table 3 ($\beta = 0.053$, $t = 0.374$, $p<0.05$). The result of the standard error of the estimate is 0.142. This means that the variability in the prediction is 0.142. The regression model used to explain the variation in operational performance due to the effect of health safety environment can be stated as follows:

$OP = 22.137+0.053HSE$……...……. Eqn (i)

Where:

OP = Operational performance

HSE = Health safety environment

The regression equation above shows that the parameter estimates of health safety environment complied with a priori expectation which explains that health safety environment will have a positive effect on operational performance of selected water manufacturing company in Lagos State, Nigeria. The constant was 22.137 which implies that if health safety environment is kept at zero; the value of operational performance would still be positive as indicated by the constant value of 22.137. The coefficient of health safety and environment was 0.053 which indicates that an improvement in health safety environment will result in 0.053 increase in operational performance of Astral waters Nigeria Limited, in Lagos State, Nigeria. This implies that an increase in health safety environment will subsequently increase operational performance of the firm. Based on the results, the hypothesis which states that health safety environment has no significant effect on operational performance of selected water manufacturing companies in Lagos State, Nigeria was rejected.

Discussion

The result suggested that health safety environment (HSE) is an important determinant of operational performance of the selected water manufacturing company in Lagos state, Nigeria.. The result also shows a high level of statistical significance which leads to the rejection of the hypothesis (Ho) which states that Health safety environment has no significant effect on operational performance in selected water manufacturing companies in Lagos state, Nigeria. This result of the study is supported by several other researches carried out by different scholars such as Kalejaiye (2013); Nnaji-Ihedinmah and Ugwu (2016); Malley, (2018); Azim, Ahmed and Khan, (2015); Bento and Tontini, (2018) on the subject matter. Though the findings of Jabbour, Teixeira, Freitas and Jabbour (2013) negated the findings of this study showing health safety environment having a very weak and insignificant relationship with operational performance and this could be attributed to the study area, methodological approach and respondents used.

Conclusion

This study addresses Brown (1996) and Cantor's (2008) almost-unanswered calls for workplace safety research in operations and logistics management, and puts the anecdotal trade-off between safety and productivity/profitability into question. The arguments advanced in this paper illuminated how health safety environment could directly enhance operational performance. This study suggests that organizations with a positive health safety environment , where, top management is concerned about employees' safety and well-being,

and employees are actively involved and participate in safety-related activities, are more likely to gain better financial, environmental, and safety outcomes as a result of their increased employees' commitment in pursuing organization goals and objectives.

However, the study findings revealed that there is a positive significant effect between health safety environment and operational performance. The findings of the study might not be surprising after all. Moreover, this effect could be due to ineffective application of the HSE procedures. This study also contributes to the workplace safety, sustainability, and operations management research in several ways. This is one of the few studies that have provided empirical evidence for the relationship between safety, environmental, and financial dimensions of sustainable development in one model. Prior research and managerial practices regarding sustainability in operations management emphasize the environmental issues as the entry point for operationalizing sustainability. Our results, however, suggest that commitment to safety and establishing a positive safety culture as the starting point towards achieving a sustainable business can yield not only operational benefit but financial benefits for the firm not only in terms of improved safety performance, but also with regards to improvements in firms' environmental and financial outcomes. Therefore, it is recommended that safety issue should be seen as priority and assigned the needed attention by top management in order to boost the operational performance of the firm.

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