



## WORKERS' PARTICIPATION AND PLANNING FOR AN INJURY FREE WORKPLACE ACROSS MANUFACTURING COMPANIES IN NIGER DELTA

Avwata Marvel Okeroghene, Ugbebor N. John and Chinemerem Patricks

Center for Occupational Health, Safety and Environment, Faculty of Engineering, University of  
Port Harcourt, Port Harcourt, Rivers State, Nigeria

Email: avwatamarvel@gmail.com

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source are credited.

**ABSTRACT:** *This study examined the extent of workers participation and planning for an injury free workplace across manufacturing companies in Niger Delta. Descriptive research design was adopted for the study. The population for this study comprised nine (9) manufacturing firms—one from each of the Niger Delta's states, Akwa Ibom, Bayelsa, Delta, Edo, Cross River, Imo, Rivers, and Ondo were selected for the research. By using the Taro Yamane formula, the sample size of 325 employees was utilized for the study. The instrument for data collection was a structured questionnaire titled, Workers Participation and Planning for an Injury Free Workplace across Manufacturing Companies Questionnaire. Mean and standard deviation were used to answer the research questions, while a Pearson Product Moment Correlation coefficient was used to test the hypotheses at 0.05 alpha level of significance. Findings from the study showed that there is a very significant positive association between worker engagement and safety performance [(P = .000) p=0.05] amongst others. The study unequivocally established that poor organizational culture, low employee competency levels, lack of communication, ineffective leadership, and literacy/language barriers were the main obstacles to effective worker participation in SMS implementation across Niger Delta manufacturing companies.*

**KEYWORDS:** Worker's participation and planning, injury free workplace, manufacturing companies, Niger Delta.



## INTRODUCTION

### Background to the Study

The traditional manufacturing process entails converting raw materials into finished products. The manufacturing industry is undoubtedly diversified, and due to the nature of the job being done, many subsectors have to deal with a variety of problems. In the industrial sector, safety is becoming more important. As technology and innovation advance quickly, concerns about safety and danger have risen sharply (Grote, 2012). Worldwide, millions of workers have perished in industrial accidents (Adebiyi & Charles-Owaba, 2009; Battaglia et al., 2014). For every 1,000 employees worldwide, occupational injuries have cost them three and a half years of healthy life (National Safety Council, 2013).

All sectors continue to see an increase in workplace mishaps, and the manufacturing sector is no exception. According to Ooshaksaraie and Azadehdel (2014), occupational accidents have become more common in the industrial sectors over time. Lack of or improper use of safety management systems may be significantly to blame for a number of deadly incidents in worldwide sectors, both recent and old (Liu et al., 2020). These occurrences often result in both direct and intangible indirect expenses. Examples of direct costs include medical and health expenses, insurance claims for deaths and permanent disability, penalties, damage to work equipment, court costs, and related encumbrances (Battaglia et al., 2014; Delp & Riley, 2015; Hassan & Esmail, 2018), while there are indirect expenses in the form of increased insurance costs, production losses, pain, suffering, and sadness, as well as increased employee turnover and other related issues (Hajmohammad & Vachon, 2014; Namian et al., 2016). The expenses of workplace accidents on both employers and workers were studied by Yang et al. (2019) and Hrymak and Pérezgonzález (2007). In order to keep workplace accidents to a bare minimum, it has been emphasized that both employers and workers must ensure safe work practices (Geldart et al., 2010; Hamid et al., 2015; Hrymak & Pérezgonzález, 2007). Reduced downtime and total incident costs are only a few of the advantages that come with effective safety management in a business (Knapp & Franses, 2009; Udo et al., 2016). Increased workplace mishaps have been linked to subpar safety management system implementation, risky actions and behaviors, non-compliance, and a variety of other variables. Employee complacency and disregard for safety protocols have been identified as accident-causing factors in the manufacturing industry.

These tragedies may have been avoided by integrating employees in safety management and making plans for an injury-free workplace. Human failures, such as human mistakes or non-compliance, have been linked to a number of prior occurrences (Gao et al., 2017; Mathisen & Bergh, 2016). Collaboration on safety concerns between employees and management is still essential to establishing and sustaining safe and healthy workplaces (Geldart et al., 2010). The frequency of these mishaps may be reduced by learning what prevents active worker engagement and by organizing the installation of a safety management system.



## **Statement of the Problem**

Studies that looked at the factors which contributed to serious accidents in several sectors highlighted the importance of training, risky behaviour, risk perception, and compliance (Zakaria et al., 2012; Katsakiori et al., 2010; The Bomel Consortium, 2003). According to Mathisen and Bergh (2016), employee participation seems to be crucial for both individual well-being and preventing non-compliance. The importance of engaged employee engagement cannot be overstated for this reason. Bell and Healey (2006) emphasized planning and safety culture as organizational level accident causing elements.

When employees lack the training necessary to do their tasks correctly, the likelihood of mistakes occurring increases. Even a little error in the industrial sector might result in a major accident. Given the importance attached to them, training and competence enhancement have been regarded as critical areas for avoiding workplace mishaps. Workers in operations should be permitted to routinely take part in safety trainings and workshops so they may become more knowledgeable about the safety measures related to their occupations (Ayodele & Olubayo-Fatiregun, 2013). Therefore, it is crucial to address training difficulties in order to reduce workplace mishaps.

While it is well acknowledged that employee involvement in safety and health has a positive impact, there is currently a dearth of reliable research that assesses its effect on health and safety performance. Few studies have been conducted to evaluate the efficiency of the various types of worker engagement in safety and health that have been identified in the literature. Health and safety committees are the only focus of the majority of studies that have examined the efficacy of employees' involvement in safety methods, with little attention paid to other types of strategies.

## **Aim and Objectives of the Study**

This study aims to examine the extent of workers' participation and planning for an injury free workplace across manufacturing companies in Niger Delta.

The key objectives of the study are to:

1. Identify the approach to worker engagement in safety concerns across manufacturing companies in Niger Delta.
2. Determine the frequency of workplace injury across manufacturing companies in Niger Delta.
3. Examine the barriers to effective workers' participation in SMS implementation across manufacturing companies in Niger Delta.



## Research Questions/Hypothesis

This study will focus on addressing the following questions in order to fulfill the aim and objectives of the research:

1. What is the approach to worker engagement in safety concerns across manufacturing companies in Niger Delta?
2. What is the frequency of workplace injury across manufacturing companies in Niger Delta?
3. What are the barriers to effective workers' participation in SMS implementation across manufacturing companies in Niger Delta?

## Hypotheses

This research postulates the following hypotheses:

### Null Hypothesis ( $H_{01}$ ):

$H_{01}$  = There is no significant relationship between workers' participation and safety performance.

### Alternate Hypothesis ( $H_{A1}$ ):

$H_{A1}$  = There is a significant relationship between workers' participation and safety performance.

## LITERATURE REVIEW

### The Concept and Components of Safety Management System (SMS)

It is crucial to remember that the word "system" was novel to the current health and safety program and had a significant impact on it (Chisholm, 1987; Haight et al., 2014). The Bhopal tragedy of 1984 was seen by the current health, safety, and management system (HSMS) in the middle of the 1980s, which acted as a stimulus for risk prevention strategy in the process industries. Lack of consideration given to plant and process design, poor plant maintenance culture, disregard for training, and lack of emergency preparedness were all highlighted as the primary causes of safety hazards (Kletz, 1985). The Bhopal catastrophe brought performance measurement and system development to the forefront for safety specialists and line managers (Sweeney, 1992).

A system is an organized set of interconnected processes and activities that execute and assist the execution of a crucial task in an organization (Baek et al., 2008). A management system is a set of procedures, rules, and processes that an organization uses to accomplish its goals (Geller, 2001). The phrase "safety management system" is used when there are dangers associated with the project. A safety management system (SMS) is a methodical technique designed to lower the rate at which incidents and accidents occur with the aim of enhancing safety (Ghobakhloo, 2018). SMS is specifically described as a set of predetermined structures, inputs, and procedures that collaborate to enhance workplace safety (HSE, 2004). The SMS goes beyond reactive safety



management, which is helpful when addressing odd occurrences or technological failures, and identifies dangers before they occur and potentially reduces the likelihood of incidents.

### **Introduction to Workplace Safety**

A worker is engaged in a work-related accident every seven seconds, according to the National Safety Council (2018), losing 104 million production days. Researchers have studied workplace safety since 1933 (Hofmann et al., 2017; Probst, 2015). President Nixon signed the OSHA Act in 1970 to guarantee safety awareness and wholesome working circumstances for both men and women (Bohme, 2015). The U.S. federal government formed OSHA in order to create, carry out, and maintain an effective program for obtaining, compiling, and researching OSHA data related to workplace safety (Drudi, 2015). The National Institute for Occupational Safety and Health was founded by OSHA in 2018 to do research on worker health and safety and accident management (Hofmann et al., 2017). The OSHA Act of 1970 was created to encourage research, information, education, and training in the area of occupational safety and health (Lewis, 2016).

The strongest predictor of workplace accidents was high levels of uncertainty (Wei et al., 2015). According to Reason (2016), an employee would remain with a firm if they could prevent costly errors and reduce the likelihood of workplace accidents. Jehanzeb et al. (2015) found that an employee's connections with the business, their boss, and their colleagues all had an impact on their level of job satisfaction. Wiengarten and Longoni (2018) discovered that uncertainty and accident-prone personalities were important predictors in their investigation of employee workplace mishaps. According to Cabral et al. (2016), managers may use a management tool called a safety checklist to build a safety culture, decrease human error, and increase employee communication. Several research suggest using existing safety practice methods to improve the safety culture (Cabral et al., 2016). Improved understanding of the relevance of workplace safety as well as possible remedies was the aim of the study of Wei et al. (2015). Paradis et al. (2016) claim that despite several organizational managers making modifications to workplace safety, the number of safety incidents continued to climb. According to Shuen and Wahab (2016), 88% of accidents were directly attributed to dangerous human behavior, 10% to an unsafe physical environment, and 2% to human mistake.

### **Worker Safety in Commercial, Industrial, and Educational Settings**

All companies were expected to ensure work environments free of known hazards that might cause substantial bodily harm or even death under the Occupational Safety and Health Act of 1970 (U.S. Department of Labor, 2003). The U.S. Department of Labor's OSHA recommended a safety and health program for small enterprises in 1989. It comprises four essential program elements that are best practices in injury reduction: workplace analysis, management leadership and employee participation, hazard prevention and control, and training. On top of the historical model, further safety models were constructed.

A safety strategy for avoiding and reducing occupational injuries was presented by NIOSH (2004a). The components guarantee management support, employee and student participation, possible risk detection and prioritization, hazard removal, and employee, management, and student training.





Kolak, a president of Praxis Corporation and an electrical engineer, presented a seven-part framework for the construction of an effective electrical safety plan (ESP) for the electrical sector in 2007. The characteristics of each element's safety system features are influenced by a number of different factors. Using documented, task-specific activities to quantify each component and assign them to a numerical score is one way to assess a safety system. The weights and rankings of the criteria are determined by their relative importance.

### **Problems with Creating and Putting in Place the Best Workplace Safety System**

The models and characteristics of best safety practices in business and industry may be used to identify issues that workplace directors may run into while developing and implementing the best workplace safety system in public school programs. Potential barriers include management commitment, management safety protocols, human resources, education and training, facilities and equipment, the environment and engineering, and financial considerations. Although a safety system's component pieces may function separately from one another, it is the system as a whole that successfully lowers workplace injuries (NIOSH, 2004a; Ohio BWC, 2005; U.S. Department of Labor, OSHA, 1989).

### **Management's Commitment**

Conflicting workplace agendas may result from a lack of agreement among the board members, public taxpayers, and administrators. Due to conflicting demands, worker safety gets less attention. In terms of time and money, worker safety may not get as much consideration as other workplace goals (Ohio BWC, 2005). Workplaces are able to provide staff with a safe, crime- and violence-free atmosphere for learning. Since the horrific events in Columbine, CO; Jonesboro, AR; and Nickel Mines, PA, national media have focused on the need for worker safety (Neubert, 2003).

It becomes challenging to achieve zero injuries when managers set goals that account for accidents and assume that a certain number of accidents would occur. A effective safety system's worst adversary is the subliminal message that injuries are acceptable up to a certain number (Nelson, 1998). Managers can set an example for their staff by modeling and promoting safe practices in the department through safety training, communication, and audits; showing concern when an employee is hurt; speedily investigating accidents; and insisting on adjustments to the workplace that result in a safer working environment (NIOSH, 2004a).

### **Environment and Engineering**

Institutions with limited funds, like schools, are susceptible to incentives that enable a backlog of unfinished maintenance to grow (Haynes & Beck, 2005). To ensure the health and safety of their pupils, administrators at School 32 may budget money to upgrade the environment in outdated facilities (National Center for Education Statistics, 2003). Poor indoor air quality and contaminated drinking water from aged plumbing are examples of environmental factors (Minnesota Department of Health, 2006). According to the US Environmental Protection Agency, inhaling polluted air might have negative effects on one's health (2000). The number of days lost from work due to the flu, the cold, and other infectious diseases are caused by airborne viral transmission increases. Good interior air quality requires an equal balance of temperature, humidity, and fresh air



exchanges. Because there are so many employees using scented soaps, shampoos, deodorants, cosmetics, and powders, there is a need for fresh air.

There should be considerations for human engineering in terms of lighting, temperature, humidity, working height, enough space, and noise control (Bean, 2004). Working environments may be noisy due to loud engines, dishwashers, ventilation systems, as well as the sounds made by mixers, grinders, disposers, and items touching stainless steel surfaces. Noise causes hearing loss, tight muscles, a rise in heart rate and blood pressure, as well as the production of the hormones: norepinephrine and adrenalin. These problems may include feelings of helplessness, distractibility, and a reduced ability to apply what has been taught (Camp Dresser & McKee, 2001). Long-term exposure to noise may damage coping mechanisms, have a detrimental effect on the cardiovascular system, and have a negative effect on the immune system, according to Evans et al. (1998).

### **Factors Improving Workplace Safety**

Workplace health and safety is a significant factor in work-related accidents and deaths in high-risk sectors, according to Okun et al. (2016). The actions managers take to prevent work-related accidents and health hazards are referred to as workplace safety and health, according to Hofmann et al. (2017). "Workplace health and safety" refers to reducing employee occupational hazard exposure to additional risk, hazard exposure, and hazard mitigation resources related to workplace injuries (Lay et al., 2017). Reducing the risk factors for workplace accidents is the primary objective of workplace safety for firms (Hofmann et al., 2017; Lay et al., 2017; Taylor, 2015). The use of SMSM to improve workplace safety policies and procedures may be advantageous to organizational resources.

Taylor (2015) pointed out that there are still certain places inside an organization where workers' safety may be improved. The precise parts of qualities increasing workplace safety in various businesses, such as what causes workplace accidents, were examined by Kaynak et al. (2016). Menger et al. (2016) stressed the urgent need for safety training for organizational managers who are dealing with a greater incidence of illnesses and injuries, in order to promote safe work practices among their personnel. Menger et al. (2016) found specific strategies for successfully changing employees' health and safety training. Only a few of the particular methods include: comprehending the workforce, developing safety training materials and methods, boosting employee involvement, and assessing the effectiveness of the safety training (Menger et al., 2016).

### **Health and Safety Conditions in Nigeria's Manufacturing Sector**

According to Okeola (2009), who Dodo (2014) cited, health and safety in manufacturing is all about precaution and establishing a pleasant working environment. Nigeria's manufacturing sector employs a considerable number of people, much like other manufacturing sectors throughout the globe. As a result, a sizable share of the working population is employed by the sector. According to multiple studies, manufacturing is unquestionably the most dangerous industry due to its history of frequent mishaps (Edwards & Nicholas, 2002; Mehta & Theodore, 2006; Health and Safety Executive, 2002; Olutuase, 2014; Udo et al., 2016). The situation is substantially worse in developing countries like Nigeria compared to the developed world (Idoro, 2004; 2007; 2008; Udo et al., 2016). The reasons of this include a lack of care, incorrect use of health and safety



management methods or procedures, erroneous records, and a lack of legislative health and safety laws in the implementation of manufacturing project delivery (Idoro, 2004; 2007; 2008; Belel & Mahmud, 2012). According to Oluase (2014), injury and accident rates are "considerably much higher than in Europe, the United States, and Australia in many developing nations like Nigeria since there are no rules that help to direct its operations." The author's perspective is solely supported by this assertion. Due to the lack of concern among clients, consultants, and contractors for workplace health and safety when rules are in existence, compliance is almost nonexistent.

## **Theoretical Framework**

### **Economic Growth Theory**

Any given country determined for economic advancement relies on economic growth theory, which encourages the flourishing of the manufacturing sector of the economy. In modern terms, manufacturing companies hold safety practices as part of their management system and policy for the overall good and competitiveness of their business. In its most advanced stage, such safety practices in the workplace is driven by safety management system theory incorporated with hazard theory.

Nations like Germany, the USA and Russia experience healthy structural change, sustainable economic development, long life span, and job creation (Herman et al., 2020) as developed nations with new challenges such as reduced production timescale, resource-efficient production, integration into global value chains and how to deal with jobless growth in manufacturing (Naude & Szirmai, 2012). According to Kaldor Law, the manufacturing sector represents the engine room for economic growth and development for developing countries like Nigeria (Jeon, 2006). However, Nigeria for lack of leadership has failed in this area, thereby relying majorly on oil exportation to its worst point where it imports refined crude products (Kuo et al., 2009). Delta State, as one of the oil producing States, relies also on revenue from oil, leaving behind few manufacturing firms. One unique observation in these firms is that they place no premium on occupational health and safety policies, thereby recording work-related accidents above global average (Micheal et al., 2019) with scanty literature evidence.

### **Review of Empirical Studies**

Mensah and Julian (2011) identified customer, internal procedures and product quality as factors that influences the implementation of SMS in the food manufacturing firms. In the same study, they confirmed infrastructural, financial and people-related factors as top challenges to SMS implementation. These top most challenges, according to them, can be overcome through implementations of interventions that increases workforce competence, alteration of existing culture, improved communication to food safety requirements and investment in equipment and software packages for the management of food safety, standard operating procedures and procedure consistency. These factors can play significant roles in varying degrees in influencing implementation of safety management system.





Ojokuku and Sajuyigbe (2014), studied the Effect of Employee Participation in Decision Making on Performance of Selected Small and Medium Scale Enterprises. Their study revealed that employee participation in decision making has a high influence on the impact of organizational performance of the SMEs.

Abdulrahman (2016) examined the influence of employee participation in decision-making on firm performance in Saudi Arabia's manufacturing sector. The author found that a significant positive relationship exists between Participative Decision Making (PDM) and firm performance, thus suggesting that PDM is an essential component influencing firm performance.

Umoh and Torbira (2010) carried out research on Safety Practices and the Productivity of Employees in Manufacturing Firms: Evidence from Nigeria, and made the finding that there is a significant relationship between the provision of adequate safety equipment and the work input of employees. It was also noted that there is a significant relationship between legal institutional safety policies and the production outputs of employees as well as a significant relationship between employer's compliance to safety rules and man hours put in by employees in the production process.

Nwaogazie and Ugbebor (2018) researched on Effects of Safety Intervention Practices among Selected Sawmill Workers in Sawmills in Delta State, Nigeria. This was a comprehensive data and evidence-based report which showed that the conclusion drawn from this study includes the resultant grand means of the pre-intervention assessment, and that of the post-intervention revealed that there was a notable high positive improvement (2.41, 3.18 and 3.35 out of 4 for Sapele, Warri and Udu) on the attitude of the respondents towards the presence of occupational hazards. Also, a significant positive increase (2.44, 3.12 and 3.31 out of 4 for Sapele, Warri and Udu) for safety practices was recorded with respect to the safety education/training intervention. Furthermore, there was an increase in skills as related to occupational safety (2.60, 3.37 and 3.40 out of 4 for Sapele, Warri and Udu) comparing the pre intervention data with the post intervention. The resultant regression revealed that there is a significant positive impact of the safety education intervention on safety practice (P) which in turn reflects on the attitude (A) of the respondents towards occupational hazards.

Bodah et al. (2008) argued that employee involvement practices are implemented as a means to subvert unionism and increase workloads rather than to benefit employees. Aduh et al. (2016) researched on Occupational Health and Safety Management Systems in Small and Medium Enterprises in Asaba, Delta State, Nigeria. Their findings led to a conclusion that there were gaps in the implementation of occupational health and safety services in majority of the enterprises with OHS-MS significantly better developed in medium enterprises. SMEDAN should ensure SMEs implement improved occupational health services, capacity building among employees on occupational health and safety management system and also, further studies on the subject matter are recommended.



## METHODOLOGY

In this work, a descriptive research approach was used. The research area is Nigeria's Niger Delta. More than 70,000 km<sup>2</sup> is covered by the Niger Delta region. The study's target audience was primarily the employees of the Niger Delta's chosen industrial enterprises. Nine (9) manufacturing firms—one from each of the Niger Delta's states, Akwa Ibom, Bayelsa, Delta, Edo, Cross River, Imo, Rivers, and Ondo—were selected for the research. By using the Taro Yamane formula, the sample size of 325 employees was utilized for the study. Quantitative and qualitative data were gathered from the respondents for this study. Data source for this study was mainly the primary source and other sources were secondary. Primary data source comprised information gathered directly from respondents using questionnaires. The questionnaire for this study which is the primary source of data was subjected to content validity by the supervisors of this study and occupational health and safety experts. Descriptive and inferential statistical methods were also employed for data analysis. Frequency distribution, percentage, mean and standard deviation were used to respond to the research questions, while Pearson's Product Moment Correlation coefficient was used to test the hypotheses.

## RESULTS AND DISCUSSION ON FINDINGS

**Research Question 1: What is the approach to worker engagement in safety concerns across manufacturing companies in Niger Delta?**

**Table 1: Organization Approach to Workers Engagement in Safety Concerns**

S/ N	Organization approach to workers engagement in safety concerns?	SD F (%)	D F (%)	A F (%)	SA F (%)	$\bar{X}$	SD
1	My organization encourages me to contribute ideas for improving health and safety standards	13(4.2)	26(8.3)	187(59.7)	87(27.8)	3.11	0.72
2	I am consulted about and involved in the drafting of instructions, procedures and policies	87(27.8)	150(47.9)	50(16.0)	26(8.3)	2.05	0.88
3	My organization encourages me to participate in safety programs and I feel comfortable participating in them.	0(0.0)	26(8.3)	113(36.1)	174(55.6)	3.47	0.65
4	I have been assigned responsibilities in or involved in all aspects of the safety management system	0(0.0)	98(31.3)	127(40.6)	88(28.1)	2.97	0.77



5	I can participate in safety activities without experiencing language, skill, or education barriers	0(0.0)	75(24.0)	178(56.9)	60(19.2)	2.95	0.66
6	I can participate in safety activities without fear of reprisal or discrimination	0(0.0)	77(24.6)	160(51.1)	76(24.3)	3.0	0.70
7	I am involved in safety management system review activities.	13(4.2)	96(30.7)	153(48.9)	51(16.3)	2.77	0.77
<b>Mean</b>						<b>2.90</b>	<b>0.74</b>

Table 1 shows the mean response on the approach of organizations to worker engagement in safety concerns across manufacturing companies in Niger Delta. The result shows that strongly agreed that their organizations followed the enumerated approach to workers' engagement in safety concerns as the overall average =  $2.90 \pm .74$  was greater than the criterion mean = 2.5. The highest response derived showed that the respondents agreed that: My organization encourages me to participate in safety programs and I feel comfortable participating in them. ( $\bar{X} = 3.47 \pm 0.65$ ), followed by My organization encourages me to contribute ideas for improving health and safety standards ( $\bar{X} = 3.11 \pm .72$ ), I can participate in safety activities without fear of reprisal or discrimination ( $\bar{X} = 3.0 \pm .70$ ), I have been assigned responsibilities in or involved in all aspects of the safety management system ( $\bar{X} = 2.97 \pm .77$ ), I can participate in safety activities without experiencing language, skill, or education barriers ( $\bar{X} = 2.95 \pm .66$ ), and I am involved in safety management system review activities ( $\bar{X} = 2.77 \pm .77$ ).

### Research Question 2: What is the frequency of workplace injury across manufacturing companies in Niger Delta?

**Table 2: Frequency of Workplace Injury**

S/N	ITEMS	Frequency	Percentage
1	Have you sustained injury while at work within the past 12 months?		
	Yes	138	44.1
	No	175	55.9
	Total	313	100
2	If yes, what type of injury was it?		
	Abrasion	0	0.0
	Cut	113	81.9
	Dislocation	0	0.0
	Puncture	12	8.7
	Burn	0	0.0
	Fracture	13	9.4



<b>3</b>	<b>What caused the injury?</b>	<b>Frequency</b>	<b>Percentage</b>
	Fire	0	0.0
	Machinery	39	28.3
	Falling object	26	18.8
	Lifting heavy object	13	9.4
	Chemical	11	8.0
	Collision with object	49	35.5
<b>4</b>	<b>What part of your body did you sustain injury?</b>	<b>Frequency</b>	<b>Percentage</b>
	Head	11	8.0
	Upper Limb	51	37.0
	Lower Limb	63	45.7
	Trunk	13	9.4
<b>5</b>	<b>After sustaining the injury, did you receive medical attention?</b>	<b>Frequency</b>	<b>Percentage</b>
	Yes	138	100.0
	No	0	0.0
<b>6</b>	<b>Did you take time-off work because of the injury?</b>	<b>Frequency</b>	<b>Percentage</b>
	Yes	65	47.1
	No	73	52.9

Table 2 shows the responses from workers on the frequency of workplace injury across their respective companies. 138 (44.1%) of the respondents had at one time or the other sustained injury while at work within the past 12 months, while 175 (55.9%) had not. 113 (81.9%) affirmed that they had sustained cuts, 12 (8.7%) had sustained dislocation, while 13 (9.4%) had had a fracture. Also, the respondents agreed that machineries caused 39 (28.3%) of the accidents, falling objects caused 26 (18.8%) of the accidents, lifting heavy objects caused 13 (9.4%) of the accidents, chemicals caused 11 (8.0%) of the accidents, and collision with objects caused 49 (35.5%) of the accidents. Respondents also agreed that 11 (8.0%) of the accidents affected their head, 51 (37.0%) of the accidents affected their upper limb, 63 (45.7%) of the accidents affected their lower limb, and 13 (9.4%) of the accidents affected their trunk. Furthermore, all 138 (100.0%) of the respondents who had sustained injuries over the past 12 months agreed that they were given medical attention following the accidents, and only 63 (47.1%) of them were given time-off because of the injury while 73 (52.9%) were not given.



### Research Question 3: What are the barriers to effective workers' participation in SMS implementation across manufacturing companies in Niger Delta?

**Table 3: Barriers to Effective Workers' Participation in SMS Implementation**

S/ N	ITEMS	SD F (%)	D F (%)	A F (%)	SA F (%)	$\bar{X}$	SD
1	Blaming employees/discrimination is a barrier to effective workers' participation	24(7.7)	39(12.5)	99(31.6)	151(48.2)	3.20	0.94
2	Inadequate feedback on safety concerns hinders workers' participation	0(0.0)	26(8.3)	225(71.9)	62(19.8)	3.12	0.52
3	Poor Organizational culture hinders active workers' participation	13(4.2)	26(8.3)	188(60.1)	86(27.5)	3.11	0.72
4	Poor employee competency level poses a barrier to effective workers' participation	0(0.0)	78(24.9)	161(51.4)	74(23.6)	2.99	0.70
5	Lack of communication is a barrier to effective workers' participation	13(4.2)	13(4.2)	188(60.1)	99(31.6)	3.19	0.70
6	Poor Leadership hinders effective workers' participation	50(16.0)	13(4.2)	162(51.8)	88(28.1)	2.92	0.98
7	Literacy/Language barrier is an obstacle to workers' participation	39(12.5)	88(28.1)	173(55.3)	13(4.2)	2.51	0.76
	<b>Mean</b>					<b>3.01</b>	<b>0.76</b>

Table 3 shows the mean response on the barriers to effective workers' participation in SMS implementation across manufacturing companies in Niger Delta. The result shows that the respondents agreed that the enumerated factors were barriers to effective workers' participation in SMS implementation across manufacturing companies as the overall average =  $3.01 \pm 0.76$  was greater than the criterion mean = 2.5. The highest response derived showed that the respondents agreed that, Blaming employees/discrimination is a barrier to effective workers' participation ( $\bar{X} = 3.20 \pm 0.94$ ), followed by Lack of communication is a barrier to effective workers' participation ( $\bar{X} = 3.19 \pm 0.70$ ), Inadequate feedback on safety concerns hinders workers' participation ( $\bar{X} = 3.12 \pm 0.52$ ), Poor organizational culture hinders active workers' participation ( $\bar{X} = 3.11 \pm 0.72$ ), Poor employee competency level poses a barrier to effective workers' participation ( $\bar{X} = 2.99 \pm 0.70$ ),





Poor leadership hinders effective workers' participation ( $\bar{X} = 2.92 \pm .98$ ), and Literacy/Language barrier is an obstacle to workers' participation ( $\bar{X} = 2.51 \pm .76$ ).

### Test of Hypotheses

**Hypothesis 1-H<sub>01</sub>:** There is no significant relationship between workers' participation and safety performance.

**H<sub>A1</sub>:** There is a significant relationship between workers' participation and safety performance.

**Table 4: Relationship between Workers' Participation and Safety Performance**

Correlations		Workers Participation	Safety Performance	Decision
<b>Workers' Participation</b>	Pearson Correlation	1	.908	Rejected
	Sig. (2-tailed)		.000	
	N	313	313	
<b>Safety Performance</b>	Pearson Correlation	.908	1	
	Sig. (2-tailed)	.000		
	N	313	313	

\*S= Significant  $p < 0.05$

A very significant positive association between worker engagement and safety performance was found in the statistical testing of hypothesis one, as illustrated in Table 4.15, as shown by the correlation coefficient value of  $r = 0.908$  (90.8%). Additionally, the alternative hypothesis that there is a significant association between workers' involvement and safety performance was supported [( $P = .000$ )  $p = 0.05$ ] while the null hypothesis that there is no significant relationship between workers' participation and safety performance was rejected.

### DISCUSSION OF FINDINGS

The results of this study demonstrated that manufacturing companies in the Niger Delta consistently used the following methods when consulting about safety issues: informal discussions, memos/letters, safety committees, emails/newsletters, toolbox/staff meetings, noticeboards, and safety inspections. The survey also showed that company personnel take part in Toolbox/HSE meetings, Hazard Identification, Risk Assessment, and Hazard Reporting, Site Inspections, Housekeeping, Emergency Drills, Safety Campaigns, Trainings, Incident Investigations, and Safety Audits. The study also showed that manufacturing companies involve their employees in safety concerns by giving them opportunities to submit suggestions for raising health and safety standards; encouraging them to take part in safety programs; giving them roles in or involvement in all facets of the safety management system; allowing them to engage in safety



activities without facing obstacles related to their language, education, or skills; and allowing them to do so without fear of retaliation. The study by Simao et al. (2021) reviewed workplace health and safety consultation in Australia to identify key themes and derive a general consultation framework used by Australian businesses. The study found that participants, structure, channels, and quality/effectiveness moderators were the four main themes, and these findings are consistent with that study.

This research examined the level of worker involvement and preparation for an injury-free workplace across Niger Delta industrial firms. The study was led by six research questions, and two hypotheses were assessed at a significance level of 0.05. The study's results will alert the public to the seriousness of workplace mishaps and the potential benefits of employee involvement and preparation in reducing them. More specifically, the results of this research will help people and organizations looking for efficient ways to increase employee engagement by providing a concise presentation on these engagement strategies across manufacturing companies and providing them with insights on strategies that are more suitable and advantageous for them. Long-standing manufacturers may also reassess their current employee engagement practices in light of the findings of this research. The results of this research will contribute to future understanding of safety management systems. Additionally, the research evaluation will encourage fresh viewpoints that might result in a more thorough investigation of the workers' engagement and planning components of the safety management system. This research underlines the need of actively involving workers in managing safety and developing safety plans in the industrial sector.

## CONCLUSION

The study unequivocally established that poor organizational culture, low employee competency levels, lack of communication, ineffective leadership, and literacy/language barriers were the main obstacles to effective worker participation in SMS implementation across Niger Delta manufacturing companies. The research also found that planning had a significant influence on accident prevention in Niger Delta industrial enterprises and that employees' engagement had a significant impact on safety performance across those organizations.

Additionally, it was determined that, according to the research, there is a substantial association between planning and safety performance as well as a significant relationship between worker engagement and safety performance.

## RECOMMENDATIONS

In light of the aforementioned findings and conclusions, the research called for the following suggestions that can deal with the adoption of active worker engagement and safety planning in manufacturing organizations. Here are a few examples:

1. To help workers make safety and health a central part of their operations, businesses should strongly advocate the adoption of their safety culture.



2. To create a workplace free of injuries, managers in manufacturing enterprises should promote active employee participation in the development of the organization's safety management system.
3. Management of manufacturing firms should create efficient safety management policies, cultures, and procedures, and make sure that staff members are properly supervised to apply them.

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