UNIVERSITY OF CAPE COAST

SAFETY CULTURE, EMPLOYEE WELL-BEING AND ENGAGEMENT IN THE OIL MARKETING COMPANIES IN GHANA.

DOROTHY AMFO-ANTIRI

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BY

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Thesis submitted to the Department of Human Resource Management, School of Business, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Doctor of Philosophy degree in Business Administration

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

Candidate's Signature: …… Date: ……

Candidate's Name: Dorothy Amfo-Antiri

Supervisors' Declaration

We hereby declare that the preparation and presentation of this thesis was supervised in accordance with the guidelines and supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature……. Date: ……

Name: Prof. Ishmael Mensah

Co-Supervisor's Signature……. Date: ……

Name: Prof. Nichodemus Osei Owusu

ABSTRACT

Weak safety culture has been identified as a common cause of many accidents in the oil marketing sector. This study examined the mediating role employee well-being on the relationship between safety culture and employee engagement in the oil marketing sector in Ghana. A mixed method approach and an explanatory research design were adopted for the study. Quantitative data was collected from 372 employees of the top three oil marketing companies in Ghana using questionnaires and analysed using partial least squares structural equations modelling (PLS-SEM). The qualitative data was collected using a semi-structured interview guide from six managers and analysed using Hyper RESEARCH 4.5.3 software. The results from the study showed that safety culture was high among the sampled employees, even though the behavioural dimension of safety culture was low. Also, the employees exhibited high levels of psychological well-being but physical well-being on the other hand was low. Again, the results suggested that employee engagement was high among the sampled employees. The qualitative analyses also corroborated the descriptive results for the first three objectives. The SEM results revealed that safety culture is positively related to employee well-being (both physical and psychological well-being) and employee engagement while employee well-being is also a positive predictor of the level of employee engagement in the sector. The dimensions of employee well-being were also found to partially mediate the relationship between safety culture and employee engagement. Consequently, it is recommended that continuous awareness creation about safety culture practices in the OMCs should be intensified while seeking to promote the well-being of employees and their engagement in the oil marketing sector.

KEY WORDS

Employee Engagement

Employee Well-being

Oil Marketing Companies

Physical Well-being

Psychological Well-being

Safety Culture

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DEDICATION

To my Dearest husband, Elder George Amfo-Antiri for his unending support and massive prayers for me.

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LIST OF ABBREVIATIONS

ABC	Antecedents, Behaviour, Consequences
ACSNI	Advisory Committee on the Safety of Nuclear Installation
AMOS	Analysis of Moment Structures
ANN	Artificial Neural Networks
ANOVA	Analysis of Variance
ANU	Australian National University
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CIS	Career Information Systems
EFA	Exploratory Factor Analysis
EWB	Emotional Well-being
FDEA	Fuzzy Data Envelopment Analysis
GSS	Ghana Statistical Service
HR	Human Resource
HSC	Health and Safety Commission
HTMT	Heterotrait Monotrait
IAEA	International Atomic Energy Agency
ILO	International Labour Organisation
INSAG	International Nuclear Safety Advisory Group
JD-R	Job Demand-Resource
KMO	Kaiser–Meyer-Olkin
MBI	Maslach Burnout Inventory
MMR	Mixed Method Approach
OHS	Occupational Health and Safety
OHSM	Occupational Health and Safety Management

OMC	Oil Marketing Companies
PLS	Patrial Least Square
PWB	Psychological Well-being
SDG	Sustainable Development Goals
SDT	Self-Determination Theory
SEM	Structural Equation Modelling
SMEs	Small and Medium Enterprises
SMS	Safety Management System
SPSS	Statistical Package for the Social Sciences
SWB	Subjective Well-being
UWES	Utrecht Work Engagement Scale
VIF	Variance Inflation Factor
WBW	Well-being at Work
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

Organisational accidents are a major concern to management due to their impacts on humans and the environment. The International Labour Organisation [ILO] (2016) indicates that at a global level, 340 million employees are victims of workplace accidents every year. Many initiatives have been taken and rules and regulations have been enacted to curb these accidents but accidents in organisations are still on the rise. As a result, there is a call for focusing on safety culture implementation (Hughes et. al., 2016). In this regard, the oil and gas companies are confronted with many challenges such as, fatality prevention, high turnover and maintaining a focus on safety management. The key to responding to these challenges is to approach safety systematically through engaged employees at what they do to prevent accident.

The Ghanaian oil marketing sector records accidents that are catastrophic and demand that a practical solution is offered to control these accidents. As a result, this study explores safety culture, employee well-being and employee engagement in the oil marketing companies in Ghana. The study employees the ABC theory of safety and the job demand -resource theory to assess the relationship between these variables. The study contributes to workplace safety management by focusing on the effect of well-being on the relationship between safety culture and employee engagement to mitigate and prevent the occurrence of accident and the high turnover in the oil marketing sector.

Background to the Study

Workplace safety has become an important element of human resource management in business organisations (Agwu, 2012). Biggs et al. (2013) attributed this to the huge debilitating impact of workplace-related injuries and impairments on both businesses and employees. According to Kahya (2007), unsafe work environment (including the use of old and weak machinery, chemical exposures, excessive noise at the workplace, etc.) causes serious health issues and affect the well-being of workers. These negative influences of a poor work environment on employees' well-being can affect their level of engagement and organizational performance. The ILO (2020) estimates that the overall annual rate of occupational accidents across the globe is estimated at 340 million. Out of this number, two million are fatal accidents.

The Workplace Safety and Health Institute (2017) further reports that about 160 million workers suffer from work-related diseases globally, and about two-thirds of them stay away from work for four working days or longer. Accordingly, the Workplace Safety and Health Institute (2017) suggests that there is a need for the institutionalisation of safety culture to improve the well-being of employees and reduce the high rate of accidents and other related fatalities. Once safety culture is institutionalized, it is likely to contribute to employee engagement (Collier et al., 2016; Saks, & Gruman, 2011).

According to Ishola (2017), safety culture is central to the total improvement of the working conditions of employees and any individual or groups of individuals associated with the work environment. It aims at enhancing a positive workplace environment, protecting, preserving, and

promoting the health and safety of employees and ensuring their well-being and engagement. The development of organisational safety culture has, therefore, become imperative to the effective operationalisation of the human resource management function in corporate institutions (Saad, 2016). Sorensen et al. (2019) indicated that human resource managers now have an additional responsibility to develop safety standards to identify and mitigate occupational hazards, reduce risk behaviours, and ensure that employees feel safe in their working environment.

The Sustainable Development Goal (SDG) 8 on decent work and economic growth also acknowledges the importance of safety culture in an organisational setting to prevent accidents and injuries. Thus, target eight under the SDG indicates the need to protect the rights of employees, and promote a safe and secure working environments for all workers. As part of the measures to ensure the seamless incorporation of safety culture into organisational processes, the ILO and World Health Organisation (WHO) have developed safety standards, frameworks and regulations to guide corporate institutions. A joint session between the ILO and WHO on occupational health and safety stated that:

> "occupational health and safety should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from work caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; and the placing and maintenance of workers in an occupational environment adapted to

> their physiological and psychological capabilities and, to summarise: the adaptation of work to people and each of them to their jobs" (Guldenmund, 2010).

Safety culture therefore ensures a safe work environment, making employees comfortable coming to work and doing their job, knowing that they will be able to return home to their family and loved ones at the end of the day (Gyensare, Anku-Tsede, Boakye & Twumasi, 2018).

According to Guest (2017), a safe work environment ensures employee well-being. Gao et al., (2010) also indicate that employee well-being relates to all aspects of working life, from the quality and safety of the physical environment, the climate at work and work organization. Well-being is essentially how someone feels about various aspects of their life, home life, health, relationships with others, job and other activities. It is about whether they feel well, happy and satisfied. In ensuring employee well-being, safety culture creates a shared view of safety throughout the organization that will help to prevent accidents, illnesses, and injuries. The aim of workplace well-being is to complement safety culture measures to ensure that workers are safe, healthy, satisfied and engaged at work (Van Den Broeck et al., 2010).

Bisbey et al. (2021) stated that a good safety culture is believed to positively impact an organisation's quality, reliability, competitiveness and profitability. To make or maintain their companies' profitability, HR managers of such companies must engage employees (Kortmann et al., 2014). According to Rich et al. (2010), employee engagement occurs naturally when human resource managers are inspiring. This suggests that

HR managers who ensure safety compliance and participation are more likely to have their employees conform to safety policies and procedures at the workplace and thereby get them engaged. Eljaaidi (2016) opines that employees who are healthy and feel safe at work are those who can fully invest their capabilities and potentials in their work.

Hence, to have engaged employees, HR managers must promote a safety culture, and the well-being of employees. Companies where employees are engaged record reduced absenteeism, fewer accidents, and increased productivity, and, in turn, are more profitable (Armstrong, 2012; Siddiqi, 2015; Wagner & Harter, 2006). According to Osborne and Hammond (2017), engagement scores show that people who feel part of a solidly committed team are routinely safer, better with customers, less likely to quit, and more productive. When workers feel more secure about their employment, there is a higher level of trust and commitment. However, Gyensare et al. (2018) asserts that in organisations where there is poor safety culture, employees are more likely to judge the costs of working with the enterprise as exceeding the costs of quitting, resulting in higher turnover rates. Increased turnover often causes management to have an inexperienced and under-trained workforce, resulting in an increase in safety incidents (Moletsane et al., 2019).

Safety culture influences employee well-being by creating a work environment that ensures that employees have a degree of control over their work, clarity about their responsibilities, variety of task and working hours that give flexibility (Guest, 2017). These factors will lead to improvement in employee well-being within the organization. With this, employees will be

provided with the requisite resources needed to deal with the demand of the job such as complex task, ambiguous responsibilities among others. This is in line with the Job Demands–Resources theory (Bakker & Demerouti, 2017; Bakker & Demerouti, 2018; Demerouti et al., 2001) which proposes that all job characteristics can be classified into two namely job demands and job resources. Job demands are the aspects of work that evoke strain on the employee when they exceed their capabilities, like workload, complex tasks, and conflicts (LePine, Podsakoff & LePine, 2005).

Job resources on the other hand are the aspects of work that help employees to deal with job demands and achieve their goals (Bakker & Demerouti, 2018). For example, performance feedback, social support and skill variety are motivating job characteristics that provide meaning to employees, and satisfy employees' basic psychological needs, namely the needs for competence, relatedness, and autonomy (Deci & Ryan, 1985). Thus, employees' satisfaction about the level of autonomy, competence and relatedness associated with their jobs largely determine their well-being. In this regard, the job demands captures the physical aspects of employee well-being while the job resources encapsulate the psychological aspects of employee well-being.

Saad (2016) indicated that employees must adhere to the principles of positive safety culture, create good working relations with one another, and support management in the effective management of occupational hazards and risks. This is in line with the ABC theory of safety which indicates that employee attitude and behaviour constitute some of the greatest determinants of workplace safety. The theory added that conditions in the form of rewards

and punishments must be created by managers to shape the attitudes and behaviours of employees and to promote positive safety culture in corporate institutions (Affandhy & Nilamsari, 2017). The implication is that human resource management practices could be used to either motivate or compel employees to adhere to safety protocols, prevent accidents and get employees engaged.

According to the ILO (2016), the combustible and highly flammable characteristics of petroleum products make safety culture very critical in all sectors of the petroleum industry, including the oil marketing sector. This sector entails the retail distribution of refined petroleum products such as gasoline, diesel oil, jet fuel, liquefied petroleum gas, lubricants, kerosene, asphalt, heating oil, and other types of petrochemicals to industrial and public consumers. Agwu (2012) indicated that the development of safety culture in the oil marketing sector should include proper citing to ensure compatibility with the adjoining land use patterns, installation of fire extinguishers, use of well-conditioned fuel and gas tankers, and employment of skilled and technical personnel to evacuate or discharge fuel from tankers into reservoirs. Additionally, Haridoss (2017) suggested the need to train and educate workers on all the safety protocols to enable them to educate others as well as maintain the facilities to promote safety in the discharge of their duties.

To ensure a positive safety culture and to promote employee well-being in the oil marketing sector in Ghana, the Government of Ghana has established several safety protocols through various regulatory institutions. For instance, to enhance the health and safety of employees and the environment, regulatory frameworks such as the Environmental Protection

Agency Act (490) of 1998, National Petroleum Authority Act (691) of 2005, Petroleum Regulations (LI 2258) of 2017 and other laws have been promulgated. Oil marketing companies have a licensing regime which goes with some safety protocols to enable firms to operate in the sector.

According to Liu et al. (2020), part of these safety protocols has resulted from experiences from past oil and gas explosions in the sector. As a result, oil marketing companies have to be certified by a number of institutions, including the Environmental Protection Agency, Ghana National Fire Service, Building Inspectorates under various District Assemblies, and National Petroleum Authority before licenses could be granted to them to operate. All these institutions are mandated by law to monitor, recommend changes, and apply sanctions to firms to ensure that they fully abide by the safety protocols to protect lives and property. In situations where OMCs continuously flout the regulations, recommendations could be made to suspend or withdraw their operational licenses.

Considering the highly inflammable and explosive attributes of petroleum products, as well as the adverse impact of safety negligence on employee well-being and employee engagement, it becomes important to institute safety culture in the oil marketing companies. Ascertaining the causal relationship between safety culture practices and employee engagement and the mediating influence of employee well-being is an important phenomenon that this study seeks to understand. Understanding this phenomenon would enable Oil Marketing Companies to design safety culture in their organisations to ensure employee well-being which will lead to engagement and subsequently enhance organisational performance.

Thus, the fundamental principle of improving employee engagement through safety cultural practices goes beyond safety culture practices, hence, the hypotheses for this study was built on a conceptual model that proposes employee well-being as a conduit that is likely to improve the influence that safety culture practices may have on employee engagement. It suggests that there are other unexplained variables leading to the motivation of persons to adopt positive safety culture in the phase of increasing vulnerability to threat and low capacity to cope with the aftermath of the occurrence of accidents. This study seeks to assess the effect of safety culture on employee engagement in the oil marketing industry in Ghana and the mediating role of employee well-being.

Statement of the Problem

Safety has become a major concern to many organisations particularly those in hazardous companies. This is due to global tragedies that have resulted from fatal incidents such as the Deepwater Horizon oil spill, the fate of space shuttles Columbia and Challenger, and the epic disaster at Chernobyl. Over 2 million employees die each year because of work-related accidents and illness costing 4% of the world's yearly gross domestic product (ILO, 2016). The impact of these accidents makes it crucial to foster a safe work environment with employees dedicated to safety. The oil marketing industry is an example of such hazardous industry where a lot of accidents take place. Ogbette, Ori, Idam, and Abwage (2018) have indicated that explosions in the oil and gas industry have destroyed many properties and claimed many lives on the African continent. This raises concerns to strengthen safety-related cultures to mitigate the situation.

Ghana also continues to experience oil and gas explosions and other accidents, especially within the oil marketing industry. Between 2015 and 2020, several fire outbreaks and explosions were recorded within the industry. Notable among them was the Atomic Junction explosion in 2017, the June 3rd disaster at Kwame Nkrumah Circle that claimed 150 lives in 2015 (Bakidam-teh, 2018) and the explosion at Kpone fuel tanker yard in 2019. Also, over 100 persons were hospitalised in Sekondi-Takoradi due to a gas explosion on May 9, 2017. Similar incidents occurred in December 23, 2016, at the Trade Fair Centre in Accra, where nine lives were lost and 12 persons sustained various degrees of injuries (Bakidamteh, 2018). Other safety concerns in the sector include oil spillage, robbery at gunpoint, long working hours, lack of decision-making freedom, customer abuse, vehicular accidents, among others (Ansah, 2017).

The oil marketing sector is traditionally characterized by high employee turnover rate largely due to safety concerns, which affects the well-being of workers (Albrecht & Andreetta, 2011). Oil and gas companies incur a high turnover cost from the attrition of specialized employees (Li, Lee, Mitchell, Hom, & Griffeth, 2016). The voluntary departure of specialized employees is a significant challenge in the industry (Ajmal et al., 2022) as there are both direct and indirect costs of employing new employees (Duffield, Roche, Homer, Buchan, & Dimitrelis, 2014). Managers of oil marketing companies spend time training and developing specialized employees, which amount to substantial costs (Li et al., 2016). Replacement costs for high-level or highly specialized employees in the oil and gas sector are as much as 400% of employees' annual salaries (Bose, 2016). Organisational goodwill and customer

loyalty is lost when turnover is high. Moreover, Meshkati and Tabibzadeh (2016) reported that poor safety culture in the oil and gas sector discourages employees from being committed to their organizations processes, which eventually compel them to switch to other sectors for employment.

Even though OMCs provide organisational resources such as safety policies, PPEs, supervision among others, employees still suffer from safety related health conditions, suggesting that the demands of the job exceed the resources provided as per the JDR theory. According to Laal et al. (2017) motivational incentives in the OMCs are usually in the form of punishments. That is, rules, policies and directives that threaten to punish employees for non-compliance rather leads to at risk behaviours and result in accidents (Meshkati & Tabibzadeh, 2016). Again, most of the studies on the safety culture construct are found in offshore oil and gas activities, the mining and construction industry (Alroomi &Mohamed, 2021; Kilaparthi, 2014; Meshkati & Tabibzadeh, 2016; & Saad, 2016). Also, most research work on safety culture are conducted in developed countries like USA and Saudi Arabia (Kaczur, 2017; Kvalheim & Dahl, 2016; & Morees Aziz, 2015).

Furthermore, from the literature review, there is limited empirical studies on the relationships among safety culture, well-being, and employee engagement so far. The proposition that well-being is important in developing sustainable levels of employee engagement also appears to be consistent with theoretical expectations and background research evidence (Robertson & Cooper, 2010). Individuals with higher levels of well-being behave differently in ways that would be expected to lead to higher levels of engagement.

Moreover, previous works conducted on the safety culture construct concentrated on one dimension of the construct (Asamani, 2020; Changwon, 2016; Clarke & Ward, 2006; Curcuruto, 2016; Flin et al., 2000). Again, even if all dimensions are included in the study, data collection concentrate on either quantitative or qualitative approach (Chenhall, 2010; Morees Aziz, 2015; Parker, Lawrie & Hudson, 2015). To assess the safety culture of an organisation, it is recommended that all three dimension of safety culture needs to be considered (Cooper, 2018) and assessed using both quantitative and qualitative measures. The present study builds on past research by incorporating all dimensions of safety culture and using both quantitative and qualitative approach for its assessment.

In addition, the few studies (Agwu, 2012; Ansah, 2017; Emetumah, 2016; Kilaparthi, 2014; Biddison, et al., 2015) on safety culture and employee engagement in the oil and gas sector did not acknowledge the critical role of employee well-being, which this study seeks to address. Research shows that both factors are linked to benefit organisation-level outcomes, and it is theoretically feasible that the combined effect of these factors will be greater than each one alone (Milczarek, & Najmiec, 2004; Sexton, et al., 2021). Some initial empirical evidence supports this view and shows that the inclusion of well-being enhances the relationship between safety culture and engagement outcomes (Marin-Garcia & Bonavia, 2021; Shuck & Reio, 2014).

Employee engagement is described as the discretionary effort that employees exhibit in their jobs (Frank et al., 2004). However, for employees to exhibit this behaviour, the relationship between an organisation and its employees must be considered (Groenewold et al., 2018). Kahn (1990) argues

that when employees operate in a psychologically meaningful and physiologically safe environment, they are more engaged. According to Mackinnon, Coxe and Baraldi (2012), the failure of researchers to acknowledge the effects of mediating variables on independent and dependent variables could distort the validity and accuracy of research findings. Therefore, this study goes beyond what previous studies focused on to assess the mediating role of well-being in the form of physical well-being and psychological well-being on the relationship existing between safety culture and employee engagement. The study assumes that safety culture that ensures employee physical and psychological well-being will lead to engagement and help control accidents and reduce turnover in the oil marketing sector.

Purpose of the Study

The purpose of the study is to examine safety culture, well-being and engagement and the relationship among them within the Oil Marketing sector in Ghana.

Research Objectives

Specifically, the study seeks to:

1. Assess the level of safety culture in the oil marketing companies;
2. Examine the level of well-being of employees in the oil marketing companies;
3. Examine the level of employee engagement in the oil marketing companies and
4. Assess the mediating role of employee well-being in the relationship between safety culture and employee engagement.

Research Questions

The study seeks to answer the following research questions:

1. What is the level of safety culture in the oil marketing companies in Ghana?
2. What is the degree of employee well-being in the oil marketing companies in Ghana?
3. What is the degree of employee engagement in the oil marketing companies in Ghana?

Hypotheses

To achieve objective four, the following hypotheses were formulated:

H_1: Safety culture has no significant effect on employee engagement

H_2: Safety culture has no significant effect on employee psychological well-being

H_3: Safety culture has no significant effect on employee physical well-being

H_4: Employee psychological well-being has no significant effect on employee engagement

H_5: Employee physical well-being has no significant effect on employee engagement

H_6: Employee well-being does not mediate the effect of safety culture on employee engagement

Significance of the Study

The relevance of this study rests on its contribution to knowledge, policy-making and theory. This study is one of the comprehensive studies of safety culture in the OMCs in Ghana. Thus, in terms of theoretical

significance, the study advances knowledge and understanding on how the use of physical well-being and psychological well-being as dimensions of employee well-being will mediate the relationship between safety culture and employee engagement. The findings of this study will be useful to the OMCs in designing their safety culture to ensure employee well-being which will lead to engagement and help increase organisational performance. Thus, the findings will reveal the role of employee well-being in assessing the effect of safety culture on employee engagement. Also, OMCs will be knowledgeable on strategic areas for training programmes on safety culture for their workers. Again, managers at the retail points will be equipped with strategies on how to enforce compliance. The study is expected to help the OMCs in understanding the relationship between the study constructs. This will help OMCs in Ghana to know the causes of disengaged employees causing accidents in the sector.

The findings of the study are also important to workplace policy formulators. The Ministry of Energy, the Petroleum Commission, National Petroleum Authority, the Ministry of Employment and Labour Relations, the Department of Health and Occupational Safety (of the Ministry of Health), the environmental Protection Agency (EPA) and other relevant agencies is expected to be equipped to strengthen relevant safety policies to promote and protect the health and safety of employees and the environment at large. Finally, the findings help shops and factory inspectors and other labour associations to demand appropriate health and safety reports for employees of OMCs.

The prevailing literature sees to the contribution of this study by proposing a framework as to how to look at the various dimensions of the

variables. The study also highlights the applicability of the study's construct in the oil marketing sector. The study also provides basis for future researchers to test its findings as well as the various possible hypotheses arising from it. This could build and strengthen the body of knowledge on the relevance of the mediating role played by physical and psychological well-being on the relationship between safety culture and the performance of OMCs as well as other companies in the industry in Ghana and Africa as a whole.

Delimitation of the Study

The current study seeks to address how well-being mediates the relationship between safety culture and the engagement level of employees in the oil marketing companies. Geographically, the study is delimited to the Greater Accra Region of Ghana. Though the scope of safety culture is extensive, this study considered safety culture in terms of situational, psychological and behavioural characteristics to measure safety culture. Employee well-being was also measured with the dimensions of psychological well-being and physical well-being. Likewise, employee engagement in this study focused on absorption, dedication, and vigour as the dimensions. Finally, only employees of the top three OMCs in the country were eligible to answer the questions relating to the study.

Limitations of the Study

Some limitations were acknowledged in the study. First, only staff of the top three OMCs in Ghana were included in the study's sample. This may affect the generalisability of the findings over all oil marketing companies in Ghana. However, since the characteristics of employees in these OMCs are similar, generalisation is not hindered.

Also, a self-reported survey was utilised to gather data on safety culture, employee well-being and employee engagement in OMCs. It has been acknowledged that using a self-reported survey to gather data has limitations as respondents may provide inaccurate responses at times. However, biases in data collected from self-reported survey was corrected by scrutinising completed questionnaires for errors and complementing it with data from interviews.

Finally, although all the safety protocols of COVID-19 were adhered to during the data collection, some participants were hesitant in responding to the research data collection instruments.

Definition of Terms

Safety culture refers to a durable corporate atmosphere that impacts people's management of safety in an organisation. It is a set of prevailing indicators, beliefs, and values that the organization owns in safety.

Employee well-being encompasses physical health and comfort, mental health, a preponderance of positive over negative affect and positive attitudes towards work.

Physical well-being refers to our energy level at the workplace which are caused by lifestyle behaviour choices to ensure health, avoiding preventable conditions and diseases and to live in a balanced body and mind.

Psychological Well-being is defined as the result of personal achievement, self-actualization, or self- positioning. This comprises of dimensions such as autonomy, competence and relatedness.

Employee engagement is a motivational state that involves investing oneself, being authentic on the job, and delivering one's work performance with passion, persistence, and energy.

Organisation of the Study

The thesis is organised into six chapters. Chapter One comprises the introduction, background to the study, statement of the problem, the objectives of the study and a set of research questions and hypothesis. It also includes the significance of the study, the delimitation, the limitation and the organisation of the thesis.

The Chapter Two covers the theoretical review underpinning the study. The chapter also covers the review of the concepts under study. The Chapter Three focuses on the empirical review on the relationships among the variables which was based on the study's problem, research questions and research objectives. From the empirical review, the conceptual framework of the study emerged.

Chapter Four covers the methodological framework adopted for the study. It covers the research philosophy together with the research approach, the research design, the study area, the target population, sample and sampling procedure, instrument design, pre-testing, measurements of the variables, methods of data collection and analysis and ethical issues.

The socio-demographic characteristics as well as the analyses of the results on safety culture, well-being and engagement of employees were presented in Chapter five. The Chapter also talked about qualitative results on safety culture, well-being and engagement of employees and looked at the effect of safety culture on employee engagement and the mediating role of

employee well-being. Chapter six focuses on the summary, conclusions and recommendations of the study. The chapter also presents the contribution of the study and makes recommendations for future research.

CHAPTER TWO

CONCEPTUAL REVIEW

Introduction

This chapter reviews concepts and theories underpinning the study. The chapter reviews the literature on the main concepts of the study, namely, safety culture, physical well-being, psychological well-being and employee engagement. This will enhance knowledge concerning the constructs used in the study. The chapter also discusses assessment the theoretical frameworks that underpin the current study. The objective was to elaborate on the theories that explain the various variables being investigated in this study and to have a well – defined structure for the study.

Concept of Safety Culture

The development of safety culture research is grounded in accident causation research and borne out of a need to understand the non-technical causes of accidents in terms of root causes and system failures (Cowley et al., 2021). The term ‘safety culture’ was used for the first time, in the Chernobyl Disaster Investigation Report published in 1987 by the International Atomic Energy Agency (IAEA) (Lee, 2019). The authors of the report described the concept of ‘safety culture’ and put forward the idea that a deficient safety culture was the main reason for the accident. International Nuclear Safety Advisory Group (INSAG) claimed that “the phrase safety culture refers to a very general matter, the personal dedication and accountability of all individuals engaged in any activity which has a bearing on the safety of nuclear power plants" (Cole et al., 2013, pp. 14). Nevertheless, the group left

the meaning of the term open to interpretation and did not provide control as to how this construct could be assessed which depicts a fact that still plagues this concept currently.

It was until 1991 that the INSAG provided a more complete definition of the concept. According to INSAG (1991)"Safety culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance"(pp. 75). According to their report, the definition emphasizes that safety culture is attitudinal as well as structural, relates both to organizations and individuals, and concerns the requirement to match all safety issues with appropriate perceptions and action. It also theorizes that a successful safety culture requires both commitment and competence at all levels of the organization to ensure that "all duties important to safety are carried out correctly" (Alexander, 2004, pp. 8). INSAG made the critical observation that the importance is not just in the policies and practices themselves, but also in the environment of safety consciousness that they create.

After INSAG's (1991) definition, many other definitions have been proposed. According to Kuo (1997), safety culture is the belief or philosophy on safety matters held by organisations and individuals, which is demonstrated in practice through their attitudes, actions and behaviour. Thus, safety culture is the attitude that exists when everyone recognises and accepts their responsibilities for safety; the organisation 'thinks safety' as a matter of course; and management realises that the safety achievement of a system is not static and it may tend to degrade over time (e.g. as people become complacent

or less vigilant, or when systems start to age). This makes safety culture an ongoing process within the organizational setting.

Guldenmund (2010) also defined safety culture as the overarching comprehensive pattern within the organization that supersedes and creates the attitude and perception that are present in an organizational setting. This means that, safety culture helps determine the attitudes that individuals have toward safety. Again, Karigi (2002) states that safety culture is the amalgamation of values, standards, morals and norms of acceptable behaviour. These are aimed at maintaining a self-disciplined approach to the enhancement of safety beyond legislative and regulatory requirements. Therefore, safety culture has to be inherent in the thoughts and actions of all the individuals at every level in an organization (Cole et al., 2014). The leadership provided by top management is also crucial.

The Advisory Committee on the Safety of Nuclear Installation (ACSNI, 1993) also defined safety culture as the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety management (ACSNI, 1993). The definition was later adopted by the United Kingdom's Health and Safety Commission (HSC). According to Cooper (2000), this definition emphasizes the implied relationships between psychological, behavioural and organizational points of view. This is because the first aspect of the definition which is individual and group values, attitudes, perception and competencies constitute the psychological component of safety culture. This helps to describe people's attitude towards safety goals.

The second aspect of the definition which focuses on the patterns of behaviour indicates the behavioural component. That is describing the actions that people put up daily in the work environment. The final part of the definition highlights the style and proficiency of an organization's health and safety management, constituting the organizational component. This indirectly describes the quality of the organizational Safety Management System. Cooper (2000) later defined safety culture as that observable degree of effort by which all organization members direct their attention and actions toward improving safety on a daily basis. This requires the involvement and commitment of all members of an organisation to safety. Open communication is needed at all levels and everyone's responsibility and accountability regarding safety must be clearly defined and understood (Cole et al., 2014).

Other definitions have been provided by scholars such as Carthey (2018), Fan et al. (2016), Naji et al. (2020), Wu, Lin and Shiau (2010) among others. The many definitions of safety culture suggest that there is not one acceptable definition for all industries. The concept, which is borrowed from anthropology, sociology, psychology and many other disciplines is still evolving, with each discipline competing to get the theoretical viewpoint accepted as the mainstream (Manser et al., 2016). There is also confusion about the safety culture concept and safety climate. Some researchers use the two terms interchangeably (Gadd & Collins, 2002; Kalteh et al., 2021;).

However, safety culture refers to a durable corporate atmosphere which impacts people's management of safety in an organisation while safety climate is considered to reflect the organisation membership's shared perceptions of the way safety is being managed at a particular moment in time

(what we think of safety right now) (Bamel, Pandey, & Gupta, 2020). The definitions of safety culture stated above are similar as they can all be categorized into a normative belief perspective except that of HSC. This is because they all focus on varying degrees of the way people think and/or behave in relation to safety.

The HSC's definition provides a much greater precision than the other definitions provided above as it is used in many research works (Agwu, 2012; Choudhry et al., 2007; Cooper, 2002; Guldenmund, 2010; Hayashi et al., 2020; Sukadarin et al., 2012; Vecchio-Sadus, 2007). However, given the prominence of the HSC's (1993) definition in guiding researchers, one area requiring precision that appears to have been overlooked by all concerned is the 'product' of the safety culture construct. This oversight has led to an overly narrow emphasis on safety climate (i.e. aggregation of individuals' attitudes and perceptions about safety) via questionnaire surveys (e.g. Cooper & Phillips, 2004; Donald & Canter, 1994; Zohar, 1980) with it being used as a surrogate measure of safety culture, at the expense of the holistic, multi-faceted nature of the concept of safety culture itself (e.g. Cox & Cox, 1991; Coyle et al., 1995; Lee & Quinn., 2020; Mearns & Flin, 1997; Williamson et al., 1997).

Defining this product is important as it could help to clarify what a safety culture should look like in an organisation. It could also help to determine the functional strategies required to develop the product, and it could provide an outcome measure to assess the degree to which organisations might or might not possess a good safety culture. In turn, this could help to minimise the current unsystematic and fragmented approaches to researching

safety culture and allow meta-analyses to be conducted at some time in the future. This study therefore adapts the HSC's definition of safety culture.

Cooper's Reciprocal Safety Culture Model

Cooper's (2000) functionalist reciprocal model treats safety culture as a sub-culture of an organisation's overall culture, while highlighting that it is the product of multiple goal-directed interactions between people (psychological), jobs (behavioural), and the organisation (situational). The psychological, behavioural, and situational aspects are the inputs to the safety culture construct, with the key transformation process being the organisations goals, expectations and managerial practices to create the prevailing safety culture product (Cooper & Finley, 2013).

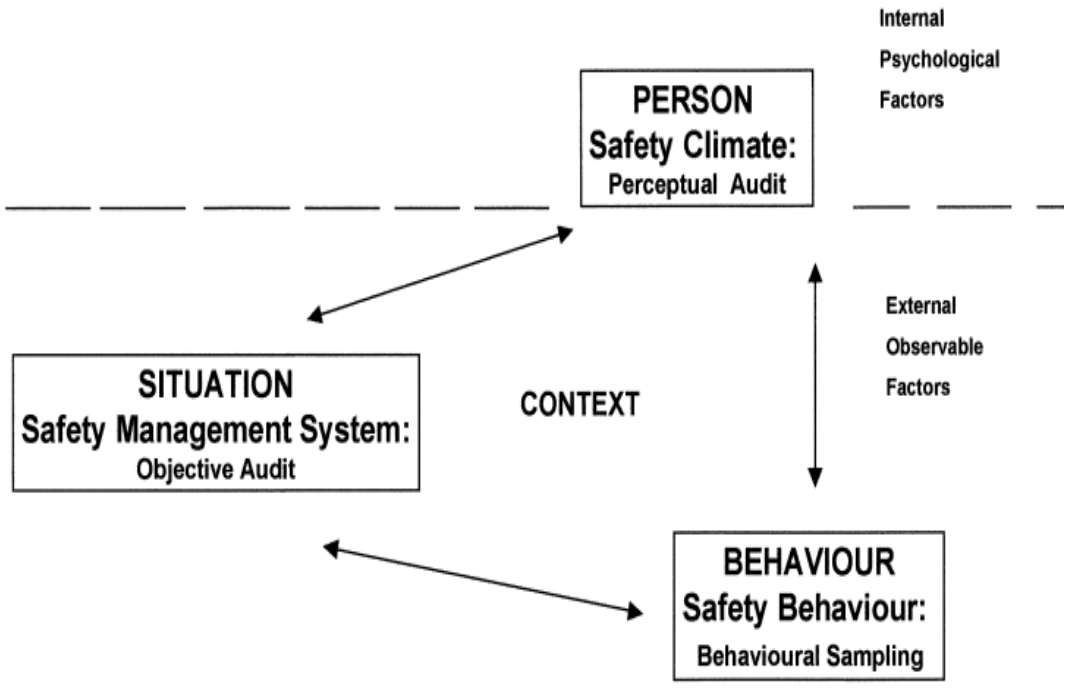


Figure 1: Cooper's reciprocal safety culture model

Source: Cooper (2000)

The components of the safety culture product are briefly explained below:

Situational Characteristics of Safety Culture

The situational attribute refers to the structures and systems established to regulate daily activities in an organizational environment (Cooper, 2002). Thus, positive situational characteristics enable or compel workers to adopt positive behaviour towards safety, and as the positive behaviour is sustained over a period, the psychological domain will respond positively to ensure positive safety culture in an organization. From the reciprocal model, employees are likely to respond positively in the psychological domain when the situational factors are conducive in the working environment (Cooper, 2000). As a result, Cooper (2018) suggested the six critical dimensions of safety culture that need to be managed at the situational level in an organization. This comprises management or supervision, safety systems, risk, work pressure, competence, and procedures and rules. It is expected that when these six attributes of safety culture are managed effectively in the situational domain, it will have positive repercussions on the other domains.

The Behavioural Component of Safety Culture

Behavioural aspects relate to what people do within the organisation, which includes the safety-related activities, actions and behaviours exhibited by employees. A critical aspect to consider here is management's commitment to safety (Cooper, 2018). According to Guldenmund (2010), management and supervisors demonstrate the commitment to safety by developing a corporate safety vision and policy to establish the prime importance of safety so that it is actively incorporated into all methods. However, the policy statement and the actual practice seem to differ in most organizations. This is due to lack of

managers' commitment by only satisfying the minimum legal requirements. Thus, focusing their attention on other competing organizational goals such as productivity maximization. This demotivates employees and causes them to engage in unsafe behaviour, resulting in accidents.

The essential point is for senior management to promote a collective commitment of care and concern that is expressed in behavioural norms across the whole organisation. Zuschlag et al. (2016) reported that the role of CEOs and other senior management in achieving these aims is that of continual demonstration of their care and concern by ensuring that the organisation adopts sound technical, ergonomic and organisational practices that have been shown to improve safety. When the safety system in the organization is monitored then behaviour can produce the result expected (Fleming, 2012).

Psychological Component of Safety Culture

According to Cooper (2018), changes made to situational or organizational factors will impact on behavioural and psychological factors. The psychological aspects of safety culture refer to how people feel about safety and safety management systems. This encompasses the individual and group values, attitudes and perceptions regarding safety, which is often referred to as the safety climate of the organisation (Lee, 2019). Safety climate is therefore defined as individual perceptions of safety-related policies, practices, and procedures pertaining to safety matters that affect personal well-being at work (Lee, 2019). A positive safety climate should encourage safe action either through reward or through principles of social exchange (Clarke & Ward, 2006a; Griffin & Neal, 2000; Hofmann, Morgeson, & Gerras, 2003; Zohar, 2000). Furthermore, a positive safety climate enhances safety

knowledge since this becomes a reflection of an environment where safety information is communicated formally through training and meetings and informally through on-the-job discussion.

However, Cooper (2018) postulates that the psychological components of safety culture alone cannot predict the safety culture in an organization. This means that focusing solely on psychological factors as the means of revealing the prevailing safety culture is problematic. Consequently, Cooper (2018) asserts that, rather than focusing solely on employee's perception meaning, values and beliefs, it can be argued that a joint interaction between people (psychological), jobs (behavioural) and organisational (situational) will better help to reduce accidents and ill health problems in organisations. This indicates a reciprocal relationship between members perceptions about attitude towards the operationalisation of organisational goals; members day-to-day goal-directed behaviour; and the presence and quality of systems and subsystems to support goal-directed behaviour. This study therefore adopts Cooper's model in the measurement of safety culture within the oil marketing industry in Ghana.

Safety Culture in the Oil Marketing Companies.

According to Cooper (2000), safety culture was considered a sub-culture of an organisation's overall culture, while highlighting that it was the product of multiple goal-directed interactions between people (psychological), jobs (behavioural), and the organisation (situational). The Health and Safety Commission (1999) further surmised that safety culture determines the commitment, willingness, style, and ability of organizations to manage health and safety issues. The issue of safety culture has gained

worldwide attention from both researchers and policymakers. This is because it is reported as mainly responsible for many organizational accidents and disasters (Choudhry, Fang & Mohamed, 2007).

Organizations continuously improve safety procedures to reduce and eliminate exposure to danger in the workplace. However unexpected incidents sometimes occur, and the consequences sometimes are catastrophic, leading to potential loss of lives or severe injury, undesirable costs and expenses, destruction of equipment and defaming of the company's reputation (Naji et al., 2020). Therefore, it is inevitable to measure and reduce accidents at the workplace in the oil and gas industries.

Cox and Flin (2015) acknowledged that the most important cause of accidents is the weakness of the safety culture level in the sector. Recent research in the oil and gas industry likewise has found safety culture (particularly staff attitudes and perceptions regarding safety) to be associated with fewer hydrocarbon leaks (Kongsvik et al., 2011; Vinnem et al., 2010). Safety culture is an ongoing accomplishment which requires sustained effort and continuous adaptation throughout the entire organization (Vogus et al. 2010). Particularly for the oil and gas marketing industry, safety is paramount for both regulatory and occupational reasons.

Ehiaguina and Moda (2020) conducted a study among employees in the Nigerian oil and gas industry. An online safety culture survey study covering the perception of management commitment and style of leadership; safety communication method and its resultant impact on employees' behaviour; employee safety commitment and training was used to explore the relationship between safety culture and safety behaviour. The study revealed

that safety management practices were significant to both safety participation and safety compliance, which suggests that safety culture influences workers' safety behaviour in the Nigerian oil and gas industry. Thus, enhanced safety culture and safety behaviour is a precursor to minimizing accident among employees in the oil and gas industry. However, the study only used a questionnaire to collect data for the study which limited its ability to assess the true state of the safety culture. The limitation of the study was that although the sample is substantial enough, only a survey method was used to collect data. However, to assess the true state of safety culture the mixed method is recommended which this study adopts.

Liu et al., (2020) indicated that accident in the oil and gas industry is high and emphasised that improving safety does not necessarily mean providing safety systems or a supportive safe environment for employees alone but educating and training employees on safety knowledge. The researchers, therefore, assessed the mediating effect of safety knowledge in the relationship between occupational health and management framework (OHSMF) and workplace accidents and incidents. The result revealed that safety knowledge significantly mediates the causal relationship between OHSMF and workplace accidents and injuries. The negative relationship between OHSMF and workplace accidents and injuries show the existing OHSMF is either ineffective or lacks the acceptable safety standards to control hazard exposures in the industry. One limitation of the study is that the study did not establish a relationship among all the dimensions of safety culture but concentrated only on situational characteristics. This does not allow the multifaceted nature of safety culture to be addressed.

Similarly, Rahmanidoust et al., (2019) conducted a study to examine the framework for performance optimization of safety culture in the oil and gas industry in Iran. The purpose of the study was to develop a real-time proactive safety framework for performance optimization of safety culture in safety-critical industries. The safety culture indicators used in the study included information sharing and reporting culture, management support and reward system, learning culture, communication and awareness, safety supervision and audits, and safety training and preparedness had a negative impact. One limitation of the study is that the indicators of safety culture only matched the situational and the psychological characteristics and did not consider the behavioural characteristics and again, data was collected through a questionnaire.

In checking for the moderating and mediating influence of work motivation in the causal link between occupational health and safety management (OHSM) practices and work performance in the oil and gas sector, Nkrumah et al., (2020) conducted a study that measured the causal relationship between OHSM practices and a work performance construct. The study integrated both safety and task performance. A cross-sectional approach using research questionnaires was utilized to solicit responses from participants. Structural equation modelling (SEM) was used as the main method of data analysis. These results depicted that OHSM practices had a higher influence on employees' task performance than safety performance. Thus, the basis of these findings anticipates that the degree of workers' ability to conform to safety procedures and undertake safety initiatives whiles performing their various tasks as well as the ability to perform effectively is

determined by the degree of OHSM effectiveness at the workplace. One limitation with this study was that though the researchers acknowledged the influence of safety management on safety performance and organisational performance the study did not consider the multi-faceted nature of safety culture in reducing accidents and increase productivity.

In conformity to the above studies reported on, Tengilimoglu, Celik and Guzel (2014) studied the effect of safety culture on safety performance in Turkey. The dimensions of safety culture used in the study included administrative commitment, safety priority, safety communication, safety training and safety participation. The results revealed that safety culture has a positive and statistically significant effect on safety performance. It was further revealed that job satisfaction fully mediated the relationship between safety culture and safety performance. The conceptualisation of the safety culture concept in the study did not consider the broad nature of the concept to assess its effect and know areas of improvement.

Concept of Employee Well-being

Well-being is a multifaceted construct that has been studied in a number of disciplines and thus, has been defined in many different ways. The multiplicity of the concept indicate that the concept lacks an overall accepted definition (Warr & Nielsen, 2018). Well-being can be differentiated in terms of the scope and on timelines. In terms of scope, one can look at the broadest well-being which is context free. This is the general life rather than concerned with a particular setting (Warr, 2012). That is looking at the global happiness and people's general satisfaction with life. Then there is domain-specific well-being which concerns a person's job, being referred to as job-related well-

being and measured through job satisfaction, job strain and similar variables (Mäkikangas, Kinnunen, Feldt, & Schaufeli, 2016). Work-related well-being refers to an individual's positive evaluation of the work and healthy functioning in their work environment (Warr & Nielsen, 2018).

Studies have also differed in terms of the emphasis on longer-term or shorter-term experiences. Longer-term well-being, that extends across time, has sometimes been viewed as a trait or disposition, and must be distinguished from well-being within a short period that is situational well-being (Warr & Nielsen, 2018). Well-being is also viewed as a personal and individual concept; well-being has always been conceptualised as a personal feeling and idea, which can be affected by our environments, beliefs and personality.

There are two approaches to well-being; the hedonic and the eudaimonic (Steptoe, Deaton & Stone, 2015). The hedonic approach to well-being highlights two elements; "pleasure: positive emotions, pleasant sensations, and emotional/visceral satisfaction; and (2) comfort: relaxation, ease, and painlessness. This approach therefore focuses on what is subjectively pleasant" (Huta, 2016, pp. 216). Diener and Ryan (2011) adapted the hedonism orientation and used it to propose the Subjective Well-being research approach. Subjective well-being (SWB) is defined as happiness, or more specifically, satisfaction with life and the experience of positive emotions (Straume & Vitterso, 2012). Subjective well-being refers to how people assess the quality of their lives based on their own personal standards (Diener, 2000). SWB has been studied extensively (Bowling, Eschleman, & Wang, 2010; Ryan & Deci, 2017; Diener, Suh, Lucas, & Smith, 1999), and it is a global measure of well-being as it measures general life well-being and is

not domain specific. That is the hedonic approach which deals with constructs such as happiness, positive affect, low negative affect, and satisfaction with life (e.g., Kahneman, Diener, & Schwarz, 1999; Lyubomirsky & Lepper, 1999).

The other approach identified is the eudaimonic tradition, which was inherited by Ryff and Singer (2008). Huta (2016) defined eudaimonic orientation in terms of four core elements, namely (1) authenticity : clarifying one's true self and values, and acting in accord with them; (2) meaning : seeking what truly matters and has value, and understanding the bigger picture, aligning oneself with it, and contributing to it; (3) excellence: striving for high standards and quality in one's ethics, behaviour, performance, and products; and (4) growth: gaining knowledge, insight, and skill; actualizing one's unique potentials; and maturing as a human being (Huta, 2016). All four elements are about striving to do what is truly, objectively, and inherently good and right and meaningful, even if it is difficult. The Eudaimonism orientation is used to propose a Psychological Well-being research approach. Psychological Well-being (PWB) is defined as the result of personal achievement, self-actualization, or self- positioning (Steptoe et al., 2015).

The World Health Organization (WHO) therefore combines these two approaches to define employee well-being. Thus, employee well-being indicates that employees are in a positive state, physically, mentally and socially (WHO, 2017). Cooper (2018) also defined workplace well-being to "encompass physical health and comfort, mental health, a preponderance of positive over negative affect, and positive attitudes towards work". These definitions cover both the physical and psychological (mental and social)

dimensions of well-being. Ryff (1989) identified psychological well-being aspects to constitute: autonomy; environmental mastery (competence); positive relationships with others; purpose in life; realisation of potential and self-acceptance [relatedness] (Vella-Brodrick, & Stanley, 2013). Physical well-being on the other hand refers to our energy level at the workplace which are caused by lifestyle behaviour choices to ensure health, avoiding preventable conditions and diseases and to live in a balanced body and mind (Bakker, 2015).

Dodge, Daly, Huyton and Sanders (2012) opined that well-being is an equilibrium of resources and challenges. This is like the proposition of the JD-R theory. In essence, the JD-R theory suggests that employee well-being is when individuals have the psychological and physical resources, they need to meet a particular psychological, and/or physical challenge at the workplace. When individuals have more challenges than resources, their well-being would be low, and vice-versa. Psychological and physical well-being have been discussed in the next sections.

Components of Employee Well-being

This study adopts the definition of WHO (2017) to conceptualise employee well-being. Based on this definition, employee well-being is made up of two main components. These are the psychological (mental) and the physical dimensions of employee being.

Psychological Well-being

After the earlier operationalization of psychological well-being by Ryff (1989;1995), the concept has received tremendous attention by researchers in various fields. In its simplest form, Ryff (1995) defined the concept as a

"generalized feeling of happiness or a state of wellness conceived as progressions of continued growth across the life course". Adler et al. (2017) recently defined psychological well-being as the "simultaneous absence of the crippling elements of human experience – depression, anxiety, anger, fear – and the presence of enabling ones like positive emotions, meaning, healthy relationships, environmental mastery, engagement and self-actualisation". Psychological well-being is synonymous to mental well-being (Fetherston, Fetherston, Batt, Sully & Wei, 2021).

Ryff's (1995) conceptualization encompasses six dimensions namely self-acceptance, personal growth, purpose in life, positive relations, environmental mastery, and a sense of autonomy. This suggests that the concept is broad and considers a broader array of constructs than what was conventionally conceived as happiness (Adler et al., 2017; Seligman, 2011). Recent studies have however simplified Ryff's (1995) conceptualisation (Baer, Lykins & Peters, 2012; Carmeli, Yitzhak-Halevy & Weisberg, 2009; Garg & Rastogi, 2009; Robb, Due & Venning, 2018). The self-determination theory in Ryan and Deci (2017) agrees with Ryff's (1995) proposition and further simplified the components of psychological well-being of an employee to consist of autonomy, competence and relatedness. Thus, psychological well-being is a direct function of the satisfaction these basic psychological needs and employees can become more engaged when their needs for competence, relatedness, and autonomy are fulfilled (Dulagil, 2012; Demo & Paschoal, 2016; Orsila, et al., 2011).

Autonomy is the ability to feel that people are the masters of their own behaviour and destiny. This involves self-initiation and self-regulation of

one's own behaviour (Deci, Olafsen, & Ryan, 2017; Ryff, 2013). Autonomy involves being able to make your own decisions and is associated with feelings of independence (Henn, Hill, Lené & Jorgensen, 2016). Autonomy is supported by an attempt to grasp and acknowledge a person's wishes, preferences and perspectives, conveying understanding of their point of view, providing a rationale for engaging in a behaviour, and providing choice in how to behave. Alternatively, the individual lacks autonomy if they feel controlled or threatened by others (Blasco-Belled & Alsinet, 2022). Autonomy also connotes a sense of control over one's work and work-related activities (Obrenovic et al., 2020). Such feelings promote employee well-being at the workplace.

Competence is concerned with having sufficient intellect, judgement, knowledge, and skills to perform a given task (Ryff, 2013). People have a need to build their competence and develop mastery over tasks that are important to them. When an individual feels competent, they are able to interact effectively within their environment, and they have the skills needed for success to ensure that their goals are achieved. A competent person feels a sense of mastery over their environment (Henn et al., 2016). Competence is supported by providing the person with optimal challenges and opportunities (specific goals that are challenging enough, but not overwhelming), encouraging their sense of initiation (try it out), providing structure to mobilize and organize behaviour, providing consistent and clear expectations, rules, and consequences, and providing relevant feedback (Ryff, 2013). To conclude, an employee's feeling of competence and mastery of the

surrounding environment is a key predictor of psychological well-being (Ryff, 2018).

Relatedness (also called Connection) is the need to have a sense of belonging and connectedness with others. Relatedness is the ability to feel a sense of both attachment to other people and a sense of belonging amongst other people (Strayhorn, 2018). Relatedness involves feelings of closeness and belonging to a social group. Without connections, well-being is harder to achieve because the individual would lack access to both help and support (Baumeister, & Leary, 2017). Relatedness is supported when others are involved and show interest in the person's activities, are empathic in responding to their feelings and convey that the person is significant, cared for, loved and are a part of an inclusive environment (Dulagil, 2012; Meyer & Maltin, 2010).

Alternatively, feelings of relatedness are undermined by competition with others, cliques, and criticism from others (Ryff, 2013; 2018). When conditions supporting the individual's experience of autonomy, competence, and relatedness are present, it is argued that this will foster the most volitional and high-quality forms of well-being and engagement in activities, including enhanced performance, persistence, and creativity (Henn et al., 2016). Thus, SDT proposes that the degree which any of these three psychological needs is unsupported or thwarted within a social context will have a robust detrimental impact on well-being in that setting.

Physical Well-being

The Australian National University [ANU] (2020) operationalized physical well-being "as the ability to maintain a healthy quality of life that allows us to get the most out of our daily activities without undue fatigue or physical stress". Capio, Sit, and Abernethy (2014) also defined physical well-being as the ability to perform physical activities and carry out social roles that are not hindered by physical limitations and experiences of bodily pain, and biological health indicators. McKee-Ryan, Song, Wanberg, and Kinicki (2005) surmised that physical well-being could be categorized into both subjective and objective measures.

Subjective measures of physical well-being include self-reports about specific or general health complains or physical malfunctioning. These include backaches, headaches, days of not feeling well, etc. Subjective well-being becomes important because, there are "some symptoms that cannot be observed by others and can only be understood by asking the individual" (McKee et al., 2005; Zhang, Boltz, Wang & Lee, 2022). Objective physical well-being on the other hand connotes assessments of objective medical reports and indices such as physical diseases, blood pressure, injuries. According to Lawn et al. (2020), the nature of work and the psychological demands of the job within OMCs does not allow for physical rest and processing of incidents, resulting in occupational stress such as fatigue, sleep disruption, injuries, accidents, and associated effects on work performance. Robertson and Cooper (2010) confirmed that physically well employees are beneficial to both the employee and organization as this could translate into

"lower sickness-absence levels, engaged workforce and more satisfied customers".

Employee Well-being in the Oil Marketing Companies

Lui, Siu and Shi (2010) indicated the need to understand the well-being of individuals in the work setting because it is the place where people spend most of their adult life. Usually, individuals' well-being in work settings is closely related to organizational functioning. Well-being has been considered a driver of higher levels of productivity and thus a means of ensuring the success of the organization (Austin, 2019; Bevan, 2018). Workplace well-being relates to all aspects of working life, from the quality and safety of the physical environment, to how workers feel about their work, their working environment, the climate at work and work organization. The WHO (2017) research indicates that work environment and work organization can have a significant impact on the health and well-being of workers.

The work environment influences employees' mental health and physical health. Work-related factors that affect worker well-being include job demands and pressures, degree of autonomy and flexibility, quality of interactions with supervisors and co-workers, frequency of shift work, and length of the workday (Bakker, 2015). For example, a lack of recognition of the need to promote workers' well-being may give rise to workplace problems, such as stress, bullying, conflict, alcohol and drug abuse and mental health disorders. Potential solutions, such as leadership, communication and a focus on learning and development are essential for anyone committed to making the workplace a more decent and satisfying place. According to Agwu (2012), employees in the oil and gas industry who are in good physical, mental, and

emotional health are more likely to deliver optimal performance in the workplace than employees who have poor mental or emotional and physical health. Thus, healthy and happy employees have a better quality of life, a lower risk of disease and injury, increased work productivity, and a greater likelihood of contributing to their communities than employees with poorer physical mental, and emotional health.

Dugguh and Dennis (2014) indicated that the happiest workers are also the most productive while those workers who are unhappy with their work tend not to pay full attention to the quality of their accomplishments and tasks. Being happy is of great importance given the economic challenges and the instability of the oil and gas sector in the UAE, due to the economic challenges and the instability in the sector. A Gallup study in 2018 stated that, when employees are unhappy, they are not as engaged and are not as productive, and they do not care as much about the success of the business.

Accordingly, Al Hammadi, Masrom, and Mohamed (2019) examined the happiness of oil and gas industry employees in relation to productivity in Abu Dhabi, UAE. The result revealed that the amount of happiness experienced by workers plays a crucial role in their level of productivity and efficiency in the workplace. Mathur and Gupta (2012) identified external and internal factors that determine employee behaviour in every organization. The external factors considered are pay level, working hours, geographical location, training needs, reward and promotional systems, and performance evaluation. Internal factors included job satisfaction, career advancement, role alignment, relationship with supervisors, working environment, the meaningfulness of work, quality of work, working relationship and time

management. The study also showed that both internal and external factors of happiness are statistically significant with productivity and both internal and external factor of happiness are positively related to productivity. The researchers concluded that knowledge concerning these factors in the oil and gas industry could be used to enhance the productivity of employees and to retain the skilled workforce of the organization.

The study by Nixon et al. (2011) indicated that deteriorating well-being is predicted by factors such as work stress, job hours, workload, and the absence of control, among others. The study concluded that Saudi Aramco Company pays much attention to developing employee well-being policies, as it has the highest effect on determining employee engagement. Although the effects of the three well-being dimensions on Knowledge Sharing Behaviour were moderate, maintaining well-being are basic need expected by employees and should not be overlooked.

Duan, Wang, Brinsfield, and Liu (2020) studied how enhancing employee well-being could encourage voice behaviour: a desire fulfilment perspective. Based on the desire fulfilment theory, the research sought to develop and test a model of employee well-being and voice. The theory helped them to identify factors in shaping employee well-being and its relationship with employee voice. These factors included psychological meaningfulness, social worth, psychological safety, and perspective-taking. Data was collected from 429 employees using a questionnaire. The result indicated that the study provided support for a theoretical model of employee well-being and employee voice. Employee well-being directly predicted voice and mediated the relationship between psychological meaningfulness and voice, and

between social worth and voice. Moreover, the relationship between psychological meaningfulness and employee well-being was stronger when psychological safety was higher. Similarly, the relationship between social worth and employee well-being also was stronger when psychological safety was higher. And the relationship between employee well-being and employee voice was stronger when perspective-taking was higher. Lastly, the mediating effect of employee well-being was stronger when both psychological safety and perspective-taking were higher.

The researchers concluded that for managers to increase employees' voice behaviour, they needed to cultivate employee well-being to include psychological meaningfulness and social worth. Therefore, reminding employees of how their work benefits others appear to be a good practice (Grant & Parker, 2009). This implies that creating a work environment where employees feel psychologically safe in conjunction with cultivating meaningfulness and social worth, further enhances employee well-being, and subsequently voice behaviour. Employee voice refers to informal, discretionary, and upward communication by employees of ideas, solutions, or concerns about work-related issues (LePine & Van Dyne, 1998; Morrison, 2011).

Concept of Employee Engagement

Employee engagement as a concept is vastly gaining popularity among practitioners, organizational leaders, and researchers in the field of organizational sciences. Byrne (2014) opined that employee engagement is a motivational state that involves investing oneself, being authentic on the job, and delivering one's work performance with passion, persistence, and energy.

A 2007 report from the Dale Carnegie Organization suggests managers should care about engagement because (a) high engagement results in employee retention (they say this is because there is a close relationship between company image and self-image), (b) engaged employees are productive, and (c) high engagement workplaces attract people who want to work hard for the organization.

Despite being a contemporary theme in human resource literature, several definitions have been provided for the concept by different scholars (Bhuvanaiah & Raya, 2015). For instance, Mone and London (2010, p.17) described an engaged employee as "one who is involved, committed, passionate and empowered, and demonstrates those feelings in work behaviour". Kahn (1990) also defined engagement as investing oneself in one work role. Thus, harnessing of organizational members into their work roles. Harter et al. (2002) in defining employee engagement described it as "the individual's involvement and satisfaction with work as well as enthusiasm for work".

According Maslach, Schaufeli and Leiter (2001), engagement is made up of three elements, namely, energy, involvement, and efficacy. They indicated that these elements were the direct opposite of the three dimensions of burnout – emotional exhaustion, depersonalization, and lack of efficacy. Their perspective was that engagement was a positive state which is the opposite of burnout. They assumed that when people were not burned out, they were often in this positive state of energy, involvement, and efficacy. They therefore proposed the Maslach Burnout Inventory (MBI) scale, which

could be used to assess employee engagement, with low exhaustion and cynicism scores and high efficacy scores reflecting high levels of engagement.

Schaufeli (2013) also defined employee engagement as "a positive, fulfilling, work-related state of mind characterized by vigour, dedication, and absorption" (p. 6). Vigour refers to high levels of energy while working and persistence when confronted with challenges. Dedication refers to experiencing enthusiasm, pride, inspiration, challenge, and significance. Absorption refers to being fully concentrated and deeply engrossed in one's work, whereby time passes quickly, and one has difficulty detaching oneself from work (Schaufeli et al., 2002, Schaufeli, 2013). Schaufeli et al. (2002) argued that using the same instrument to measure employee engagement and burnout as proposed by Maslach et al. (2001) was psychometrically and conceptually problematic because engagement and burnout were opposite constructs, hence perfectly negatively correlated. As a result, they modified the MBI and created the Utrecht Work Engagement Scale (UWES) to assess vigour, absorption, and dedication. In the view of Schaufeli (2013, p.6), the UWES is "a brief, valid and reliable questionnaire that is based on the definition of work engagement as a combination of vigour, dedication, and absorption."

Due to the hazardous nature of the oil marketing industry, employees are physically and psychologically challenged. As a result, Schaufeli et al.'s (2002) definition was adopted to conceptualise employee engagement in this study. When employees are engaged in their work, they have good relationships with their co-workers, the working environment becomes better, and employees are not only happy in their jobs, but also translate that

satisfaction into higher productivity and profitability of the organization. High levels of engagement promote retention of talent, foster customer loyalty and improve organizational performance and stakeholder value.

That is, individuals who are engaged employ and express themselves physically, cognitively, and emotionally during role performances. The implication is that, when an employee is engaged, they are "all-in" and genuinely want to see the organization succeed. They are not just there for a paycheck or because they must be, they really want to be there. Employees solve problems without you asking them to. They look for new solutions to processes and procedures. They innovate, collaborate, and inspire others around them.

However, it is important to distinguish engagement from other potentially similar concepts such as organisational commitment, job involvement, job performance, citizenship behaviour, and job satisfaction (Newman & Harrison, 2008; Schohat & Vigoda-Gadot, 2010). Organizational commitment is the emotional attachment one has with ones employing organization; job involvement is about how important one's work is central to his or her identity; job performance is about behaviours directed toward fulfilling or completing a specific job task and job satisfaction is the positive emotional evaluation one makes about one's job. However, none of these concepts integrates or conveys the investment of oneself emotionally, cognitively, or physically into one's work performance, regardless of its form. For engaged employees, work becomes something entirely different from being just a set of tasks, a job description, or a series of projects. Engaged employees transform their work tasks into meaningful, goal-directed, and

purposeful accomplishment, which result in positive organizational outcomes (Radda, Majidadi & Akanno, 2015).

Work is a significant part of an individual's life and as a result, employee engagement and well-being at work are important concepts. Contemporary work increasingly involves knowledge work which requires greater engagement of employee's mental and emotional capability. In parallel, employees desire greater meaning and personal development from their work (Avolio & Sosik, 1999), a situation that suggests that employee engagement is a key factor in retaining employees and enhancing their productivity.

Research on employee engagement suggests that employee engagement increases the chances of business prosperity, contributing to higher organisational and individual performance, high levels of productivity and more satisfied employees with their well- being at work (Budriene, Diskiene, 2020; Meiyani & Putra, 2019; Parker, Morgeson, & Johns, 2017). In addition, engagement is thought to be related to work practices, such as trust, empowerment, getting constructive feedback, gaining skills, and work appreciation. Engagement could be measured, and thus, different levels from poor to great can be deduced, and then managers could control its levels at work through individual and organizational interventions (Saari et al., 2018).

Employee engagement in the oil marketing companies

According to Kurse (2012), employees can increase the probability of higher profitability, better services, customer loyalty, safety and sales by employing discretionary efforts in their work roles. Engaged employees reduce turnover and ensure organisational growth. However, Bates (2004)

observed that engaged employees' figures worldwide are lower than 50% according to the latest Gallup Q12 employee engagement survey. Accordingly, this cost US businesses to lose about $ 300 billion annually in productivity. Engagement is a two-way concept whereby the organization makes available certain conditions which will evoke engagement behaviours from the employee.

The oil and gas industry suffers from high employee turnover, managing seasonal demands and attracting talent (Johennesse & Chou, 2017). The sector has realized that to attract and retain highly skilled workers in the face of competing with alternative fields such as telecoms and information technology, its human resource managers and management must begin to focus on employee engagement (Ajmal et al., 2022). Likewise, Hanaysha (2015) identified engagement and retention as the topmost HR challenge in the Oil and Gas sector. These findings emphasise the importance of engagement in the operational activities of the organization.

Radda, Majidadi and Akanno (2015) examined engagement in the oil and gas sector to identify how employee engagement relates to performance outcomes. Secondary data from different researchers in the field was used for the study. The study concluded that job content, autonomy, management support feedback and individual differences are important features of employee engagement in the oil and gas industry. The researchers stated that employee engagement is related to employee motivation, and organisational citizenship but has a wider scope than these concepts. Therefore, to increase employee engagement in the oil and gas sector, managers must live by leadership by example and show respect to ensure employee well-being.

However, the study did not assess how employees are engaged in the oil and gas industry.

Another study was conducted by Ohiorenoya and Uwadiae (2016) at Shell Petroleum Development Company to assess contract staffing and employee engagement in Nigeria. The findings indicated that contract staffing had a negative impact on the dimensions of employee engagement (vigour, dedication, and absorption). Fapohunda (2012) added that contract staffing is a work arrangement that is characterized by bad work conditions such as job insecurity, lack of flexibility, and lack of employment benefits that accrue to regular employees. These bad conditions affect employees' well-being leading to disengaged employees in the Shell Company in Nigeria. The researchers, therefore, recommend that employment arrangements should be structured in a way that ensures employee well-being is assured through the reduction of the gap between contract workers and permanent employees. Again, the study recommends that training and development programme for employees should be with the job responsibility and the category of employment.

Likewise, Subrahmanian (2014) sought to identify the drivers of employee engagement in the petroleum industry in the USA. The researcher asserts that it is the organisations responsibility to create better organisational culture and work environment to keep employees committed. The study, therefore investigated the drivers of employee engagement in the petroleum industry. The result revealed that collaborative team, job and career satisfaction, organisation citizenship behaviour will improve the overall employee engagement of the organisation. The result again revealed that organizational practices and performance management reduces the overall

level of employee engagement and therefore the need to improve upon them. The study concludes that the level of engagement determines whether people are productive and stay with the organization or quit and perhaps joins competitors.

Osborne and Hammond (2017) also examined employee engagement in the workplace to explore strategies that leaders use to engage their employees to increase profits. The Self-Determination Theory was used to assess the intrinsic tendencies to behave in healthy and effective ways which enable employees to hold positive attitudes toward their organization (Mowbray, Wilkinson, & Tse, 2014). The findings of this research indicated that the bond between leaders and employees is an essential element for engaging employees, which in turn increased organizational profitability. The findings of the study indicated that leaders who monitor the recurrent reasons why employees become disengaged, can provide valuable feedback to improve employee engagement. Three themes emerged from the research: (a) rewards and recognition, (b) empowering employees, and (c) building a bond between leaders and employees. If business leaders incorporate these three themes into their leadership practice, they could create growth potential for the organization. The findings indicated that implementing successful employee engagement strategies is critical to organizational success and leaders who embark on an employee engagement strategy must develop good listening techniques, be fair, have and demonstrate respect, build trust, and understand the employees' concerns.

Theoretical Review

This section reviews the literature on the theories that were used to frame the study. The ABC theory of safety and the job demand-resource theory are discussed to provide the theoretical foundations for the study.

The ABC Theory of Safety

The ABC theory of safety which was propounded by Ellis (1962) is one of the behaviour-based safety approaches to occupational safety popularized by B. F. Skinner in the early 1970s. The behaviour-based safety approaches aim at changing employee behaviours from "at risk behaviours" to safe behaviours (Kumar & Prakash, 2020). The ABC theory of workplace safety explains the antecedents (A), behaviours (B) and consequences (C) required to promote occupational health and safety (Rahman & Dwiyanti, 2020). The theory links one's compliance or non-compliance to workplace health and safety protocols to a spectrum analysis of antecedents, behaviour and consequences within which he or she operates (Affandhy & Nilamsari, 2017). In other words, the antecedents (or activators) tell us what to do to receive a consequence. That is, activated behaviours can provide a pleasant consequence or enable avoidance of an unpleasant consequence to uphold the tenets of workplace safety to enhance well-being.

The premise that all behaviours are the product of antecedents and consequences is the foundation of the ABC theory of safety. According to the theory, antecedents act as the catalyst for observable behaviours. Consequences either make repeating the behaviours mandatory or discourage them. The ABC theory has become central to many organizations' approaches to influencing safety behaviours. Kumar and Prakash (2020) observed that

many organisations use the tenets of this theory to design interventions for improving safety behaviours and culture at the individual, group and organizational level. The critical point here is that antecedents (or signals preceding behaviour) are only as powerful as the consequences supporting them (Affandhy & Nilamsari, 2017). That is, antecedents /activators tell people what to do to receive a consequence, and the consequences influence behaviour. The three components have been discussed in detail below.

Antecedents

Antecedents are the triggers for the actions people take to warrant certain outcomes. They are the activators (precursors) that support and promote these safe behaviours. In terms of promoting safety behaviour, some activators or antecedents include, work environment, risk, intrinsic motivation, work location, personality, job autonomy, management support, personal experience, etc (Nesheim & Gressgard, 2014). Risk is the most discussed antecedent to intentional and unintentional accidents and hazards. According to the theory, one may limit employees' risky actions by setting up a system of carefully thought-out antecedents and consequences. In safety management, antecedents that hinder safe culture must be assessed and eliminated while those that promote safety at the workplace ought to be reinforced.

Behaviour

Behaviour is the visible action employees take at the workplace because of the emotions experienced at the workplace (Kumar & Prakash, 2020). Behaviour at the workplace can be either safe or unsafe. According to Wu et al. (2010), following established safety guidelines and procedures, refusing to take “shortcuts”, using personal protective equipment, asking

questions when one needs more information on the task at hand are all safe behaviours. Safe behaviour also means helping friends, co-workers, and family members understand the importance of safe practices at work, and in the home. Aithal and Kumar (2017) indicated that unsafe behaviour at the workplace includes refusing to use personal protective equipment, taking short cuts, and not complying with safety rules, among others.

Belief systems underpin employee behaviour while the behaviour is a direct result of its consequence (Haga, 2016). An employee will exhibit a certain behaviour if the behaviour is preferred. When the consequence of a behaviour makes it more likely that it will occur again in the future, organisations will have to reinforce that behaviour. When the work environment changes in a way that employees like, then they will repeat the behaviour that led to the change (Bakker, 2015). Behaviour, then can be positively or negatively reinforced. When behaviour is negatively reinforced, employees do enough to satisfy a compliance standard, but they do not do anything extra. On the other hand, when behaviour is positively reinforced, employees do above and beyond their job duties and thereby take personal responsibility for safety (Nkrumah, Akoto, Gyabeng & Nkrumah, 2020). If employees work under positive reinforcement conditions like receiving rewarding feedback or recognition for safe behaviour, then they will be working towards something good which might result in creative thinking, successful decision-making, and seeking more responsibility for their safety (Ford &Tetrick, 2011).

Therefore, supportive intervention in the form of positive reinforcement is given so that the behaviour can become part of a natural

routine. Continuous practice of the said behaviour leads to fluency (i.e., fast and accurate behaviour) and in many cases, to habitual behaviour. Thus, when receiving rewarding feedback or recognition for a particular safe behaviour, people feel appreciated and are more likely to perform the behaviour again (Allen & Meyer, 1990; Daniels & Harris, 2000). Each occurrence of the desired behaviour facilitates fluency and helps to cultivate a good habit. Note that supportive intervention is typically not preceded by a specific activator. In other words, the support of self-directed behaviour does not need an instructional antecedent. The person knows what to do.

Consequences

The consequences are what happens after the behaviour, i.e, reward or punishment. Past consequences influence future behaviour. Most people do not want to suffer the "consequences" of their behaviour. According to Laal, Mirzaei, Behdani, Mohammadi and Khodami (2017) behaviour starts to change when people understand and believe in the potential consequences. The motivating consequences are different for people. The impact an injury has on them personally or their family is important. For others, losing their job, or having a consequence directly impact their social life is more important and can lead to behaviour change. Employees are motivated differently, therefore, understanding the motivations for safety in employees becomes important for long-term behaviour change (Vinodkumar & Bhasi, 2010). People take calculated risks when they perceive the positive consequences of the at-risk behaviour to be more powerful than the negative consequences (Laal, et al., 2017).

The positive consequences of comfort, convenience, and efficiency are immediate and certain, whereas the negative consequence of at-risk behaviour (such as an injury) is improbable and seems remote. In such a situation motivation in the form of cash rewards, prices or scholarships for wards will be useful (Geller, 2001). To ensure safety, Toseafa, Bata, and Toseafa (2018) suggested that there is a need to motivate a certain target behaviour by promising people a positive consequence if they perform the targeted behaviour. The promise is the incentive, and the consequence is the reward.

However, in safety management, this kind of motivational intervention is much less common than a disincentive or penalty. A disincentive takes the form of a rule, policy, or law that threatens to give people a negative consequence (a penalty) if they fail to comply or take a calculated risk. Often a disincentive or penalty intervention is ineffective because like an injury, the negative consequence or penalty seems remote and improbable. The behavioural impact of these enforcement programmes is enhanced by increasing the severity of the penalty and punishing more people for not taking calculated risk (Geller, 2001). However, the large-scale implementation of this kind of intervention can seem inconsistent and unfair. In addition, threats of punishment appear to challenge individual freedom and choice and therefore this approach to behaviour change can backfire and activate more calculated risk-taking, even sabotage, theft, or interpersonal aggression (Sidman, 1989).

Motivational intervention is clearly the most challenging, requiring enough external influence to get the target behaviour started without triggering a desire to assert personal freedom (Brehm, 1972). Powerful external consequences might improve behaviour only temporarily, if the behavioural

intervention is in place. Hence the individual is knowingly safe but the excessive outside control makes the behaviour entirely other-directed (Geller, 2001). Excessive control on the outside of people can limit the amount of personal control or self-direction they develop on the inside (Aronson, 1999; Brehm, 1972; Geller, 2001). The ABC model suggests that organizations should, through applied behaviour analysis or functional analysis, identify the events that precede the behaviour and the consequences of the behaviour as well.

The import of this theory in relation to this study is that, in the OMCs, certain activating events like the riskiness of the industry, and the number of accidents recorded, among others require that employees of the respective firms put up certain behaviours to ensure their safety. When these behaviours are safe, it promotes the psychological and physical well-being of the employees, leading to an engaged workforce for the OMC in question. These behaviours can also be reinforced depending on the consequences of these behaviours on the safety of the individual, group, or organization. The ABC theory has been criticized on the grounds that it always attributes the occurrences of accidents to irrational behaviours and choices of people in the workplace environment. Reiman and Rollenhagen (2011) however argue that rational decisions and actions could also lead to accidents based on the circumstances in an organizational environment. Thus, rational choices about cost over safety concerns could lead to workplace accidents and disasters.

The ABC theory of safety is used to establish safety culture within the organizational setting. Understanding the ABC that shape behaviour can help organisations intervene by shaping behaviours and the environment to yield

change. However, the theory did not consider the demands of the job. That is, the physical and the psychological demands of the job on employees as well as resources to handle these demands in the OMCs were not captured by the ABC theory of safety. As a result, the job demand resource theory was introduced as an additional theory to better understand the phenomenon of the study.

Job Demand-Resources Theory

The second theory employed in this study is the job demand-resource theory. The job demand-resource (JD-R) theory was originally propounded by Demerouti, Bakker, Nachreiner and Schaufeli in 2001. The theory has been used to explain how working conditions impact employees, and how employees actively influence their own working conditions (Taris & Schaufeli, 2015). The proponents of the theory suggest that it provides a multilevel approach to understanding employee behaviour and how it affects their well-being and engagement at the workplace (Bakker & Demerouti, 2018). The JD-R explains that when job demands are high without adequate resources, well-being and engagement would be low. Conversely, the availability of resources can offset the extreme effects of the demands of the job to promote employee well-being and engagement. For instance, job demands like an uncomfortable work environment, short deadlines, high work pressure, role ambiguity, complex or boring projects, excessive bureaucratic rules and procedures, poor working relationships and emotional demands could lead to sleeping problems, exhaustion, and impaired health. Similarly, available job resources in the form of "social support, clearer goals, training and development, performance feedback, and autonomy may instigate a

motivational process leading to job-related learning, work engagement, and organizational commitment" (Bakker & Demerouti, 2017, p. 309).

Bakker and Demerouti (2017) surmised that all job features can be categorized into two: job demands and job resources. Job demands are the "physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs" (Bakker & Demerouti, 2017, p. 274). Although job demands are not necessarily negative, they may turn into job stressors when meeting those demands requires high effort from which the employee does not adequately recover (Bakker et al., 2007). Personnel that are susceptible to protracted extensive job demands could become persistently exhausted and psychologically estranged from their work which ultimately decreases their well-being and their engagement levels (Radic, Arjona-Fuentes, Ariza-Montes, Han, & Law, 2020). The physical characteristics and the physical working conditions of the job environment possess some demands on the employee's physical and cognitive resources that may result in loss of energy, accidents, and health problems. These demands will require that certain safety behaviours be practised to reduce workplace stressors.

The Illinois Career Information Systems [CIS] (2021) agrees to this proposition by contending that employees at various fuel stations are exposed to contaminations such as gasoline fumes, exhaust fumes, noise from incoming and outgoing vehicles, long standing hours, working outdoors most of the time, hot or cold temperatures depending on the weather conditions and are also exposed to hazardous conditions and equipment. These exposures

may evoke chronic fatigue, burnouts, accidents, near misses, and other health related problems that can affect their well-being and engagement levels at the workplace, especially if it exceeds the adaptive capacity of the employees (Monney, Dramani, Aruna, Tenkorang & Osei-Poku, 2015). According to Snyder et al. (2008), when safety culture is present within the sector, these stressors would be reduced to a level that employees can cope with. This can enhance their well-being and consequently, their engagement levels in the organization. However, the lack of safety culture within the sector would mean that the demands of the job on employees physical and psychological well-being would be affected.

The second aspect of the theory deals with job resources. Job resources refer to the "physical, psychological, social, and organizational job conditions that are essential to accomplish work goals, reduce job demands and correlated psychological and/or physiological costs, or stimulate personal growth, learning, and development of working individuals" (Radic et al., 2020; Taris & Schaufeli, 2015). Job resources can be abstracted to mean an energy reservoir that supports the worker when faced with workplace stressors. They are the aspects of work that help employees to deal with job demands and achieve their goals. For example, performance feedback, social support and skill variety are motivating job characteristics that provide meaning to employees and satisfy employees' basic psychological needs.

Employees who feel that they can have a positive effect at work tend to feel more engaged and motivated. When organisations institute a safety culture, this will enhance employees' well-being, productivity, and personal growth and contribute to employee engagement (Strauss & Parker, 2014).

Again, to ensure employee well-being, organisations could through safety culture offer training on safety requirements to enhance employee competence in handling health and safety protocols to prevent accidents in the oil and marketing companies. Constructive feedback also builds self-determined behaviours like competence. Feedback helps employees understand what they are doing wrong and how they can improve upon the said task. This makes employees' feel as if their work has actual value, which is key in trying to promote employee's well-being and engagement.

In effect, employee well-being is influenced by both job demands and resources in unique and independent ways. Job demands may commence a health-impairment process if the daily workload transforms into chronic overload over time, as indicated in the initial version of the JD-R theory (Demerouti et al., 2001). Job demands in this case lead to chronic exhaustion, which may eventually lead to physical and psychological health issues. Several empirical studies have concluded that high levels of resources mitigated the adverse effects of high job demands on exhaustion (Bakker, 2015; Robertson & Cooper, 2010; Saks & Gruman, 2011). An example is also cited in Taris and Schaufeli (2015, p.158-164) to substantiate how the JD-R model applies to employee well-being and engagement.

A worker's high-quality relationship with their supervisor may alleviate the adverse effects of high demands on job strain since their supervisor's appreciation and support put demands in a different perspective. It could also help the worker in coping with his or her job demands, facilitate performance, or protect against ill-health. This study, therefore, draws from the JD-R theory to suggest that, to ameliorate the

adverse consequences of the job demands among employees of OMCs, a safety culture can be instituted to provide the requisite resources that employees need to deal with the demands of their job. Such behaviours can improve employee well-being and engagement levels among employees of OMCs.

Summary of the Theories

The theories discussed above provide a framework for explaining the relationship between safety culture, employee well-being and employee engagement. The ABC theory explains that safety culture alludes to individual, job and organisational features that affect and influence safety and health. That is operational errors caused by the management structure and ineffective planning lead to unsafe behaviour and its consequences. The job demand resource model was also examined to capture employee psychological and physical well-being. This theory postulates that the demand of the job can affect employees' physical and psychological well-being. However, the provision of resources in terms of competency, autonomy and relatedness will improve employees' well-being and cause employee engagement to reduce accident in the workplace. The theories, therefore, assume that the interaction between the safety culture components provides the necessary resources that employees need to lead to engaged employees and help avoid accidents and increase production. Thus, ensuring employee well-being can mediate the relationship between safety culture and employee engagement.

Chapter Summary

This chapter dealt with the review of concepts and theories assumptions underpinning the study. Specifically, the ABC Theory of Safety and the Job Demand Resource Model explained how the creation of a safety culture influences employee well-being and leads to engaged employees. Understanding the relationship between safety culture and employee well-being will help create and sustain the right safety culture in the organisation. Again, the chapter reviewed concepts such as safety culture, employee well-being and employee engagement in the context of this study. the chapter dealt with the author's conceptualization of safety culture based on Cooper's (2000) model. The physical and psychological aspects of employee well-being were also discussed before presenting the UWES conceptualization of employee engagement. justifications for the study.

CHAPTER THREE

EMPIRICAL LITERATURE AND CONCEPTUAL FRAMEWORK

Introduction

The previous chapter presented the theoretical framework within which safety culture, employee well-being and employee engagement have been examined in OMCs. The chapter discussed how these theories evolved, their assumptions and their conceptualisation. This chapter, however, looks at the empirical review of previous studies establishing the factors influencing employee engagement in the oil marketing industries. The empirical review acknowledges and examines previous knowledge on the topic and appreciates modes of presentation and discussions on research findings. Furthermore, the empirical review and methodological limitations in previous studies are assessed.

Safety Culture and Employee Engagement

Kruse (2015) asserts that employees employing discretionary efforts in their work roles could increase profitability, better services, customer loyalty, and employee safety. Safety culture is aimed to prevent the effect of accidents on employees and in turn have a positive impact on employee engagement. Since safety culture seeks to promote employee well-being, the researcher expects safety culture to positively affect employee engagement in the oil and gas sector. The dimensions of safety culture also help establish the relationship between safety culture and employee engagement. Hoert, Herd, and Hambrick (2018) reiterated that institutional characteristics in the form of organisational policies that seek to train employees on safety awareness are expected to positively relate to employee engagement. Social support at work denotes the

level of helping social interactions with management, supervisors, or co-workers within organisations which is known to positively relate to employee engagement (Wegge, Shemla, & Haslam, 2014). Likewise, positive encouragement from co-workers affects the psychological makeup of the individual which is associated with resiliency. Thus, this refers to the ability to control and impact the environment successfully and is therefore expected to be positively related to employee engagement (Kwon & Marzec, 2016).

Gyensare et al. (2018) also investigated the impact of health and safety cultural practices among SMEs in Ghana using a SEM. Their study was premised on the assumption that most of the fatalities that happen at the workplace are because of employees' perceptions and attitudes toward safety. The study conceptualized employee engagement using Khan's (1990) model, which comprises three dimensions; intellectual, affective, and social engagement. Health and safety culture was measured using the Institute for Health and Work's health and safety management scale. Cross-sectional primary data were collected from 136 employees of SMEs within the Accra Metropolis for the SEM analysis. The outcome of the study revealed that safety culture positively enhanced all three dimensions of employee engagement, even though the intellectual dimension had the highest impact. The authors, therefore, concluded that promoting occupational health and safety among SMEs is paramount to keeping employees engaged in the sector to harness their potential for economic growth.

Collier et al. (2016) analysed the correlation between safety culture and employee engagement in the USA. Their study was based on a descriptive and correlational analysis. Employee engagement was measured using Gallup

Q^{12} survey while safety culture was measured based on 12 dimensions from Hospital survey on patient safety culture. The authors found the total safety culture variable to be positively correlated with employee engagement while each of the 12 dimensions of safety culture also depicted positive correlations with employee engagement. The authors concluded that safety culture is a predictor of longevity and employee engagement among hospital employees.

In a similar study, Biddison et al. (2016) sought to establish that safety culture is a key factor to promote employee engagement among healthcare workers. They employed secondary data on safety culture obtained using the safety attitudes questionnaire and employee engagement data (based on Gallup Q^{12}) both collected by the John Hopkins Hospital. Their analysis focused on three time periods, 2009, 2011 and 2013, arguing that a retrospective analysis could provide a better insight for their analysis. The data was analysed using descriptive statistics and the Spearman correlation coefficient. Their results revealed that all four dimensions of their measure of safety culture had significant positive correlations with employee engagement. Based on correlation coefficients ranging from 0.43 to 0.69, they concluded that there is a positive association between safety culture and employee engagement across time. They however suggested that this simple relationship is too simplistic and that, other factors can mediate or moderate the relationship to explain the phenomena better. This is a key thrust of the current study.

Safety Culture and Employee Well-being

Surprisingly, the concept of safety culture and well-being has not received much empirical attention unlike other concepts such as safety and performance. Papers presenting empirical investigations on the role of safety

culture are even less and more difficult to combine because they examine well-being at different levels of analysis in safety such as stress (Strahan, Watson & Lennonb, 2008), safety appraisals of work (working safely, bending rules and management safety climate) (Hansez & Nyssen, 2006). The concept of well-being, according to Klooster and Keyes (2011), includes their psychological and social functioning. Diener (2000) also defines it as an evaluation of one's life and context specific aspects, as well as to momentary mood and experiences.

To begin with Ajala et al. (2012) assessed how the environment at the workplace impacts the well-being and productivity of workers among governmental workers in Edo state Nigeria. Simple random sampling technique was used to select 350 participants for the study. Using descriptive statistics, the findings suggested that safety culture and practices impact the health, motivation, efficiency and productivity significantly contributing to the well-being of workers. Employing the convenient sampling technique by focusing on all the manufacturing firms in Western Kenya, Makori et al. (2012) also investigated safety programmes among manufacturing firms in Kenya and found that poor health and safety culture negatively impacted the organisation and well-being of workers. The study used descriptive and inferential statistics to analyze the data. Additionally, Muthuviknesh and Kumar (2014) sought to determine how health and safety affected the working environment among manufacturing firms in Delhi. The study used both quantitative and qualitative methods to analyze data from 100 respondents. They found that safe environments had a direct relation with overall productivity and adherence, directly influencing the well-being of employees.

Similarly, Funmilayo (2014) assessed the effect of health and safety on performance using respondents from public university libraries in Nigeria. The sample for the study were 281 respondents randomly obtained. The study adopted descriptive survey research design of the ex-post-facto type. The study further concluded that occupational health and safety significantly influenced employees' performance and well-being. Using both questionnaires and interviews to collect data from 140 employees, Dwomoh, Owusu and Addo (2013) further investigated how health and safety policies affected the performance of employees working in the Ghanaian timber industry. The findings revealed that health and safety was vital in influencing the performance and well-being of the employees in view. Using the construction sector of Ghana for his study, Amponsah-Tawiah (2013) sought to assess the existing state of health and safety and determine how it contributes to the country's sustainable development. The study revealed that safety measures enhanced the workplace and individual well-being positively influencing employee commitment and further contributing to sustainability.

Nahrgang et al. (2011) employed meta-analysis using 203 independent samples. The study revealed that safety related to accidents, unsafe behaviour and mental health influenced organisational improvements and well-being (burnout, engagement). In a cross-sectional survey of 2067 employees, Haslam, O'Hara, Kazi, Twumasi and Haslam (2016) added that the relationship between occupational safety and well-being is enhanced when a precautionary safety approach is utilized. They further concluded that this proactiveness results in commitment and job satisfaction, greatly influencing the well-being of employees in the long run. The study of Game (2007)

employed both questionnaires and interviews with 212 and 16 samples respectively to examine workplace boredom coping, health, safety and its HR implications. The findings showed that employees who experience safe working environments tend to score higher on work related well-being measures. Game further concluded that employee well-being as a result of occupational safety impacts both employees and the organisation.

Vosburgh (2007) also revealed that safety culture should aim at enhancing the psychological and physical well-being of employees at work. In addition, Armstrong and Taylor (2014) also affirmed this by adding that lack of safety and health cultures at various work environments negatively impacts employee motivation and productivity which in turn affects the well-being of employees both psychologically and physically. Nixon et al. (2011) subsequently confirmed this by stating that employers must ensure safe environments if they intend to improve worker efficiency, productivity and well-being. Ward et al. (2008) studied the impact of health and safety management on organisations and their staff. The study employed 71 respondents for interviews and 2067 respondents for quantitative analysis. The study concluded that effective and efficient health and safety practices exhibit positive effects on organisational performance and employee behaviour.

Likewise, Okeola (2009) asserted that employers must ensure safe environments to avoid possible accusations and protect employees from hazards. In Zimbabwe, Kahya (2007) sampled 124 employees and utilized interviews, questionnaires and observation to investigate the effect of health and safety on productivity in the food industry. The study concluded that poor safety measures impacted productivity negatively influencing the well-being

of employees negatively as well. Ofoegbu et al. (2013) used both primary and secondary data in their research on the effect of occupational hazards on employee productivity and found that hazardous substances and unsafe environments negatively affected the productivity, profitability and overall well-being of employees. Okros and Virga (2022) assessed the effect safety has on well-being. The study used a sample of 350 correctional officers and found that safety positively impacted satisfaction and the overall health of employees enhancing their well-being.

It is realised from the above review that even though a number of studies have made efforts to study the nexus between safety culture and well-being, the oil marketing sector and the oil and gas industry in general has not received much attention in this regard. This study contributes to the literature by providing empirical evidence on this relationship within the oil marketing sector.

Employee Well-being and Employee Engagement

Research suggests that a high level of psychological well-being leads to employee engagement (Aiello & Tesi, 2017; Arenas et al., 2015; Armaou et al., 2019). Researchers such as Burdorf et al. (2020) have also found a significant relationship between scores on employee well-being and employee engagement. Employee psychological well-being is linked to individual outcomes such as physical health and a range of mental health. While a low level of psychological well-being is associated with poor physical and mental health which affects employee engagement negatively. Kuper and Marmot (2013) conducted a cohort study of over 10,000 British civil servants. The results indicated that factors in the job, such as low level of control and

autonomy were associated with an increased risk of serious illness which reduces employee engagement in the workplace and leads to turnover and accidents. Other studies (Burns & Machin, 2009; Celma et al., 2018) have also shown that there are links between minor physical illnesses such as a cold, headaches, insomnia etc., and employee engagement.

Using a sample of 401 nurses in Australia, Grover et al. (2018) investigated how psychological capital impacts employee engagement and well-being. The study revealed that well-being and engagement had a positive relationship. In the measurement of work engagement, Schaufeli, Bakker and Salanova (2006) collected data from 10 countries (N = 14521) and found that work engagement related negatively to burnout. The study further concluded that engagement related directly to well-being. Brunetto et al. (2012) investigated how emotional intelligence, job satisfaction and well-being influence engagement, commitment and turnover using a sample of 193 police officers in Australia. The study used the partial least squares path modelling and found that emotional intelligence directly led to job satisfaction and well-being which consequently influences engagement and commitment, reducing turnover intentions and accident. The study further added that well-being and engagement separately had a significant direct relation.

The study of Clarence et al. (2020) on how well-being and job satisfaction predict performance revealed a positive relationship between well-being and engagement as well. Judge and Watanabe (1993) found similar results that engagement and well-being were positively related. In India, Sudibjo and Sutarji (2020) studied the role job satisfaction, well-being, and emotional intelligence play in employee engagement among teachers of

Pelangi Kasih Jakarta. The study revealed that all the factors had a significantly positive impact on the engagement of teachers in Pelangi Kasih Jakarta. Shuck and Reio (2014) also studied the relationship between employee engagement and well-being and its implication for practice using a sample of 216 health care employees from the United States, Canada, and Japan through an online survey. The study revealed that highly engaged employees exhibited higher levels of well-being and personal accomplishment.

Using a sample of 550 employees in South Korea, Joo and Lee (2017) studied workplace happiness focusing on factors such as work engagement, career satisfaction and subjective well-being. The findings suggested that the employees were highly engaged with their jobs, satisfied with their jobs and further enjoyed heightened well-being when employees had higher perceived organizational support and psychological capital. Hakanen, Peeters and Schaufeli (2018) also found that work engagement directly impacted job satisfaction and inversely impacted burnout which significantly contribute to the well-being of employees. They employed 1877 respondents and SEM to analyze primary data obtained from the respondents. Likewise, a study by Quaigrain et al. (2022) demonstrated that there is a positive relationship between employee well-being and employee engagement.

Fairlie (2017) investigated the relationship between engagement and employee well-being. The study found that engagement and its dimensions all contributed to organisational behaviour and employee well-being. Studying the Divine Word Colleges' employees in the Ilocos, Phillipines, Abun et al. (2020) investigated the employees' well-being and work engagement. The

findings suggested that a significant correlation exists between workplace well-being and work engagement. Morrison (2019) found that employees who reported higher levels of engagement were likely to benefit from a broadened allocation of psychological resources, one of which is employee well-being.

Lizano (2021) examined engagement and its relationship with personal well-being in the USA. The study indicates that being engaged with work is attributed to greater levels of life satisfaction and health impacting the well-being of workers. Gupta and Shaheen (2018) employed 200 medical employees and found that psychological capital mediates partially the relation between engagement and general Well-being. The study used SEM to analyze the data of the study. Bakker and Demerouti (2018) in their study of multiple levels in job demands-resources theory and its implications for employee well-being and performance suggested that well-being and organizational behaviour (employee engagement) are functions of variables situated at several levels (organization, team, individual level), which interact both within and over time.

Al-Ghamdi et al. (2021) examined the well-being of employees and engagement in an oil marketing company in Saudi Aramco. Maslow's Hierarchy of Needs theory was employed in the study to explain the needs of employee well-being in an organization. Based on the theory, the study related employee well-being dimensions of physical, psychological, and social are corresponding to Maslow's safety, esteem and self-actualization and social needs respectively. Thus, employee well-being dimensions are the main driving forces for people to demonstrate desirable work outcomes in an organisation. Management can focus on providing autonomy and personal

growth, allowing employees to meet their esteem and self-actualization requirements. When these greater wants are met, they get stronger, but when lesser needs are not met, they become weaker. The results showed that increased well-being leads to improved employee engagement among Saudi Aramco employees.

The Mediating Role of Employee Well-being on the Relationship Between Safety Culture and Employee Engagement

The JD-R theory posits that positive employee well-being could act as a resource and hence be expected to improve employee engagement. Previous research by Brauchli et al. (2016) posited that employee well-being can be an antecedent to employee engagement. Consequently, it is expected that employee well-being could mediate the relationship between safety culture and employee engagement (Newman, Mayson, Teicher, & Barrett, 2015). In addition to a direct positive effect on employee engagement, an established safety culture has a positive effect on employee well-being, which in turn could also lead to a positive effect on employee engagement (Tong et al., 2020).

Consistent with the results presented above, Tengilimoglu, Celik and Guzell (2018) indicated that organisations that had instituted a safety culture and well-being activities reported positive results including, improved employee morale and engagement, a healthier and more inclusive workplace culture and reduced absenteeism. In a related study, McGuire and McLaren (2009) examined the role of employee well-being in the nexus between physical conditions in the working environment and employee commitment in call centres within Britain. Using a questionnaire and the Kenny and Baron's 4

step procedure, they found employee well-being to mediate the relationship between physical conditions in the working environment and employee commitment among call centre employees in Britain

Therefore, Naji et al. (2021) explored the impact of safety culture on safety performance and the mediating role of psychosocial hazard in Malaysia oil and gas industry. Safety culture was measured using the following dimensions management commitment, the work environment and involvement. Psychosocial hazard was measured with the following job content, workload and work pace, working hours, participation and control, career development, status, payments, role in the organization, interpersonal relations, organizational culture, and home-work interface. Safety performance was measured using leading and lagging factors. Leading factors relates to specific daily behaviours as they relate to safety whiles lagging factors indicate the influence of safety on workplace accidents. The result of the study indicated that safety culture has a significant effect on safety performance and psychosocial hazard and that psychosocial hazard fully mediated the relationship between safety culture and safety performance. One limitation of the study is the limited definition given to safety culture. This will undermine the true state of safety culture in the organization and how to improve upon the safety culture in the oil and gas industry. Again, only questionnaire was used for data collection. This will also not allow for a true triangulation.

Rasool et al. (2020) examined how a toxic workplace environment negatively affected employee engagement, directly and indirectly, through organizational support (OS) and employee well-being (EW). Data was

collected through a survey including 301 employees. Descriptive statistics were used to analyse the demographic data and SEM to assess the relationships in the research model. The result indicated that a toxic workplace environment has a negative influence on employee engagement. The results also confirmed the negative relationship between a toxic workplace environment and employee well-being and provided further evidence that employee well-being positively and significantly mediates the relationship between a toxic workplace environment and employee engagement. The research concludes that reducing workplace toxins will improve well-being and employee engagement.

Alroomi and Mohamed (2021) investigated the direct relationship between workplace occupational stressors in remote areas and the safety behaviour of workers, and the indirect relationship as mediated by mental health and fatigue level. Questionnaires were used for data collection involving 387 employees. Regression analysis was explored to assess the direct and mediation relationships. The result indicated that mental health mediated the relationship between workplace stress and safety performance. Again, physical health mediated the relationship between workplace stress and safety compliance. This implies that poor mental and physical health will lead to poor safety behaviour which brings about fatigue and anxiety. This, in turn, reduces employees' performance capacities, including reaction times and judgement and increased the probability of error which eventually affect their engagement level. One limitation of the study is that only the quantitative approach was adopted, and again occupational stressors was narrowly defined.

Another related study is that of Sivapragasam and Raya (2017). The duo scrutinized the connection between HRM practices and employee engagement among IT professionals in India, viz-a-viz the mediating role employee well-being could play in such a relation. The results from the study indicated that HRM practices and employee well-being have positive impacts on employee engagement while employee well-being mediates the relationship between HRM practices and employee engagement.

Kloutsiniotis and Mihail (2020) examined the relationship between perceived high-performance work systems and emotional exhaustion: the mediating role of job demand and job resource. The researchers described a performing work system as a system of coherent HR practices that are supposed to improve organisational performance through enhanced employees' skills, motivation, and opportunities to participate at work. The study that high-performance work systems lead to good safety practices and employee engagement. Job demand refers to those physical, psychological, social, or organistional aspects of the job that require sustained physical and psychological effort and are therefore associated with certain physiological and psychological costs. Job resource, on the other hand, refers to those physical, psychological, social, or organisational aspects of the job that are functional in achieving work goals, reducing job demands and the associated physiological and psychological costs and stimulating personal growth and development. The result revealed that the relationship between high-performance work systems and job demand was negatively significant and high-performance work systems were positively associated with job resources.

Again, it was found that job demand was positively related to emotional exhaustion and the relationship between job resources and emotional exhaustion was not significant. the result indicated that the relationship between high-performance work systems and job demand was negatively significant and high-performance work systems was positively associated with job resource. Again, it was found that job demand was positively related to emotional exhaustion and the relationship between job resources and emotional exhaustion was not significant. With the mediation relationship, job demand mediates the relationship negatively and no mediation could exist between high-performing workplace systems and emotional exhaustion.

Langove, Isha and Javaid (2016) also studied the mediating effect of employee well-being in relation to role stressors and turnover intention in a Malaysian manufacturing industry. The researchers indicated that when unfavourable or favourable demands exceed the employees' ability, stress becomes the by-product. Role stressors were conceptualised as role ambiguity and role conflicts. Role conflicts arise based on job demands and role ambiguity arises based on undefined information as they relate to safety in the organisation. Employee well-being was measured with job satisfaction, fatigue, and work-life balance. The result revealed that role stressors have a negative relationship with turnover intention and well-being fully mediated the relationship between role stressors and turnover intention. The limitation with the study is that represented the situational dimension of safety culture and also the research work included job satisfaction, work-life balance and fatigue as employee well-being. This study further includes competency, autonomy and relatedness as a component of employee well-being.

Table 1:Summary of Empirical Review

Author	Purpose	Country	Approach	Title	Source	Findings
Naji et al., (2021)	To evaluate how psychosocial hazard mediated the relationship between safety culture and safety performance.	Malaysia	Quantitative	Impact of safety culture on safety performance; the mediating role of psychosocial hazard: an integrated modelling approach	International Journal of Environmental Research and Public Health	There was a significance relationship between safety culture and psychosocial hazard and safety performance. Psychosocial hazard fully mediated the relationship between safety culture and safety performance
Rasool et al. (2021)	To explore the effects of a toxic workplace environment on employee engagement, the direct and indirect role of organisational support and employee well-being	China	Quantitative	How toxic workplace environment affects employee engagement: the mediating role of organisational support and employee well-being	International Journal of Environmental Research and Public Health	The result confirmed that a toxic workplace environment had a negative impact on employee engagement. Moreover, the result indicated that organisational support and employee well-being significantly

Table 1 Continued

						mediate a toxic workplace environment and employee engagement
Naji et al., (2021)	To investigate the mediating role of safety communication in the relationship between safety culture and safety performance among employee in the petrochemical industry.	Malaysia	Quantitative	Assessing the mediating role of safety communication between safety culture and employee safety performance	Frontiers in Public Health	The findings revealed that safety communication partially mediates the association between safety culture and safety performance. Further, the safety culture was found to have a significant and positive effect on safety performance
Alroomi & Mohamed (2021)	To examine the direct and mediated relationship among occupational stressors and safety behaviour and the indirect relationship as mediated by mental health and fatigue level	Kuwait	Quantitative	Occupational stressors and safety behaviour among oil and gas workers in Kuwait: the mediating role of mental health and fatigue	International Journal of Environmental Research and Public Health	The result provided support for the direct relationship in occupational stressors predicted safety behaviour and that mental health and fatigue partially mediated the

Table 1 Continued

Langove et. al (2016)	for examining the relationship between role stressors and turnover intention with the mediating role of employee well-being		ıtitative	The mediating effect of employee well-being in relation to role stressors and turnover intention	International Review of Management and Marketing	relationship. The result revealed that stressors had a negative relationship on turnover intention and well-being fully mediated the relationship between role stressors and turnover intention.
Kloutsiniotis & Mihail (2020)	To use the job resource model to examine the effects of employee's perception of high-performance work systems on emotional exhaustion.	Greece	Quantitative	Is it worth it? Linking perceived high-performance work systems and emotional exhaustion: the mediating role of job demand and job resources.	European Management Journal	the result indicated that the relationship between high performance work systems and job demand was negatively significant and high-performance work systems was positively associated with job resource. Again, it was found that job demand was positively related to emotional exhaustion and the relationship between job resources

Table 1 Continued

						and emotional exhaustion was not significant. With the mediation relationship, job demand mediates the relationship negatively and no mediation could exist between high performing workplace systems and emotional exhaustion
Robertson and Cooper (2018)	The article aims to propose what is more likely to be sustained when employee psychological well-being is high	United Kingdom	Quantitative	Full engagement: the integration of employee engagement and psychological well-being	Leadership & Organization Development Journal	the research concluded that psychological well-being is important in developing sustainable levels of employee engagement
Al-Ghamdi et al., (2021)	The research aimed to uncover employee well-being and leadership culture factors that determine knowledge sharing behaviour.	Saudi Arabia	Quantitative	Employee well-being and knowledge sharing behaviour among employees of Saudi Aramco	Advances in Social Sciences Research Journal	Based on the Maslow's theory employed in the study, employee well-being dimensions which consists of physical, psychological, and social are

	corresponding to Maslow's safety, esteem & self-actualization needs respectively

Lessons learnt from the Empirical Review

The empirical review indicates that very little research has been done on the mediating effect of employee physical and psychological well-being on the relationship between safety culture and employee engagement. Ferreira et al. (2018) and Hayat and Afshari (2020) suggest that a safety culture can enhance employees' well-being to handle stressful situations. Specifically, safety culture has been found to be a predictor of employee well-being (Bashshur et al., 2011). Previous research has also found the significant role of employee well-being in predicting employee engagement (Wang et al., 2017; Yan et al., 2021). As such a positive perception of employee well-being influenced by safety culture could lead to employee engagement (Rick et al., 2001). Therefore, the current study proposed that safety culture predicts employee well-being which in turn enhances the engagement of employees in the oil and gas marketing sector.

The review above indicates that most of the research in the area were done in the Western work cultural environment which is different from the cultural setting of Ghana where the current study is being done. Therefore, the finding of these studies cannot be generalised or adopted as possible solutions to the problems faced by the oil and gas marketing sector of Ghana. It has also been gathered from the review that most of the studies concentrated on a narrow definition of safety culture. Thus, most studies concentrated on employees' perception and attitudes as the surrogate for safety culture. However, it is recommended that the whole is more than the sum of the parts. The current study considers the reciprocal relationship between the dimensions of safety culture and therefore defines safety culture in all its three

dimensions. These dimensions are situational characteristics, behavioural characteristics, and psychological characteristics.

Moreover, only a few research has considered the role of dispositional variables in the relationship between safety culture and employee engagement. However, research suggests that ensuring resources in the form of job autonomy, co-worker support, opportunities to learn, and provision of personal protective equipment is linked with employee engagement (Freeney & Tienan, 2009; Schaufeli et al., 2009). The current study thus concentrates on assessing specifically the role of employee physical and psychological well-being in the safety culture and employee engagement nexus.

Although previous researchers have suggested that future research should address the gap identified in the literature, particularly the mediating effects of physical and psychological well-being on the safety culture and employee engagement nexus, no such work has been conducted yet. In addressing this issue, all three dimensions of safety culture proposed by Cooper were used to assess safety culture. Additionally, the mediating effect of employee physical and psychological well-being on the relationship between safety culture and employee engagement were explored.

Conceptual framework

The conceptual framework in Figure 2 shows safety culture as the independent variable, employee engagement as the dependent variable and well-being as the mediating variable.

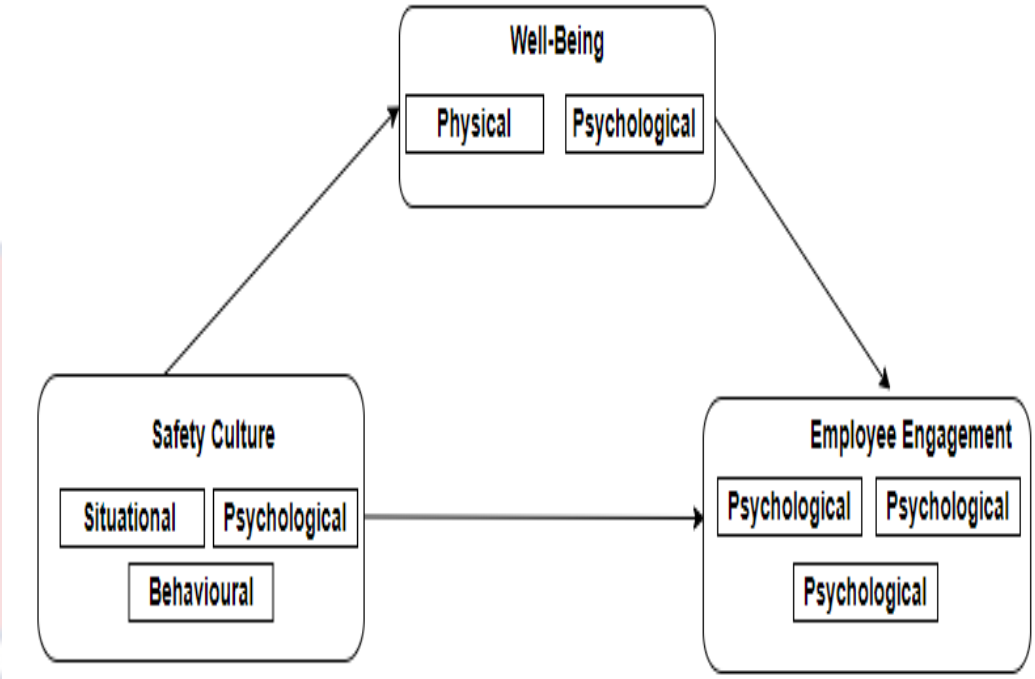


Figure 2: Conceptual Framework

Source: Amfo-Antiri (2022)

The study proposes that safety culture has a significant effect on employee engagement. Safety culture is conceptualised into three components. They are situational characteristics, behavioural characteristics, and psychological characteristics. Cooper and Phillips (1995) argue that rather than being solely concerned with shared perceptions, meaning, and values, safety culture can cogently be considered as the product of multiple goal-directed interactions between psychological, behavioural, and organisational factors. This study uses all three dimensions of safety culture.

Organisations with engaged employees have reduced absenteeism, accidents and increase productivity. Wagner and Harter (2006) report a 30 to 50 per cent decrease in employee turnover in organisations that have their employees engaged at work. According to Harter et al. (2006), business units that had their employees engaged experienced 62% fewer accidents than units

with lower employee engagement. This study, therefore, assesses employee engagement using vigour, absorption, and dedication.

The study further proposes that employee physical and psychological well-being have a mediating effect on the safety culture and employee engagement nexus. Employees in the oil and gas sector suffer from noise, risk, and stress, which all affect their physical well-being and also, they suffer from psychological hazards such as work overload, underload, hours of work and work relationships (Bergh, Leka & Zwetsloot, 2018). Kahn (1990) argues that when employees operate in a psychologically meaningful and physiologically safe environment, they are more engaged hence establishing some relationship between safety culture, employee physical and psychological well-being and employee engagement.

To assess the relationship between safety culture, employee well-being and employee engagement, the study draws on the ABC theory of safety and the job demand resource model. The theory links one's compliance or non-compliance to workplace health and safety protocols to a spectrum analysis of antecedents to the behaviour. This includes the work environment, risk, intrinsic motivation, work location, personality, job autonomy, management support, and personal experience. Then the behaviour itself includes following established safety guidelines and procedures, refusing to take shortcuts, using personal protective equipment, and asking questions when one needs more information on the task at hand. And then finally the consequence that follows the behaviour which can be positive or negative such as reward or punishment.

Understanding the ABC that shape behaviour can help organisations intervene by shaping behaviours and the environment to yield change. From

the diagram above situational characteristics in the form of instituting safety policies and a safety vision statement to ensure safety within the organisation, management commitment to safety, supervision and feedback can be used to modify the antecedents of safety culture. Encouraging employees not to skip safety steps, enhancing reporting skills through feedback from accident results and training employees on the safe way to perform their duties can also be used to modify behaviour in the safety culture construct. Finally, support from other employees to report any safety concern, positive feedback from management and employees on coming up with safe ways of performing the work and punishment for violating safety rules can be used to modify the consequence of the psychological characteristics of the safety culture construct. Thus, the relationship among the safety culture dimensions must lead to employee engagement to reduce accidents and increase worker productivity and morale.

The job demand resource theory also stipulates that job demand is in the form of physical, social, or organisational aspects of the job that require sustained physical or mental effort. As a result, if the physical and the psychological demand of the job cannot be met, they can lead to strain or exhaustion which in turn can affect employees' physical and psychological well-being.

The other aspect of the job demand resource theory is based on the job resource. The job resource is the physical, psychological, social, or organisational aspects of the job that functions to achieve work goals, reduce job demands and the associated physical and psychological costs and engineer personal growth and development. The implication of the theory in the study

is that if adequate job resources are available in the form of a safety culture to fulfil job demands then this will ensure employee well-being and lead to engagement which in turn can lead to a reduction in accidents and turnover.

Based on the above explanation, the researcher proposes employee well-being to be the link between safety culture and employee engagement. Thus, ensuring well-being by the provision of professional competencies, autonomy or learning opportunities and relatedness through the creation of safety culture will lead to employee engagement.

Chapter Summary

This chapter presented a review of conceptual and empirical studies on safety culture, employee well-being and employee engagement. The chapter aimed at reviewing, critiquing and synthesizing studies related to safety culture, employee well-being and employee engagement in the oil marketing industry. The review revealed important issues that informed the conceptual framework. The review will further be beneficial to the other chapters of the work including the methodology, analysis, presentation of findings, discussions, conclusions, and recommendations for further studies. The next chapter presents the methodology of the study.

CHAPTER FOUR

RESEARCH METHODS

Introduction

This section discusses the methods employed for the study. This includes the research philosophy, design, sampling, data collection, and ethical issues. The chapter also examines and justifies the research methodology adopted for the study. The chapter also explains the instrument used for data collection, validation and reliability of the instrument, data analysis procedures, ethics and limitations of the study.

Research Philosophy

Research philosophy is the institution of knowledge together with the specific qualities of knowledge (Saunders, Lewis & Thornhill, 2009). According to Saunders and Townsend (2016), this is the reason why researchers conduct research; to institute knowledge and create understanding in the established knowledge. Thus, knowledge in research philosophy helps researchers know the kind of knowledge that is accepted in a particular field of study (Saunders et al., 2009). Creswell (2007) opined that philosophical assumptions or paradigms are embedded in the researchers' decision-making and researchers bring forth their worldviews or sets of beliefs to any research project.

This research adopted the pragmatism philosophy. The pragmatism paradigm "is typically associated with mixed methods research as an overarching philosophy embraced by a large number of mixed methods scholars" (Creswell & Clark, 2018, p.87). Pragmatism is founded on the belief in multiple methods, making it a mix of positivism and interpretivism.

Pragmatists argue that what determines the research philosophy adopted in any research work is the research question (Creswell, 2013). Thus, depending on the research question, one approach may be better than the other. Pragmatists are of the view that different methods could be applied to solve the research question under study. Pragmatism philosophies integrate objectivism and subjectivism in creating knowledge (Sekaram & Bougie, 2016). With the help of this philosophy, the researcher can collect and analyse both quantitative and qualitative data and integrate the two sets of results at some point in the research to draw inferences from the quantitative and qualitative results (Johnson & Onwuegbuzie, 2004; Tashakkori & Creswell, 2007).

Based on the research questions in this study, positivists would view safety culture as something that the organization has, which can be manipulated and changed to produce the sort of state desired by the organization (Smith et al., 2016). Safety culture in the study is constituted by situational, behavioural and psychological factors that describe the durable corporate atmosphere which impacts people's management of safety in an organisation. These three dimensions and their manipulation will give the state of the safety culture of an organization. However, the constructivists' view safety culture as an ongoing process which is created and re-created through a complex array of phenomena which include social interactions and physical factors such as office layout to which individuals attach meanings (Dahl & Kongsvik, 2018). It is the meanings that are attached to these phenomena by social actors within the organisation that need to be understood for safety culture to be understood. The pragmatism philosophy will therefore allow for a better understanding of the state of safety culture in the oil and gas industry.

The pragmatism paradigm has often been identified in the mixed-methods research strategy as the appropriate philosophy for conducting mixed-method research (Scott & Briggs, 2009; Johnson & Gray, 2010; Creswell et al., 2011). This is because researchers are less restricted in terms of how they can carry out the research by using the pragmatic philosophy. Pragmatism dwells on the appropriateness of the research method to answer the research question unlike, choosing to either adopt the positivism or interpretivism philosophy.

This integration will provide a better understanding of the research topic to give more detailed answers to the research questions, identify new research questions and suggest changes to subsequent research designs (Creswell et al., 2011). Again, the pragmatic philosophy emphasises that knowledge creation is on the relationship between practice and theory. Thus, combining questionnaires and interviews in a single research study brings together the advantages of breadth and depth associated with practice and theory. The effect of integrating the results of these two methods is the possibility of providing a more complete picture of a research topic that can address a range of research questions and by so doing can provide a more complete knowledge that can enhance theory development and practice (Johnson & Onwuegbuzie, 2004).

Research Approach

Research approaches can be classified into three, namely quantitative, qualitative and or mixed methods (Creswell, 2014; Neuman, 2014; Saunders et al., 2009). According to Dawson (2007), the choice of a particular method has been driven by the research philosophy, meaning that the researcher can

decide to be objective or to allow elements of subjectivity in the research process, for as long as the philosophy demands elements such as empirical evidence and the like (Woodside, 2010). If, however, the research needs other forms of data, the research methodology can be useful to determine how best to design the process.

The quantitative research approach uses statistical analysis to create a link between the known and the unknown about a specific research topic (Soiferman, 2010; Neuman, 2014). Quantitative research permits the collection and analysis of numeric data. There is the conceptualisation of relationships within variables applying descriptive or inferential statistical methods (Adcock & Collier, 2001). The quantitative research approach uses a questionnaire to collect data for the study. This research approach uses descriptive statistics to establish inferences about a specific group of people and to determine the limitations of such population (Trochim, 2006; Winter, 2000). The quantitative research approach makes use of numerical data to show a physical representation of the data collected, resulting in logical conclusions, and is based on evidence (Saunders et al., 2016). The philosophy that can allow the use of this approach is the positivism philosophy; therefore, it becomes inadequate for a research issue that is non-quantitative or has its premise on social-cultural tendencies of people's behaviour and practice.

According to Saunders et al. (2016), the qualitative research approach allows the use of non-numeric data. Data is collected using interviews in the qualitative research approach and data are analysed qualitatively. There is a detailed analysis of the information from participants in the research; including the way the information is connecting the participants, their social

networks, and many other informal ways to gain the information (Creswell, 2014). The qualitative research methodology enabled the researcher to consider the perspective of the participants by presenting general questions, gathering data from respondents, analysing answers and grouping them into themes, and carrying out research using both subjective means (Soiferman, 2010; Howe & Eisenhart, 1990) and objective means for as long as the situation allows. This methodology lends itself well to the philosophy of interpretivism because it allows the researcher to deal with the contextual as well as situational circumstances when collecting the information as well as when analysing it (Woodside, 2010; Saunders et al., 2009; Creswell, 2014). For these reasons it is justified that qualitative research methodology has been considered to be cardinal to this research because it aligns well with the philosophy of interpretivism. It also shows great value to the knowledge of the participants, hence supporting the trinity of epistemology, ontology and axiology.

The mixed methods research approach articulates that a researcher could find situations where they would need to use both quantitative and qualitative research approaches for the implementation of robust research work (Creswell, 2014). A review of literature has shown that the issue of safety culture has elements that can be measured or assessed using both quantitative and qualitative research approaches. Therefore, it becomes important to benefit from the possibility of using a hybrid of the two approaches, as suggested by Neuman (2014). Thus, on one hand, the research can implement the quantitative approach that could fit the scientific-based data; and on the other hand, use social-based data that can articulate the way

people feel and the way they relate to the information they are given (Johnson & Gill, 2010).

Thus, given the purpose and the nature of this study, using a single research approach cannot address the issues of safety culture in the OMCs because there is a need to benefit from the possibility of gathering both qualitative and quantitative based data (Neuman, 2014). The other reason to use mixed methodology is that there is a possibility to use qualitative data to supplement the quantitative analysis. For instance, the quantitative results would be explained using qualitative data because of the social side of the arguments (George & Bennett, 2005). Therefore, it was envisaged that qualitative and quantitative research methodologies would complement each other (Creswell, 2007). The study therefore employed the mixed method to collect and analyze the data for the study.

Research Design

A research design is a grand plan of how to approach the research from the topic to the processes, as designed by the researcher to avoid ambiguity and false leads (Johnson & Gill, 2010). Research design can be grouped into three broad categories, based on the purpose of the study - exploratory, descriptive, and causal designs (Neuman, 2014; Sekaran & Bougie, 2016; Saunders, Lewis, & Thornhill, 2009). Saunders et al. (2009), indicated that it is important that the researcher understands the phenomenon of which data is to be collected before the actual collection of data.

The explanatory or causal design is used in establishing how one variable causes another variable to change (Sekaran & Bougie, 2016). The focus here is to study a situation or a problem to explain the relationships

between variables (Saunders et al., 2009). Explanatory studies try to find the impact that some variable(s) have on others or why certain results are found (Cooper & Schindler, 2014). It tests hypotheses about the cause–and–effect relationships. It also attempts to answer the question "*why*" and connects different ideas to understand the reasons, causes and effects of a subject. Explanatory design is often used to infer that the research in question is intended to explain the phenomena studied rather than to simply describe (Neuman, 2014). In some explanatory studies, researchers develop a novel explanation and then provide empirical evidence to support it or refute it. Since the purpose of this study is to assess the relationships between safety culture, employee well-being and employee engagement, this study employed the explanatory research design.

The explanatory design was employed to explain the relationships among the variables of interest in this study. The appropriateness of this design lies in its ability to explain why events occur and to build, elaborate, extend, or test theory (Neuman, 2014). This design goes beyond description and attempts to explain the reasons for the phenomenon that the descriptive study only observed. Therefore, this design enabled the researcher to go beyond assessing the state of safety culture and the levels of employee well-being and engagement, and the relationships between them. It also provided enough statistical evidence to either accept or refute the propositions of the theories propounded earlier and also confirm or reject the hypotheses formulated in the first chapter of the study.

Research Strategy

Saunders et al. (2009) defined research strategy as the plan researcher follows to answer the research question. Thus, it provides the overall processes that the researcher follows to conduct the research (Bryman, 2008). It is the step-by-step plan of action that links the research philosophy to the methodological choice of the research work. Saunders et al. (2009) mentioned that an appropriate research strategy has to be selected based on research questions and objectives, the extent of existing knowledge on the subject area to be researched, the amount of time and resources available, and the philosophical underpinnings of the researcher. According to Creswell (2003), the classical approach divides mixed methods strategies into two, the sequential and concurrent strategies. In the sequential strategies, first, either qualitative or quantitative data are collected then other data type is collected. However, in the concurrent strategies both qualitative and quantitative data are collected at the same time.

The concurrent triangulation strategy was employed in this study. Koskey and Stewart (2013) advocate that this approach is particularly useful for decreasing the implementation time. Similarly, Creswell et al. (2011) also argue that this design "results in well validated and substantiated findings as compared with that of the sequential designs". The reason for choosing the triangulated concurrent strategy was due to the nature of the research questions and objectives of the study. According to Creswell and Clark (2018), concurrent triangulation allows for data analysis to be done independently which can also be intuitive unlike the sequential designs. The element of safety culture can be researched, measured, or assessed using both

quantitative and qualitative research methodologies (Creswell, 2007). The research employed the survey strategy to collect quantitative data and interviews to collect qualitative data that can articulate the way people feel and relate to the information they are giving at the same time (Johnson & Gill, 2010). Consequently, the result of the two methods would be integrated during the data analysis phase of the study.

Study Area

The study was conducted in the Greater Accra Region of Ghana. According to the Ghana Statistical Service (GSS) on District Analytical Report (2018), the Greater Accra Region has the smallest land area among Ghana's 16 administrative regions, occupying a total land area of 3,245 square kilometres, representing 1.4% of the total land area of Ghana. Accra is the capital city of Ghana. The Greater Accra Region has a population of 5,455,692 (GSS, 2021), accounting for 17.7% of Ghana's total population. The Region is also the most urbanized in the country with 87.4% of its total population living in urban centres.

According to the Ghana Statistical Service (2021), the major ethnic groups are the Akan (39.8%), Ga-Adangbe (29.7%) and Ewe (18%). The Gas however forms the largest single sub-ethnic grouping. With regards to religion, Christians constitute the largest religious group (84.0%), followed by Muslims (11.6%), other religions (2.8%), no religion (0.93%) and adherents of traditional religion (0.67%). Accra is noted as one of the largest cities in West Africa and has a significant capacity to attract migrants and business activities from all other regions in Ghana. The United Nations Economic Commission for Africa (2021) reported that the services sector makes up the greatest

portion of Accra's GDP, comprising on average 63% of the country's GDP, while the manufacturing sector contributes 20.5% of the GDP.

The dominant economic activities in the Greater Accra Region are wholesale and retail trade and manufacturing. Manufacturing accounts for 16.7% of the industrial sector while wholesale and retail commerce make for 30.4% (Greater Accra Regional Coordinating Council, 2022). The study was restricted to the Greater Accra Region because the majority of the explosions in the oil and gas industry happen in this Region (Ansah, 2017). Between 2015 and 2020, several fire outbreaks and explosions within the OMCs sector have also been recorded in the region. Notable among them was the Atomic Junction explosion in 2017, the June 3rd disaster at Nkrumah Circle that claimed 150 lives in 2015, the gas explosion at South La in 2016 (Bakidamteh, 20018) and the explosion at Kpone fuel tanker yard in 2019. According to the Association of Oil Management Companies (2020), more than 90% of OMCs also have their headquarters located in the Greater Accra Region.

According to NPA (2022), there are a total of 170 OMCs operating over 2900 retail outlets across the country. The Greater Accra Region boasts of over 1,472 retail outlets operated by 45 OMCs (Ansah, 2017; Association of Oil Marketing Companies of Ghana [AOMCs], 2020; NPA, 2022). The study focused on the three major OMCs in Ghana, namely Ghana Oil Company (GOIL), TOTAL and Shell. This is because, they own a greater share of the market (32%) and also operate more retail outlets than the other OMCs in the Region (NPA, 2022).

Study Population

The population is the entire group of individuals, institutions, and objects with common characteristics that the researcher is interested in studying (Cooper & Schindler, 2014). The common characteristic of the population distinguishes them from other individuals, institutions, and objects. The study population comprised all managers and workers (forecourt service attendants, shop attendants, and lube bay attendants) of OMCs in the Greater Accra Region between January 2022 to June 2022. Thus, the target population comprised all managers and employees of GOIL, TOTAL and Shell fuel stations in the Greater Accra Region.

At the time of the study, there were a total of 412 filling stations belonging to GOIL, TOTAL and Shell in the Greater Accra Region. GOIL had a total of 220 retail outlets, TOTAL had 104, while Shell had 88. According to the AOMCs (2020), there were a total of 1,983 workers and management staff in the fuel retail outlets in the Greater Accra Region. Therefore, the target population of the study was 1,983, comprising 1,082 from GOIL, 517 from TOTAL, and 384 from Shell. Table 1 shows the distribution of the population and its proportions across the three OMCs.

Table 2:Population Distribution and Proportions across the OMCs

OMCs	No. of stations	No. of employees	Proportion of employees
GOIL	220	1,082	55%
TOTAL	104	517	26%
Shell	88	384	19%
Total	412	1,983	100%

Source: Field Survey (2021)

Sample and Sampling Procedure

According to Saunders et al. (2009), a sample is defined as a smaller set of data that a researcher chooses or selects from a larger population by using a pre-defined selection method. The aim is to study a subset of a population and draw inferences from the entire population. It is important to ensure that the sample is representative of the population so that the researcher can generalize the findings (Cooper & Schindler, 2014). The implication is that sample characteristics should be a true reflection of population parameters (Saunders et al., 2009). The study employed multi-stage sampling where different sampling techniques including simple random sampling, convenience sampling and purposive sampling techniques were used to select the respondents for the study.

In the first stage, a simple random sampling technique was adopted to select oil marketing retail outlets. Thus, a total of 200 oil marketing retail outlets were randomly selected from the 412 listed OMCs outlets in the Greater Accra Region of Ghana based on the Krejcie and Morgan (1970) sample size determination table. Furthermore, the proportional distribution of the sampled oil marketing retail outlets across the three OMCs included 110 GOIL retail outlets, 52 TOTAL retail outlets and 38 SHELL retail outlets. The retail outlets were randomly selected by listing them according to the OMCs in a Microsoft Excel sheet in no predetermined order. The Rand function in Microsoft Excel was used to generate random numbers for the listed retail outlets. The random numbers were used to shuffle the list from the smallest to the highest number. The first 200 oil marketing retail outlets that appeared on the list after the shuffle were selected for the study.

Subsequently, convenience sampling was employed to select employees from the selected oil marketing retail outlets. With a definite sampling frame of 1,983, Krejcie and Morgan's (1970) sample size determination table indicated that a minimum sample size of 322 is representative of a population. This suggests that a population of 1,983 requires a minimum sample size of around 322 to ensure statistical representativeness of the sample to the population. It also means that any number below 322 for this study is a violation of the principle of representativeness which further implies that the researcher cannot generalise the findings to cover the population.

In order to deal with non-response to ensure statistical representativeness of the sample, Israel (1992) indicated that researchers could add between 10% to 30% to the sample size. The researcher therefore increased the actual sample size by adding 78 (approximately 24% of the sample) to deal with non-responses and also ensure that the total frequency of the study do not go below the statistical sample size. As a result, the final sample size for the study was 400. Proportionate sampling was used to determine the number of respondents to be sampled from each of the three selected OMCs. The sample size for each of the OMCs are presented in Table 2.

Table 3:Sample distribution of respondents across the OMCs

OMCs	Proportion	Sample sizes
GOIL	0.55	220
TOTAL	0.26	104
Shell	0.19	76
Total	1.00	400

Source: Amfo-Antiri (2022)

Since it was practically impossible to obtain the list of all employees in the selected OMCs to form a sampling frame, the convenience sampling was the most ideal approach. Further, the study assumed homogenous population within each OMC. Even though there are sub-categories of workers in the oil and gas retail outlets such as forecourt service attendants, shop attendants, and lube bay attendants, the study assumed them to be homogenous because they all worked under the same policies, systems and structures developed by the managers of the retail outlets.

With the convenience sampling process, the researcher and the research assistants visited the respective retail outlets and contacted the respondents through their respective managers to seek their consent to participate in the study. The process was repeated in the other OMCs to sample the expected sample sizes in each of the selected OMCs.

In qualitative research, sample size is seldom given considerable attention (Krishna & Kumar, 2011). Dworkin (2012) suggests that 5 to 50 participants are enough for a qualitative interview. However, the sample size in qualitative research is mostly dependent on the participants who can offer the researcher with the detailed information required. In the final stage of the sampling, purposive sampling was used to select managers of the oil marketing retail outlets for interviews. Purposive sampling was used to sample this category of respondents because of their in-depth knowledge and experience in creating conducive and safe working environment for workers to operate. In other words, the managers of the retail outlets are directly responsible for creating the physical structures, human resource management

practices, safety and security systems to enhance the well-being of workers at the oil and gas retail outlets.

The sample size for the qualitative phase was decided when data saturation (the point at which no new information is obtained) was reached (Creswell, 2013; Fugard & Potts, 2015). Accordingly, the researcher realised from interactions with managers that saturation point had been achieved after interviewing six participants; nonetheless, an additional manager was interviewed to confirm that saturation point has been reached. However, the audio quality of one of the recordings were practically non-usable, therefore it was excluded from the analysis. Consequently, six managers were used for the qualitative phase of the research.

Data Source

The study used primary data for its analyses. The primary data was gotten from the responses of employees and managers in the sampled OMCs in the Greater Accra Region. The data was both quantitative and qualitative. The quantitative data was obtained through questionnaires and the qualitative data was audio obtained by interviews.

Data Collection Instrument

According to Saunders et al. (2009), data collection instrument refers to techniques and procedures used to obtain data that is needed for analysis before conclusions could be drawn in a study. The nature of the research activity compelled the researcher to select the mixed method approach (MMR) which involve both qualitative and quantitative designs each with its corresponding data collection procedures. A self-administered questionnaire and an interview guide were used for data collection in this research study.

Questionnaire

Self-administered questionnaire was one of the instruments used for data collection in the OMCs in the Greater Accra Region. Neelankavil (2015) and Sekaran and Bougie (2016) indicated that the questionnaire survey leads to greater uniformity, consistency and objectivity in the research work. Again, privacy and convenience of respondent is assured during questionnaire completion increasing anonymity (Neelankavil, 2015). The argument advanced by Neelankavil (2015) justifies the use of questionnaire in this study. This is because safety issues are sensitive and therefore ensuring anonymity is very important. Furthermore, the questionnaire was developed based on the research design, research questions and research objectives employed for this study, Saunders et al. (2009) assert that developing questionnaire for data collection will enable the researcher to answer the research questions and achieve the study results.

The questionnaire items were obtained from the review of literature. The questionnaire for the study comprised (4) sections – A, B, C and D. Section A focused on the measures of safety culture while section B was devoted to the measures of employee well-being. The measures of the dependent variable, employee engagement, were presented Section C. Section D was dedicated to the demographic characteristics of the respondents. Safety Culture items were developed based on Díaz- Cabrera et al. (2007), Chenhall (2010) and Saad (2016). The items for the employee well-being were based on Demo and Paschoal (2013), and Orsila, Luukkaala, Manka and Nygard (2011). Employee engagement on the other hand was based on Utrecht Work Engagement Scale (UWES-3, 2017). All the sections were measured using a

five-point Likert scale except for section D. The Likert scale is used in measuring people's attitudes, opinions and beliefs (Yates, 2004). The Likert scale facilitates the measuring of attitudes of respondents through the combination of scores of those respondents on different items into a single index (Likert, 1932).

Table 4: Summary of Questionnaire Items

Section	Variables	Number of Items	Sources
A	Safety Culture	30	Díaz- Cabrera *et al*., (2007), Chenhall (2010) and Saad (2016).
	Situational	10	"
	Psychological	10	"
	Behavioural	10	"
B	Employee Well-being	29	Demo and Paschoal (2013), Orsila, *et al*. (2011)
	Autonomy	5	"
	Competence	7	"
	Relatedness	7	"
	Physical	5	"
C	Employee Engagement	17	Utrecht Work Engagement Scale (UWES-3, 2017)
	Absorption	6	"
	Dedication	5	"
	Vigor	6	"
D	Demographics	12	"

Source: Amfo-Antiri (2022)

Interview Guide

Interviews are data collection methods where prepared questions are asked of the respondents in order to gain their insight on the subject matter of

research (Harrell & Bradley, 2009). The qualitative aspect of this study employed an interview guide to collect in-dept data about the safety culture, well-being and engagement issues within the sampled OMCs. The interview guide contained 14 questions based on an extensive review of literature. Some of the questions on the instrument included; 'how do both organisational culture and safety policies affect the safety culture in this organization'; 'how is safety culture related to the well-being of employees'; and 'how can you relate safety culture to employee engagement in your organization?'

The sampled managers were asked questions relating to their experience in the sector, their understanding of safety issues, employee well-being and employee engagement. The interview guide is attached to this study as Appendix A.

Pre-testing and Pilot Testing

A pilot study allows for the collection of data from respondents similar to those that would be used for the main study, but on a smaller scale (Fowler, 2014). Pilot studies are necessary because they help to ensure clarity of instructions and items in the research instrument. It also helps study participants to understand and answer the questionnaire items appropriately (Pallant, 2016). The piloting and pre-testing for this study began by giving the research protocols to experts and senior researchers in the field to assess the face and content validity of the instruments. The experts made suggestions and comments on the structure and content of the instruments, thereby helping to establish content validity. The suggestions and changes made by these experts also ensured that the final instrument was refined before pilot testing the instrument.

The pilot study was conducted within OMCs in the Cape Coast Metropolis. The choice of Cape Coast afforded the research team the opportunity to familiarize themselves with how the actual data collection procedure would be, the length of time required to complete the instrument and any challenges that could be encountered in the actual data collection process. Cape Coast was also considered ideal for the pilot study, as the characteristics were not expected to be so different from those in Accra, especially as fuel station employees also have similar characteristics. Fifty employees from selected fuel retail outlets were engaged in the pilot study, even though 46 questionnaires were retrieved, giving a response rate of 92%. This number was chosen to give the researcher a fair idea of how the actual data collection process would be, and also identify any challenges that could come up during the main exercise so as to proffer solutions as soon as possible. The pilot testing was done to identify problems with the content of the questionnaire. However, the responses from the piloting gave indication that the respondents understood the questions. The researcher allotted 45 minutes to the filling of the questionnaire however, an ample time needed to be given to the respondents looking at the nature of their work. Subsequent to this, the pretesting was conducted to establish the reliability and validity of the scale items.

Reliability and Validity

The study's instruments were subjected to rigorous inspection to determine construct and content validity. Two professors from the School of Business were given the instruments for review. Their feedback was considered in an effort to reduce ambiguity and facilitate comprehension of

the instruments. The supervisor of the thesis was given the instruments for additional modifications. These professionals determined if the items on the instruments addressed the predetermined research objectives. This guaranteed that the research instruments had both content and construct validity. Krishna and Kumar (2011) emphasised that the primary criterion for determining content validity is the degree to which items on the research instrument represent the phenomena they are meant to assess, as determined by experts in the researcher's discipline and other researchers.

The responses from the piloting gave indications that the respondents understood the questions and the time allotted was enough. Subsequent to this, the pretesting was conducted to establish the reliability of the scale items. The pilot data was fed into SmartPLS 3.3 and the Cronbach Alpha, Rho A and composite reliabilities were ascertained. Reliability values between the range of 0.70 to 0.90 are considered to be good whiles values above 0.95 are deemed problematic, as this could be due to the redundancy of some of the items or undesirable response patterns in some of the responses (Hair et al., 2019; Ringle et al., 2020). The rule of thumb is that, the reliability coefficient for each metric should be greater than 0.7 (Hair et al., 2019). Owing to this the reliability for all the three constructs were determined and reported in the table below:

Table 5: Reliability Coefficients

Constructs	Cronbach Alpha	Rho A	Composite Reliability
Safety culture	0.909	0.936	0.920
Psychological Well-being	0.815	0.872	0.842
Physical Well-being	0.898	0.898	0.886
Employee Engagement	0.860	0.913	0.873

Source: Field Survey (2022)

From the table above, it is observed that all the constructs have a reliability coefficient greater than the threshold of 0.7 indicating that the research instrument was deemed reliable for data collection (Pallant, 2016).

The Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlet's test of Sphericity were also presented to confirm that the data has sampling adequacy and would be appropriate for the analysis.

Table 6: KMO and Bartlett's Test

Test		Coefficients
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.884
Bartlett's Test of Sphericity	Approx. Chi-Square	8563.296
	Df	346
	Sig.	.000

Source: Field Survey (2022)

The results from Table 6 shows that the value for KMO is 0.884 which is higher than the acceptable 0.6 and a significant value for the Bartlett's Test of Sphericity. This indicates that there exists adequate sampling adequacy for the SEM analyses. Consequent to this, all the items were therefore maintained after correcting for the necessary semantics.

Trustworthiness

Both the quantitative and the qualitative research approaches placed a high value on objectivity and honesty of data. However, qualitative research analysis is frequently perceived as being unreliable due to its unconventional axioms and the apparent "softness" of its postures, in contrast to quantitative research, which has established robust standards of reliability (Creswell, 2014). In the past two decades, significant efforts have been made to create standards that are similar to those typically used in quantitative research (Creswell, 2014; Savin-Baden & Major 2013). Thus, different standards are used to evaluate qualitative studies, where "the researcher seeks believability, based on coherence, insight, and instrumental value and trustworthiness through a process of verification rather than through traditional validity and reliability metrics" (Creswell, 2014, p.256).

Creswell (2014) suggested eight strategies that may be applied to enhance the quality of qualitative studies: longer engagements; external audits; member checks; triangulation; thick description; negative case analysis; peer debriefing; and clarification of the researcher's bias. These strategies guarantee the credibility, dependability, transferability and transformability of the qualitative findings (Lincoln & Guba, 1985). But according to Creswell (2014), the qualitative researcher must use at least two of these techniques during a given study. The most popular and economical methods for doing so, member checks, external audit, and triangulation, were used to achieve trustworthiness of the qualitative data in this study (Creswell, 2014; Frey, 2018).

To create a coherent representation of the study, the quantitative data were evaluated to find underlying themes (Creswell, 2014). Member checking was used to guarantee credibility, and interviewees were given the chance to examine their transcripts if truly they reflect their viewpoints and perspectives on the phenomena under study (Mertens, 2015). Transferability was established through the development and use of an interview guide that enabled the interviewee to build rapport with the interviewer and, as a result, facilitated extensive sharing of experiences (Rubin & Rubin, 2012). Experts in the researcher's field who evaluated the research study's procedure and final result for correctness and evidence-supported conclusions helped to establish dependability of the findings. Faculty members of the University of Cape Coast School of Business were among the experts who examined the research instruments, completed dissertation and looked for problems with bias, credibility, themes, and interpretations (Creswell & Creswell 2018). To further guarantee the findings were valid and reliable, I further employed data triangulation, member verification, and external audit (Creswell & Creswell 2018). When data are triangulated, they come from several sources (questionnaire data and interview data). Each theme was supported by the facts and evidence in this data.

It is essential to establish the credibility or validity of the study to demonstrate that the perceptions of participant, including thoughts, feelings, and behaviours, were properly described by the researcher throughout the research. The researcher continuously made a conscious effort to avoid any personal bias in the data gathering and analysis processes. To guarantee that the comments and opinions of the participants were incorporated and properly

understood in the study, the audio recordings of the semi-structured interviews were continuously available. To verify the validity of the results, the sample for the qualitative phase of the study was taken from the sample that took part in the quantitative phase. Creswell and Creswell (2018) issued a caution that by choosing different participants for both the quantitative and qualitative stages of mixed-method research, researchers might be held accountable for generating unreliable results.

Data Collection Procedure

A researcher's approach to data collection is a key process in the overall research because, this can have serious repercussions on the outcome of the study. As surmised by Sekaran and Bougie (2016), a wrong approach to data collection could lead to low response rate, erroneous data and difficulty in the analysis of the data collected. The research design selected will largely determine the collection procedure and also inform the design of the data collection instrument (Cooper & Schindler, 2014). An effective data collection system allows for the timely collection of the relevant data in a cost-effective manner without compromising the quality of the data gathered (Saunders et al., 2009). They also suggest that the process should be consistent at all geographical areas of the study and minimize errors as much as possible.

Owing to the objectives of this study and the research design employed, the study opted for both questionnaire and interview strategies to collect quantitative and qualitative data from employees and managers of the selected OMCs. In terms of questionnaire administration, Saunders et al. (2009) opined that this could be done through the internet, post or hand delivery and collection. The hand delivery and collection approach were

employed to collect data for the study. This is because, most respondents and research participants were unwilling to answer questionnaires and other data collection instruments online or by post. This option also allowed the researcher to supervise the procedure and ensure that all misunderstanding on the part of the respondents is clarified.

The hand delivery and collection method permitted the researcher to visit the fuel stations of the sampled OMCs and deliver the questionnaire to the selected employees. Actual data collection began after meeting the requirements of the Institutional Review Board (IRB) and obtaining ethical clearance from the University. The data collection process was undertaken by the researcher with the assistance of five trained Research Assistants (RAs). The Research Assistants were trained on data collection procedures.

With the help of the introductory letters obtained from the university, the research team was able to seek the permission of the management and employees of the various fuel stations and also introduce themselves. The RAs conveyed the questionnaire to the fuel station employees at their stations. Participants were given three days to return the filled instrument to their different work stations for collection by members of the research team. The quantitative data collection lasted from 10th October to 24th November, 2022. All COVID-19 safety protocols such as wearing of nose masks, frequent cleaning of hands with alcohol-based sanitizer, and social distancing were strictly followed to ensure the safety of the research team and participants.

The research team distributed 415 questionnaires to the employees of the sampled OMCs within the Greater Accra Region. Out of this number, 406 were retrieved from the respondents over the data collection period. After

entering, screening and coding the data, it was found that only 372 were usable for the analysis, giving a usable response rate of 89.6%. This is far higher than the 60% rule of thumb suggested by Johnson and Wislar (2012) and the 73% reported in a similar study by Ansah (2017).

Regarding the interview, the researcher sought the consent of the managers and supervisors of the sampled fuel stations and booked appointment scheduled at a time that would be favourable for each of them. The researcher then visited the stations to conduct a face-to-face interview with these managers. Before each of the interview sessions, the researcher reintroduced herself to the participants and explained the purpose of the study to them. All proceedings were tape recorded with the consent of the interviewees.

During the interview sessions each participant was asked the first question on the interview guide and followed up with more specific questions based on the participants' responses and their expertise with regards to safety culture, employee well-being and employee engagement in the oil marketing companies. Averagely each interview session lasted for 35 minutes. After interviewing four mangers, the researcher observed traces of attaining saturation point in the qualitative data. Hence two more managers were interviewed to confirm the saturation point. In all, a total of six managers were interviewed.

Data Analysis

The data analysis involves the procedures of processing the data obtained and analysing it into meaningful information for decision making. Both descriptive and inferential statistics were employed for the data analysis

of the study. The descriptive statistics were used to summarise the demographics of the respondents and also assess the first three objectives of the study. Inferential statistics such as correlation and multiple regressions were also employed in the analysis of the fourth objective and the hypotheses of the study. These techniques were chosen due to their effectiveness in getting the required outcome needed to analyse the research objectives. This study deployed two major statistical tools to analyse the quantitative data obtained for this study. The descriptive analyses were conducted using the Statistical Package for Services Solution (SPSS) version 25. This was followed by the use of SmartPLS version 3.3 to test the relationships among the variables.

Descriptive statistics are mostly used as a preliminary analytical technique to describe the constructs and items employed in the study (Creswell, 2014). The study employed the measures of frequency (frequency and percentages) to provide a summary of the categorical data while the measures of central tendency (mean, median and mode) were employed to describe the continuous variables. Specifically, the demographic characteristics of the respondents were presented using frequencies and percentages. Objectives one, two and three were also analysed using means and standard deviations to assess the safety culture, employee well-being and employee engagement levels within the selected OMCs.

This study also employed Structural Equations Modelling (SEM) to test the relationships among safety culture, employee well-being and employee engagement among the selected OMCs in Greater Accra Region of Ghana. The approach has been further expounded in the next sub-section.

Partial Least Squares Structural Equation Modelling (PLS-SEM)

There are two approaches to SEM; the Covariance Based (CB-SEM) and the Partial Least Squares (PLS) (Hair, Risher, Sarstedt & Ringle, 2019). However, the Partial Least Squares (PLS) approach is mostly used in recent times to assess the impact of HRM practices on attitudinal and behavioural HR outcomes (Ringle, Sarstedt, Mitchell & Gudergan, 2018). PLS-SEM is a causal-predictive to SEM that focuses on prediction while estimating statistical models.

The preference for PLS-SEM approach is also justified due to its several benefits over other CB-SEM. Many researchers prefer this approach because it allows them to "estimate complex models with a large number of constructs, indicator variables, and structural paths without imposing distributional assumptions on the data". This approach is also more useful when theory is less tested in the area of research and can handle issues of smaller sample sizes, (Hair, et al., 2019, pp. 3). When the study's focus is prediction and explanation, the PLS-SEM is more preferred to the CB-SEM. Also, there are several user-friendly software packages that require no technical knowledge to execute PLS-SEM. Finally, this approach determines path model coefficients that can maximise the R^2 values of the entire model (Hair et al., 2019; Ringle et al., 2018; Matthews, Hair & Matthews, 2018).

There are two main elements in a SEM; the measurement model and the structural model. While the former is used to validate constructs and refine scales, the latter is used to display the relationships among the constructs of the study. In a measurement model, the scale can be either reflective or formative, depending on the objectives being studied. A formative scale is one

in which the measurement items cause the changes in the constructs whiles the reflective models have the constructs causing the change in the measurement items (Hair, et al., 2019). The current study employed a reflective scale since the indicators point to the yellow items from the blue latent variables and therefore requires a reflective analysis.

The study therefore, employed the PLS-SEM approach to assess the measurement and structural models by examining the outer loadings, internal consistency, reliability, convergent and discriminant validity. After certifying for the satisfactory nature of the measurement model in this analysis, the study proceeded to evaluate the structural model's predictive power. Ringle et al. (2020) recommend the use of the R^2, Q^2, path coefficients and their statistical significance as measures for the predictive accuracy of the model in a PLS-SEM analysis. These analyses were employed to test the relationships between safety culture, employee well-being and employee engagement and also test the mediating effect of well-being in the relationship between safety culture and employee engagement.

Qualitative Data Analysis

The main goal of qualitative data analysis was to discover patterns from ideas, thoughts, and insights found in a variety of data sources that expressively describe or explain a particular phenomenon (Merriam & Grenier, 2019). The recorded interviews were processed for analysis. The researcher listened to the audio interviews several times to become acquainted with the qualitative data. Patterns, ideas, and potential themes were discovered while carefully listening to the audio files, and they were noted in the researcher's logbook. The interview was then typed in Microsoft Word by

transcribing the audio recordings into text. For thorough coding and analysis, the transcribed data were entered into HyperRESEARCH 4.5.3 software.

The software allowed the researcher to group the different words within the interview transcripts using cloud features, as shown in Appendix D. This made it simple for the researcher to code the qualitative data. The software also made it possible to group the codes according to themes. A total of 47 codes were created from the qualitative data provided by the supervisors who were questioned, as shown (Appendix E). Additionally, the classifications were examined in order to code, recode, improve, and identify opposing viewpoints. HyperRESEARCH 4.5.3's cloud features provided another visual representation of the coded responses of the participants (Appendix D).

The researcher had the chance to observe the most frequent codes, which amply mirrored the supervisors' perspectives on the safety culture, employee well-being, and staff engagement of oil marketing organisations in Ghana, using both the bar graph (Appendix F) and cloud features (Appendix E). For example, *high employee engagement, high safety culture, adherence to safety precautions and influence of safety culture on employee well-being* emerged as the most frequent codes from the qualitative data. By paying close attention to the answers the supervisors gave to questions for the purpose of refining, recoding, and thematizing, links between codes were discovered (Braun & Clarke, 2013). The researcher then organised the themes that emerged from the OMC managers' points of view based on the study's theoretical framework and research objectives.

Ethical Considerations

The research protocol was submitted to the Institutional Review Board of the University of Cape Coast for review and approval. Ethical clearance (see Appendix G) was obtained from the Institutional Review Board of the University of Cape Coast before the data collection process began. In collecting the data, respondents were informed on the purpose of the study. Furthermore, an informed consent forms were given to respondents to endorse indicating their consent and willingness to participate in the study.

The respondents for the quantitative data and the interview participants were further assured of the confidentiality and anonymity of their responses and that they were expected to be sincere, factual, and honest in responding to the questions. To ensure anonymity in both the quantitative and qualitative data collection, no data regarding respondent's identity or mobile contacts were collected. Thus, respondents were not required to write or mention their names or personal contact information on the research instruments.

Also, it was explained in the opening section of the questionnaire that there will be no direct benefits nor compensation for partaking in the study. Participants were likewise educated that this study was only for academic exercise and for that matter, would pose no threat to the security of their jobs. They were also informed about their rights not to answer any question they do not want to and for that matter, they could leave out questions they deem not answerable. As objectively and without bias as possible, data were analysed, interpreted, and presented. Moreover, respondents interviewed throughout the qualitative phase of the study were represented by pseudonyms.

Chapter Summary

The chapter outlined the methods and techniques employed to collect and analyse the research data. Specifically, the chapter discussed the research philosophies and their features, before settling on the pragmatism philosophy. This was followed by discussions and justifications for the choice of the mixed-method approach. Based on the objectives of the study, the researcher adopted descriptive and explanatory research designs. The chapter also provided justifications for choosing the Greater Accra Region as the study area and elaborated on the population and sample. Other issues discussed in the chapter include the instrument design, data collection procedure, data processing and analysis and the ethical considerations for the study.

CHAPTER FIVE

RESULTS AND DISCUSSIONS

Introduction

The chapter presents the research findings of the study. The main objective of this study is to assess the effect of safety culture on employee engagement and the mediating role of well-being in the effect of safety culture on employee engagement in the oil marketing companies in Ghana. The first part presents and discusses the profile of the respondents in the study as well as the preliminary statistical analysis conducted prior to the presentation and discussion of the actual results. This is followed by the sequential analyses and discussion of the quantitative and qualitative data for objectives one to three. The chapter then proceeds with the SEM analyses of the fourth objective before concluding with a chapter summary.

Socio-Demographic Features of Respondents

The socio-demographic features of the respondents are summarized in Table 7.

Table 7: Socio-Demographic Characteristics of Respondents

Variable	Categories	Frequency	Percent
Gender	Male	215	57.8
	Female	157	42.2
Age	Less than 26	56	15.0
	26-30years	149	40.0
	31-35years	91	24.5
	36-40	55	14.8
	41-45	14	3.80
	46years and above	7	1.90
Education	No formal	9	2.40
	Basic	29	7.80
	Vocational	30	8.10
	Secondary	235	63.2
	Tertiary	69	18.5
Marital Status	Single	270	72.6
	Married	87	23.4
	Married but not living with spouse	12	3.20
	Divorced	2	0.50
	Widowed	1	0.30
Company	TOTAL	119	32.0
	Shell	51	13.7
	Goil	202	54.3
Length	Less than 1year	96	25.8
	1-5years	121	32.5
	6-10years	83	22.3
	11-15years	46	12.4
	16-20years	13	3.50
	21years or more	13	3.50
Position	Manager	24	6.50
	Supervisor	35	9.40
	Sales person	93	25.0
	Pump attendant	182	48.9
	Mechanic	38	10.2
Time in position	Less than 1year	109	29.3
	1-5years	194	52.2
	6-10years	42	11.3
	11-15years	7	1.90
	16-20years	10	2.70
	21years or more	10	2.70
Location	AMA	218	58.6
	TMA	42	11.3
	Ga West	62	16.7
	Ga East	16	4.30
	Ga South	34	9.10

Section	Forecourt	227	61.0
	Shop	106	28.5
	Lube bay	39	10.5

Source: Field Survey (2022)

majority of the respondents were males (215), representing 57.8% while females were 157, representing 42.2%. This means that the sample structure was male-dominated. It is not surprising as the risky nature of the industry means that more males will be inclined to work in this industry than females (Nkrumah et al., 2020). This gives room for further comparative analysis to be performed based on sexual orientations in the study. The age distribution suggests that employees in the industry are youthful, with 40% of the respondents falling within the age bracket of 26-30, followed by those aged between 31 to 35 (24.5%). Interestingly, only 21 of the respondents were aged above 40, representing 5.7%. A critical analysis of the age range indicated that the OMCs have a relatively younger workforce structure. Regarding education, it is observed that 63.2% of the participants had secondary level education, while 18.5% of them had tertiary qualification. Only 2.4% of the respondents had no formal education, while the remaining 15.9% had received some form of basic or vocational education. Quaigrain et al. (2022) asserted that the educational level of employees in the oil and gas industry is key to their understanding and compliance to safety issues at the workplace.

In relation to the marital status of employees, the overwhelming majority of the respondents 72.6% were single, with about 23.4% of them being married and either living with their spouses or living alone (3.2%). In line with the sampled OMCs, it is further observed that majority of the respondents were from GOIL (54.3%), followed by TOTAL (32%), with Shell (VIVO) having the least number of respondents (13.7%). This is in line with

their market shares and their physical presence within the Greater Accra Region. The data also shows that majority (58.3%) of the respondents had only worked with their respective companies for up to 5 years. Moreover, 22.3% of these respondents have been with their OMCs for six to ten years.

It was also observed that nearly half (48.9%) of the respondents were fuel/pump attendants, followed by sales persons (25%) and mechanics (10.2%). About 6.5% of the respondents were managers while the remaining 9.4% were station supervisors. This is also reflective of the oil marketing industry since fuel attendants are the category of employees that have most contact with customers. Similarly, Ansah (2017) show that fuel retail outlets have more fuel attendants than any category of employees. Consistent with the number of years they had been with the respective OMCs, it was also observed that majority of these employees have been in their current positions for 6years or less, even though some have also served in those portfolios for more than six years 18.6%. this contradicts the earlier assertion that turnover is high with the sector. It was further observed that 61% of the respondents worked at the forecourt of the filling station while 28.5% of them worked with the shopping marts with the remaining stationed at the lube bay or mechanic shops within the fuel retail stations. Again, this implies that majority of employees at these retail outlets are fuel attendants.

Demographics Characteristics of Interviewees

The demographic characteristics of the managers who were engaged in the interview are presented in Table 8.

Table 8: Demographic Characteristics of Interviewees

Interviewee	Age	Sex	Years of Experience
Manager 1	48	Male	13
Manager 2	50	Male	17
Manager 3	43	Male	12
Manager 4	46	Male	14
Manager 5	49	Male	15
Manager 6	45	Male	13

Source: Field Survey (2022)

All the participants of the interview were managers from the sampled OMCs with rich experiences having worked for more than 12 years. The ages of the managers ranged from 43 to 50 years. Based on the criteria used for selecting the interviewees, it was worth noting that, all the six managers who were interviewed were males.

Objective 1: Assess the Safety Culture in the Oil Marketing Companies

The first objective of the study was to analyse the perceived level of safety culture among employees in the OMCs. In order to achieve this objective, the descriptive statistics, particularly means and standard deviations were used following the recommendation by Boone and Boone (2012). Using a five-point Likert scale, the study employed the interpretation criteria proposed by Alston and Miller (2002) to interpret the Likert scale. Thus, a mean score of 1.00-1.49 was considered as very low, 1.50-2.49 was low, 2.5-3.49 was moderate, 3.50-4.49 was high and 4.50-5.00 was considered as very high. Safety Culture was demarcated into three components. These included the situational, psychological, and the behavioural aspects of safety culture.

Each of these components is discussed separately in the following sections.

The results for the situational dimension are presented in Table 9.

Table 9: Safety Culture of Respondents

Safety Culture Practices	**M**	**SD**
Situational Characteristics		
Management provides incentives for employees who excel in health and safety	3.09	1.4922
There is a unit where employees report their health and safety concerns	3.45	1.4667
There is a specialized investigation team who focus mainly on analysing workplace safety	3.75	1.3615
Sufficient amount of health and safety detectors to ensure adequate evacuation time for employees	3.44	1.4290
There are clear rules and regulations to achieve workplace safety	4.14	1.1618
Management prioritizes workplace safety over production even if it means making losses	3.57	1.3529
Employees are regularly informed about recurring causes and factors leading to accidents	4.05	1.0490
Sufficient health and safety personal protective equipment (PPE) are made available to employees	4.01	1.1586
There is an emergency team at the workplace	3.16	1.4601
Senior management show support and commitment to safety through leadership by example	3.99	1.1219
Overall Mean/SD	*3.66*	*1.305*
Psychological aspect of safety culture		
Employees encourage each other to report any safety concerns they have	3.90	1.191
Employees are responsible for each other's safety	3.91	1.197
I advise other employees to stop work which I believe is performed in an unsafe manner	3.87	1.198
Violating safety rules are unacceptable even if it does not result in accidents	3.95	1.265
Employees are encouraged to raise safety concerns that they may have	4.02	1.171
Employees abide by the "safety before production" rule even if it means halting operations	4.04	1.107
Employees are encouraged to come up with new ideas to improve safety	3.73	1.289
Response to questions on safety and health concerns are given in an open and honest manner	3.95	1.153

There is good collaboration among employees to promote safety	4.07	1.062
The organisation uses incident reports to revise goals to achieve safety standards	3.96	1.122

Table: 9 Cont'd

Overall Mean/SD	*3.94*	*1.176*
Behavioural aspect of safety culture		
I do not skip any safety step even to increase my work efficiency	2.07	1.134
I believe the most important part of completing a task is being safe	1.67	0.960
If I make a mistake that has significant consequences and nobody notices, I quickly report it	2.84	1.540
I get involve in safety activities out of my own free will	2.60	1.548
My supervisor shows me the safe way to perform my duties when I act in an unsafe manner	1.75	1.052
Management acts quickly to correct safety problems	2.05	1.305
My supervisor expresses concern when safety procedures are not followed	1.87	1.035
Management does not turn a blind eye to safety issues	1.89	1.085
Employees are well experienced and highly capable of running equipment and fulfilling the jobs required	1.76	0.943
Employees stay committed to health and safety in the workplace even when there is moderate supervision	1.78	0.957
Overall Mean/SD	**2.03**	**1.156**

Source: Field Survey (2022)

Among all the dimensions of safety culture, the respondents reported high levels of safety culture with respect to psychological characteristics (M = 3.94, SD = 1.176) and situational characteristics (M = 3.66, SD = 1.305). The standard deviations recorded presupposed that majority of the respondents were in agreement with the items measuring safety culture. Hence, there was minimal variations in their responses. However, results from Table 9 suggest that the respondents had low levels of safety culture with respect to behavioural characteristics (M = 2.03, SD = 1.156). That notwithstanding, the overall mean for safety culture was above 3.0 indicating that safety culture practices among respondents was moderate. This finding corroborates the

findings of Cox and Flin (2015) who concluded that the most important cause of accidents is the weakness of the safety culture level in the sector.

The detailed analysis showed that with respect to situational characteristics/structure, availability of clear rules and regulations to achieve workplace safety recorded the highest average (M = 4.14, SD = 1.162). That is, among all the situational safety culture issues, clear rules and regulations to achieve workplace safety was present in most of the oil companies. It is worth noting that the respondents reported availability of sufficient health and safety personal protective equipment [PPE] (M = 4.01, SD = 1.159) as the next best situational factor. This means that personal protective equipment is readily available to employees in the oil market industry. This corroborates the findings of Achaw and Boateng (2012) about the availability of PPE in the sector.

The respondents also suggested that regular information about recurring causes and factors leading to accidents were given to employees (M=4.05, SD=1.049). The standard deviation indicates that there was less variability in the responses given by the employees. In line with this result, Cooper (2018) admonish that safety information is communicated formally through training and meetings and informally through on-the-job discussion. Also, the respondents reported that senior management show support and commitment to safety culture through leadership by example (M=3.99, SD=1.122). This is similar to the assertion made by Nkrumah et al. (2020) about the role of leadership and management commitment in ensuring safety culture.

It is apparent from the results in Table 9 that the respondents reported high levels of safety culture regarding psychological safety measures in areas such as; "good collaboration among employees to promote safety" (M=4.07, SD=1.062); abiding by the "safety before production" rules even if it means halting operations (M=4.04, SD=1.107) and employees being "encouraged to be aware and raise safety concerns that they may have" (M=4.02, SD=1.171). Other items that recorded higher scores on this dimension include "the organisation using incident reports to revise goals to achieve safety standards" (M=3.96, SD=1.122) and "response to questions on safety and health concerns are given in an open and honest manner" (M=3.95, SD=1.153). These results are not far-fetched as Cole et al. (2014) maintain that open communication is needed at all levels and everyone's responsibility and accountability regarding safety must be clearly defined and understood. The results are also not surprising as Cooper (2000) concords that employees are likely to respond positively in the psychological domain when the situational factors are conducive in the working environment.

Table 9 revealed that safety culture regarding behavioural safety measures was relatively low compared to the other two dimensions. Remarkably, most of the items measuring safety culture regarding behavioural safety measure recorded means less than 2.5, suggesting that the respondents were not in total agreement with the items. The standard deviations also indicated that variability in the responses were low. The highest scoring item was "if I make a mistake that has significant consequences and nobody notices, I quickly report it" (M=2.84, SD=1.540), suggesting that employees are unlikely to report mistakes that could have severe consequences. The next

item as per the mean ranking was "I get involve in safety activities out of my own free will" (M=2.60, SD=1.540). This response also suggests that most employees do not actually adhere to safety protocols on their freewill, given such a low score. But Cooper (2000) suggest that, to enhance safety, there is the need for that observable degree of effort by which all organization members direct their attention and actions toward improving safety on a daily basis. This requires the involvement and commitment of all members of an organisation to safety. It is on this premise that Cole et al. (2014) asserted that safety culture has to be inherent in the thoughts and actions of all the individuals at every level in an organization to ensure organisational safety.

The respondents also indicated that management do not act quickly to correct safety problems (M=2.05, SD=1.305). Other responses imply that employees are likely to "skip any safety steps to increase my work efficiency" (M=2.07, SD=1.134). There was also low evidence to suggest that management does not turn a blind eye to safety issues (M=1.89, SD=1.085). Overall, the behavioural aspects of safety culture, which mostly involves the human element of safety was low relative to the other dimensions. Even though these outcomes are startling and contrary to industry standards, they reveal some hidden truths about the role employees play in fuelling risky practices within the sector. This is consistent with the findings of Nwanko et al. (2021) that the work environment is the number one contributor to accidents caused by the human factor in the oil and gas industry.

This re-echoes the assertion from Ehiaguina and Moda (2020) that safety management practices were significant to both safety participation and safety compliance, which suggests that safety culture influences workers'

safety behaviour in the Ghanaian oil and gas industry. Thus, enhanced safety culture and safety behaviour is a precursor to minimizing accident among employees in the oil and gas industry. Rahmanidoust et al. (2019) surmised that the availability of safety indicators in the OMCs, such as information sharing and reporting culture, management support and reward system, learning culture, communication and awareness, safety supervision and audits, and safety training culminates to the totality of safety culture.

Qualitative Results on the Degree of Safety Culture in OMCs

To substantiate the quantitative results for the first objective, selected managers from the OMCs were interviewed. From the analyses, seven themes emerged from the qualitative data that was collected for the study. These include; high safety culture in OMCs, availability of safety tools and equipment, exemplary leadership qualities, special department for ensuring safety culture, strict rules and regulations on ensuring safety, high psychological component of safety culture, and low behavioural component of safety culture. The themes are presented in the subsequent sub-sections.

High safety culture in OMCs

One broad theme that emerged from the qualitative analysis was the presence of high safety culture in OMCs. The qualitative data corroborated the results from the quantitative analysis. When the participants were asked about the presence and state of safety culture in their OMCs, the majority commented that safety culture was high in their OMCs. For example, one interviewee said that "*when it comes safety culture in the organisation, I think we are doing very well, not because I'm working here, but because of the seriousness the company attaches to safety issues"* (Manager 3). Manager 4 also mentioned

that *"safety measures are our Holy Bible within the organisation because they instruct us on the right thing to be done to avoid any bad situation"*.

Four sub-themes emerged from the qualitative analysis describing the presence of high safety culture in the OMCs. These include availability of safety tools and equipment, special department for ensuring safety culture, exemplary leadership qualities, and strict rules and regulations on ensuring safety.

Availability of safety tools and equipment

With regards to the availability of safety tools and equipment in the OMCs, Manager 2 and Manager 5 made similar comments on the availability of safety tools such as fire extinguishers, safety boots, reflectors, jackets, gloves and other safety uniforms. Manager 2 commented that *"we have safety equipment here such as fire extinguishers been placed at vantage points, right safety boots for the attendants and some side gates that serve as fire exits*". Similarly, Manager 1 alluded that *"as you can see every attendant at post has their own safety coats, boots and everything"*. These comments presupposed that sufficient personal protective equipment for enhancing safety culture was available to employees in oil marketing companies.

Exemplary leadership qualities

All the participants unequivocally attributed the high level of safety culture in the OMCs to the exemplary leadership qualities portrayed by the Managers. Manager 5 argued that *"if you regard yourself as the leader, then the leader must stick to the established norms if they want to create an environment where their subordinates will observe the safety precautions"*. He further emphasised that *"whenever I have to practise safety procedures, I*

abide by all the safety guidelines and my staff here do the same because their manager does it" (Manager 5). The comment below illustrates the notion shared by Manager 6 in relation to the presence of safety culture as a result of managers leading by example:

> *As a manager, I refrain from using my phone in the front court, which prevents the attendants from doing the same. Every time a tanker comes in, I make sure the station is in order and that I am wearing my gloves, helmet, boots, and other safety gear to serve as an example to other attendants to do same. This forces the fuel attendants to mimic my actions* (Manager 6).

Zuschlag et al. (2016) reported that the role of CEOs and other senior management in achieving these aims is that of continual demonstration of their care and concern by ensuring that the organisation adopts sound technical, ergonomic and organisational practices that have been shown to improve safety. When the safety system in the organization is monitored then behaviour can produce the result expected (Fleming, 2012). This means prior literature has recognised the role of management and leadership in promoting safety.

Commenting on safety culture, Manager 1 also share a similar viewpoint with Manager 4 that;

> *As a leader, you are always seen as the head so, if you want to have an enabling environment where your subordinates will adhere to the safety precautions, you the leader must follow the laid down rules. So, I myself when it comes to*

situations where I have to practise the safety precautions, I go by their rules and my people too here follow the same rules.

The notions shared above suggest that senior management and supervisors of the OMCs show support and commitment to safety culture through leadership by example.

Special department for ensuring safety culture

In a nutshell, a common view that was shared among the managers was the availability of a special department responsible for safety culture in the OMCs. When asked about the presence of safety culture in the OMCs, Manager 1 remarked that *"Oh definitely yes, we have a whole department that deals with safety and that is the HSS (health, safety and security). Yeah, that's a whole department, so they always put measures in place to help us reduce risks or to avoid risks in the company because of the nature of the work"* (Manager 1). Manager 4's comment was also in agreement with Manager 1 that *"our organisation has a special team responsible for ensuring safety, and that explains why I originally indicated safety culture is high in our organisation*".

Strict rules and regulations on ensuring safety

The final sub-theme that emerged indicated the use of strict rules and regulations in ensuring safety culture in OMCs. The comment below illustrates the viewpoint shared by Manager 1;

We have laid down procedures that the person in charge has to wear boots, helmet, safety boots and safety gears. So, I think we have laid down rules and regulations that have

> *been put in place that everybody must adhere to whenever the person is on post or on duty.*

Similar to the comment above, Manager 4 emphasised that *"when there is any unforeseen circumstance that is not pleasing, I will be the one to be blamed first as a leader. Because of this I make sure we all adhere to the safety rules and regulations"*. Manager 2 noted some rules and regulations his organisation has in place to enhance safety culture. He remarked that;

> *We are prohibited from mobile phones for calls, we don't have to smoke at the station, a driver is not allowed to put his engine on whiles filling the car with fuel. Also, we don't allow drivers to open their engines whilst we are serving them* (Manager 2).

Together, the quantitative and the qualitative results provide insights into the level of safety culture with regards to situational characteristics and structure. The results suggest that safety culture regarding situational characteristics is high in oil marketing companies.

High psychological component of safety culture

The qualitative responses suggested that the psychological dimension of safety culture was reportedly high. Remarkably, the qualitative analysis affirmed the findings from the quantitative analysis. Manager 3 commented that *"most employees in this organisation collaborate with each other to ensure the safety of all attendants, I have seen some employees encouraging each other to report any safety concerns"* (Manager 3). Manager 6 argued that "*every organisation that revises its safety standards to meet current situation is likely to reduce damages caused by unsecured working environment"*.

The comment presented below illustrates the notion shared by Manager 4 on safety culture in his organisation. He asserted that.

> *We do something we call the toolbox meeting. Yes, so that's where we discuss what happened in the previous days, the challenges and how we were able to overcome them. In these meetings, employees are encouraged to report safety issues and such issues are addressed to enhance the safety of employees* (Manager 4).

Also, Manager 2 indicated that *"we provide prompt responses to all the safety concerns of our employees and we involve them in the making of decisions concerning safety so this gives them a sense of belonging to the organisation".* It can be argued that this would make employee feel wanted and involved since their concerns are considered in decision making. The results indicated that safety culture regarding psychological safety measures is relatively high in the oil marketing companies.

Low behavioural dimension of safety culture

Similar to the quantitative findings the qualitative findings provided insights into the relatively low behavioural safety culture of the respondents. Manager 4 lamented that *"at times, expired fire extinguishers are not replaced early and others too may be empty for weeks without been refilled".* Manager 1 also reported that *"some attendants are negligent at times that when supervision is not done consistently, they flout on some laid down rules and regulations while attending to customers".* In the same vein, Manager 2 commented that *"workers are much aware that we don't have to downplay*

anything in connection with safety at the station, however some fail to strictly adhere to safety precautions and practices when supervision is minimal".

From the qualitative data, majority of the supervisors alluded that attendants in their OMCs fail to report some mistakes they make because of the fear of being sacked. Manager 4 mentioned that *"the risk involved in this our work is very high, and a little mistake can result in a damaging disaster or explosion, as a result, attendants fail to report mistakes they commit even if it is involuntary"*. He further explained that these workers do so because they are always afraid that they would lose their jobs as a result of the mistakes they have committed.

The qualitative data also revealed that employees are always being encouraged to report safety concerns at the workplace. However, Manager 3 noted that *"due to the less tolerance to violation of safety rules in the organisation, most attendants fear to report safety errors they make especially if nobody notices them".* Nonetheless, such an act can be detrimental to the safety culture of the organisation. Both the quantitative and qualitative findings revealed that the behavioural aspect of safety culture was relatively low among the respondents in the oil marketing companies. The qualitative data suggested that although there are strict rules and regulations for ensuring safety culture in the OMCs, limitations to the behavioural aspect of safety culture exist.

Even as the qualitative findings lend support to the quantitative analyses, the results here also reflect the findings of Ehiaguina and Moda (2020) and Rahmanidoust et al. (2019), who show that safety management practices were significant to both safety participation and safety compliance.

Thus, enhanced safety culture and safety behaviour is a precursor to minimizing accident among employees in the oil and gas industry. On the whole, even though the behavioural dimension of safety culture was low, generally all other dimensions of safety culture was found to be relatively high among OMCs in Ghana. This could be attributed to the rigorous laws and safety protocols guiding operations within the sector.

Objective 2: Examine the level of Well-being of Employees in the Oil Marketing Companies

The second research objective sought to explore the perceived well-being of the employees in the sampled OMCs. Basically, the study examined both the psychological and physical well-being of employees. Psychological well-being is discussed first, followed by physical well-being. The results realised from the quantitative analysis are presented in Table 10.

Table 10: Well-being of Respondents

Psychological Well-being	**M**	**SD**
Autonomy		
Management allows employees to make decisions that relate to their work most of the time.	3.41	1.350
Management trusts people to take work-related decisions without getting permission first.	2.83	1.443
Management does not control the work of employees	2.74	1.559
Management allows employees to engage in activities that express their skills.	3.57	1.315
Management allows employees to work the way they prefer to work	2.64	1.508
Overall Mean/SD	*3.04*	*1.435*
Competence		
On the whole, I am satisfied with my accomplishments at work	3.87	1.171
I feel I am good at what I do	4.17	.988
I feel that I have a number of good qualities.	4.23	1.006
I am able to do things as well as most other people.	4.22	.956
I am respected for what I do	4.20	1.027

I am able to demonstrate my skill verbally and non-verbally	4.16	1.013
Overall Mean/SD	*4.14*	*1.027*

Table: 10 Cont'd

Relatedness		
There is effective collaboration among colleagues	4.08	1.059
There is very little conflict between my colleagues and I	3.45	1.364
People are prepared to share information with each other	3.98	1.057
I feel happy working with my colleagues	4.12	1.010
My colleagues are always ready to assist me with my work	4.14	1.021
My colleagues are friendly and easy to approach	4.25	.915
My colleagues can be trusted to give good guidance when needed	4.06	1.074
Overall Mean	*4.01*	*1.071*
Physical Well-being		
I feel safe whiles working at this station	2.61	1.656
I am able to do my daily work at the station	2.76	1.672
My work makes me feel happy	2.84	1.608
My work makes me feel satisfied	2.69	1.575
My work makes me feel calm	2.79	1.571
Overall Mean	**2.74**	**1.616**

Source: Field Survey (2022)

The self-determination theory in Ryan and Deci (2017) agrees with Ryff's (1995) proposition and further simplifies the components of psychological well-being of an employee to consist of autonomy, competence and relatedness. From Table 10, the results indicated that respondents perceived high levels of competence (M = 4.14, SD = 1.027), relatedness (M = 4.01, SD = 1.071) and autonomy (M = 3.04, SD = 1.435) in OMCs culminating in high psychological well-being.

With respect to relatedness in the OMCs, the respondents indicated that their colleagues are friendly and easy to approach (M= 4.25, SD= 0.915). They also indicated that they feel happy working with their colleagues (M= 4.12, SD= 1.009) and their colleagues are always ready to assist them with their work (M= 4.14, SD= 1.021). Relatedness involves feelings of closeness and belonging to a social group. Without connections, well-being is harder to

achieve because the individual would lack access to both help and support (Baumeister, & Leary, 2017). Relatedness is supported when others are involved and show interest in the person's activities, are empathic in responding to their feelings and convey that the person is significant, cared for, loved and are a part of an inclusive environment (Dulagil, 2012; Meyer & Maltin, 2010). This can make employees more engaged as well. On the other hand, feelings of relatedness are undermined by competition with others, cliques, and criticism from others (Ryff, 2013; 2018). The nature of the work in these OMCs requires that employees bond with their colleagues in the work environment and also feel related at work.

Regarding competence, the respondents perceived that they possessed high competence in the work they do. Their perceptions were reflective of their mean scores of the items measuring competence under psychological well-being. The notable ones from the results comprised; I feel that I have a number of good qualities (M= 4.23, SD= 0.915); I am able to do things as well as most other people (M= 4.22, SD=0.956); I am respected for what I do (M= 4.20, SD= 1.027) and I am able to demonstrate my skill verbally and non-verbally (M= 4.16, SD=1.013). Possessing a high level of competence augers well for the individual and the organisation as a whole. As Ryff (2013) puts it, people have a need to build their competence and develop mastery over tasks that are important to them. When an individual feels competent, they are able to interact effectively within their environment, and they have the skills needed for success to ensure that their goals are achieved (Henn et al., 2016). An employee's feeling of competence and mastery of the surrounding environment is a key predictor of psychological well-being (Ryff, 2018). This

therefore confirms that as employees believe in their competence for their jobs, their psychological wellbeing can be enhanced.

It is worth noting that autonomy of the respondents in their fuel stations was relatively lower compared to the other dimensions of well-being. Majority of items measuring autonomy of respondents under the psychological well-being subscale recorded mean scores less than 3.0. Notable ones among them include; management does not control the work of employees (M= 2.74, SD= 1.559); management allows employees to work the way they prefer to work (M= 2.64, SD= 1.508); management trusts people to take work-related decisions without getting permission first (M= 2.83, SD= 1.443). This presupposes that although respondents perceived that they have high psychological well-being, autonomy to operate in the workplace is minimal. This finding is intuitive. This is because, even though autonomy is the ability to feel that people are the masters of their own behaviour and destiny, in settings like fuel stations, granting employees full autonomy will be synonymous to throwing caution to the wind. Employees will not take safety precautions and their wellbeing would be in jeopardy (Blasco-Belled & Alsinet, 2022). To this end, the results on this scale corroborates the evidence from practice and reality among OMCs.

Thus, psychological well-being is a direct function of the satisfaction these basic psychological needs and employees can become more engaged when their needs for competence, relatedness, and autonomy are fulfilled (Dulagil, 2012; Demo & Paschoal, 2016; Orsila et al., 2011). As suggested by the self-determination theory, any degree to which any of these three

psychological needs is unsupported or thwarted within a social context will have a robust detrimental impact on well-being in that setting.

The overall mean indicated that physical well-being of respondents was low. The results revealed that the employees do not feel safe while working at the fuel station (M=2.61, SD=1.656). The respondents also reported low satisfaction with their job (M=2.69, SD=1.575), low happiness at work (M=2.84, SD=1.608) and less calm at the workplace (M=2.79, SD=1.571). The means recorded suggested that the respondents disagreed with the items on the questionnaire indicating that they perceived they had low physical well-being.

These perceptions could be objective or subjective, depending on the individual respondent. However, this is the most basic metric employees use to measure their wellbeing, thereby putting more weight on items that employees feel do not inure to their wellbeing. According to Lawn et al. (2020), the nature of work and the psychological demands of the job within OMCs does not allow for physical rest and processing of incidents, resulting in occupational stress such as fatigue, sleep disruption, injuries, accidents, and associated effects on work performance. Their sense of safety, happiness, satisfaction and anxiety could determine whether they stay with their respective organisations or leave the job. It is highly important to accept that, in instances where employees report low physical wellbeing, that could actually be the case. For instance, the OMCs in Ghana face a lot of risk factors such as robbery at gunpoint, noise pollution, long working hours, unconducive work environment, low salaries among others. These raises questions about the wellbeing of employees in the sector.

Qualitative Results on the Level of Employee Wellbeing

The degree of employee well-being was also assessed from the qualitative data. The analysis revealed two themes namely: high level of employee well-being and low employee physical well-being. The themes are further described in the following sub-sections.

High levels of employee well-being

Majority of the interviewees consented to the assertion that employee well-being in their organisations was high. In line with this, Manager 5 affirmed that *"I believe that overall employee well-being of our workers is good because we are doing a great job when it comes to ensuring that employees are safe and have sound mind to work. Yet we can accomplish more"*. Manager 1 reported that *"for the past years because of the safety culture established here at the station the employee's well-being had been improved upon immensely. There hasn't been anybody complaining so far in terms of health, hazards and all that".* The excerpt below also illustrates the comment of Manager 4 regarding the attempts made by their organisation to enhance employee well-being continually.

> *Most at times, the company have representatives who go round to see to it that employees have a good working environment and a sound mind for work. They come around the stations to hold meetings with us. We discuss about how employees are faring and how their well-being can be improved on. This is because the company cannot do without*

their employees. Yes, so we try to have some meetings so that we get to know the challenges of the employees which are been resolved at the long run (Manager 4).

Although the quantitative results revealed that autonomy of respondents was relatively low in the OMCs, the qualitative results indicated that management of OMCs engage workers and supervisors when it comes to decision making. Manager 2 argues that *"as for our organisation, our top managers engage us during decision making and also reward us in every three years"*. He further asserted that *"even though the attendants are at the lower level of the managerial hierarchy, much concern must be showed towards them since they are the frontline of the organization".*

With respect to the competence aspect of the psychological well-being, the managers affirmed through the qualitative data that most workers have gained comprehensive experience with providing services in the OMCs. Manager 5 noted that *"I've been employed with the organisation for more than five years. The routine activities we carry out has given me a lot of experience, and we continue to seek out for more".* Similarly, Manager 6 and Manager 3 share similar notion on the competence level of the workers: *"most fuel attendants are able to demonstrate high skills in the services they provide due to the experience they have gained on the job over the years"* (Manager 6). From the aforementioned results, workers in OMCs perceived to have high psychological well-being.

Low employee physical well-being

In consonance, with the quantitative results, the interview data also revealed that the physical well-being of the respondents was relatively low.

Manager 5 explained that *"the dangers associated to this job is very high hence most workers feel unsafe even though measures are put in place to ensure safety of all".* Manager 1 lamented that *because of the nature of the work we are so much exposed to occupational hazards and other risk because sometimes when you are discharging the fuel there's too much inhalation of the fuel and I think it's worrying"*.

Similarly, Manager 4 emphasised that *"as you stand to sell fuel to people, you keep on inhaling the fuel and we all don't know what might happen in some years to come as a result of the excessive inhalation of the fuel".* Most of the supervisors described the dangers attached to the work of fuel attendants as detrimental to the physical well-being of fuel attendants. One supervisor mentioned that *"mistakes are inevitable in life, however the risks involved in this work is so high that a little mistake can cost a great damage to both human lives and property and this makes the work unsafe at times"* (Manager 2). Manager 4 lamented that *"our work is in such a way that the risk attached to it is very high especially when products are been discharged, you find most people even collapsing".*

The results presupposes that the dangers involved in the work of OMCs have a toll on the physical well-being of the workers, hence the workers reporting low levels of physical well-being. The responses from the interviews corroborate the quantitative results to suggest the psychological wellbeing is high among employees, however, their physical wellbeing is low. So having an overall high wellbeing stern from the high level of psychological wellbeing and not both dimensions.

Objective 3: Examine the level of engagement of employees in the OMCs

The third research objective explored the level of employee engagement in oil marketing companies in Ghana. Employee engagement was measured using the U-WES 17 scale. The results from the quantitative data analysis are presented in Table 11.

Table 11: Level of employee engagement of respondents

Employee Engagement	**M**	**SD**
I do not care about time when I am working	3.03	1.569
When I am working, I forget everything else around me	3.03	1.480
I feel happy when I am working intensely	3.71	1.214
I am immersed in my work	3.72	1.216
It is difficult to detach myself from my job	3.37	1.388
I find the work that I do meaningful and purposeful	4.02	1.111
I am enthusiastic about my job	4.13	1.013
My job inspires me	4.05	1.165
I am proud of the work that I do	4.11	1.140
My job makes me innovative	3.77	1.334
I feel very energetic at work	3.62	1.272
I feel strong at work	3.93	1.093
When I get up in the morning, I feel like going to work	3.93	1.164
I can continue working for very long periods at a time	3.90	1.184
At my job, I am very resilient, mentally	4.03	1.021
At my work I always persevere, even when things do not go well	4.13	.924
Overall Mean	**3.78**	**1.206**

Source: Field Survey (2022)

The overall mean presented in Table 11 suggest that employee engagement in the oil marketing companies is high (M = 3.78, SD = 1.206). The respondents reported high level of enthusiasm for the work they do (M = 4.13, SD = 0.713). The standard deviation recorded indicates that majority of the respondents agreed to the fact that they were enthused about their job. The respondents also reported that they always persevere, even when things do not go well (M = 4.13, SD = 0.924). Also, some other items that indicated that

employee engagement was high in OMCs include: My job inspires me (M = 4.05, SD = 1.165); I find the work that I do meaningful and purposeful (M = 4.02, SD = 1.111); I am proud of the work that I do (M= 4.11, SD=1.139); and I am mentally resilient at my job (M = 4.03, SD = 1.021). Consistent with the above factors, Mowbray et al. (2014) indicated that implementing successful employee engagement strategies is critical to organizational success and leaders who embark on an employee engagement strategy must develop good listening techniques, be fair, have and demonstrate respect, build trust, and understand the employees' concerns.

The findings from the analyses are consistent with the results of Radda et al. (2015) who examined engagement in the oil and gas sector to identify how employee engagement relates to performance outcomes. The study concluded that job content, autonomy, management support feedback and individual differences are important features of employee engagement in the oil and gas industry. The researchers stated that employee engagement is related to employee motivation, and organisational citizenship but has a wider scope than these concepts. Therefore, to increase employee engagement in the oil and gas sector, managers must live by leadership by example and show respect to employees. Ohiorenoya and Uwadiae (2016) also show that in industries where contract staffing is high, it has a negative impact on employee engagement.

Qualitative Findings on the Level of Employee Engagement

The qualitative data also affirmed that employee engagement in oil marketing sector was relatively high. The main theme obtained from the analysis, as shown in the appendix to this study is the high level of

engagement. The excerpt below illustrates the viewpoint shared by Manager 4 in support of the high employee engagement reported in the quantitative analysis.

> *I've been in this industry for over two years. So far, the experience has been so good to the extent that it is very difficult to leave the place. Even though the dangers associated to this job is very high, when you find yourself doing what you are supposed to do it becomes easier when you do what is required of you* (Manager 4).

The excerpt above presupposes that employees are dedicated and absorbed in the work they do irrespective of the dangers attached to it. In addition, Manager 1 stated that *"when something happens at a filling station, the possibility that the place would explode for people to lose their lives is very high, nonetheless workers still persevere to continue with their work".* Manager 3 also shared a similar viewpoint which suggested that employee engagement in oil marketing organisations is high. He stated that *"employees are ready and willing, observing the passion with which they do their work, how committed, the zeal, and also how they are immersed in the job they do"* (Manager 3).

In line with the qualitative results presented above, Fapohunda (2012) added that work arrangement characterized by bad work conditions such as job insecurity, lack of flexibility, and lack of employment benefits that accrue to dampen employee engagement. Osborne and Hammond (2017) also revealed that the bond between leaders and employees is an essential element for engaging employees. Similarly, Subrahmanian (2014) revealed that

collaborative team, job and career satisfaction, organisation citizenship behaviour will improve the overall employee engagement of the organisation. The study concludes that the level of engagement determines whether people are productive and stay with the organization or quit and perhaps join competitors. Therefore, qualitative results substantiate the quantitative findings that employee engagement in the oil marketing companies in Ghana is high.

Objective 4: Effect of Safety Culture on Employee Engagement and the Mediating Role of Employee Well-Being

This section presents the analyses on the fourth objective of this study which is to assess the relationships between safety culture, employee well-being and employee engagement as well as the mediating role of employee well-being in this nexus. To achieve this objective and the related hypotheses, the study employed the Structural Equations Modelling technique. Before presenting the results of the study, the procedure required for deploying SEM has been explained below. The discussion of the objective and the hypotheses formulated were also presented in detail in the subsequent sections;

Common Method Variance

Reio (2010) defined Common Method Variance as the variance attributable to measurement method rather than to the constructs supposedly represented by the measures (Reio, 2010). It occurs mostly in surveys where respondents are expected to answer all the survey questions at a go. The utilisation of a single – sourced data obtained from a common scaling approach may also pose common method variance biases (Fuller, Simmering, Atinc, Atinc, & Babin, 2016). Its effect is that, it either inflates or deflates the correlations between the study variables due to the common method used to collect the data and this can affect the validity of the data and the conclusions drawn from the study (Burton-Jones, 2009).

Both procedural and statistical approaches have been recommended to help detect and ameliorate the impact of CMV bias on a study. Procedurally, Podsakoff et al. (2003) among other researchers have suggested a few methods to curtail the problem. Among these include collecting data from different sources, ensuring confidentiality and anonymity of respondents, using clearly written and precise scale items, and providing clear instructions on the research instrument (Reio, 2010; Spector, 2006; Burton-Jones, 2009). A number of statistical techniques can also be used to detect common method variance bias. These include Correlational Marker Technique, Confirmatory Factor Analysis, Unmeasured Latent Method Construct, and Harman's One-Factor Test.

In addition to implementing some of the procedural remedies listed earlier, the present study also utilised the Harman's One-Factor Test approach. With the Harman's One-Factor Test, if the eigenvalues from an exploratory factor analysis (EFA) produces variances greater than 50%, common method variance bias exists (Fuller et al., 2016). All the scale items in the research instrument were subjected to the exploratory factor analysis. Using a principal axis factoring and an unrotated matrix in SPSS version 25, the results revealed that 69 factors were extracted. The largest factor accounted for 22.644% of the variance in the model, which is below the recommended threshold of 50%. It is therefore concluded that the study is free from common method variance bias. The result for this process is shown in Appendix E of the study due to the length of the table.

Test for Sampling Adequacy

In addition to the common method variance test, the data was also checked for its appropriateness for the factor analysis and structural equation modelling using the Kaiser–Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. It is recommended that a KMO coefficient of 0.6 or above is sufficient to indicate the factorability of the data.

Table 12: KMO and Bartlett's Test

Test		Coefficients
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.874
Bartlett's Test of Sphericity	Approx. Chi-Square	15563.996
	Df	2346
	Sig.	.000

Source: Field Survey (2022)

The results from Table 12 shows that the value for KMO is 0.874 which is higher than the acceptable 0.6 and a significant value for the Bartlett's Test of Sphericity. This indicates that there exists adequate sampling adequacy for the SEM analyses. Consequent to this, the researcher analysed the data obtained and presented the results and its discussions in the ensuing sections.

Structural Equation Modelling

Hair et al. (2019) suggest that depending on the type of model in question, there are some evaluation criteria for researchers to employ in SEM analysis. Hair et al. (2019) and Ringle et al. (2020) recommend a two-stage process that human resource researchers need to follow in evaluating SEM models. The first stage is the evaluation of the measurement model followed

by the evaluation of the structural model in the second stage. These steps and their evaluation criteria have been summarized in the Table 13:

Table 13: Summary of PLS-SEM Analysis Assessment Thresholds

Stage	Measurement criteria	Recommended Threshold	Source
Stage 1:	Indicator Loadings	≥ 0.708	Hair et al. (2019)
	Internal reliability	≥ 0.70	Ringle et al. (2020)
	Convergent Validity	≥ 0.5	Hair et al. (2019)
	Discriminant validity	Fornell Larcker criterion and HTMT	Henseler et al. (2015)
Stage 2	Collinearity	VIF ≤ 3.3 or 5	Kock (2015)
	Predictive Relevance	R^2	Ringle et al. (2020)
		Q^2	Hair et al. (2019)
		F^2	
	Significance of path coefficients	≤ 0.05	Ringle et al. (2020)

Source: Adapted from Ofori (2022)

Assessment of Measurement Model

In assessing the measurement model, the first process is to examine the indicator reliability of all the items used to measure each construct to check their suitability. As a rule of thumb, all items to be included in the model must have factor loadings greater than 0.7, as they suggest that more than 50% of the indicator's variance is explained by the construct (Hair et al., 2019). Hence, the final model was arrived at after dropping all indicators with factor loadings less than 0.7. It is observed from Figure 3 that the indicator items had loadings ranging from 0.713 to 0.883, meeting the required threshold of 0.708 to suggest that there are no issues with indicator loadings' reliability.

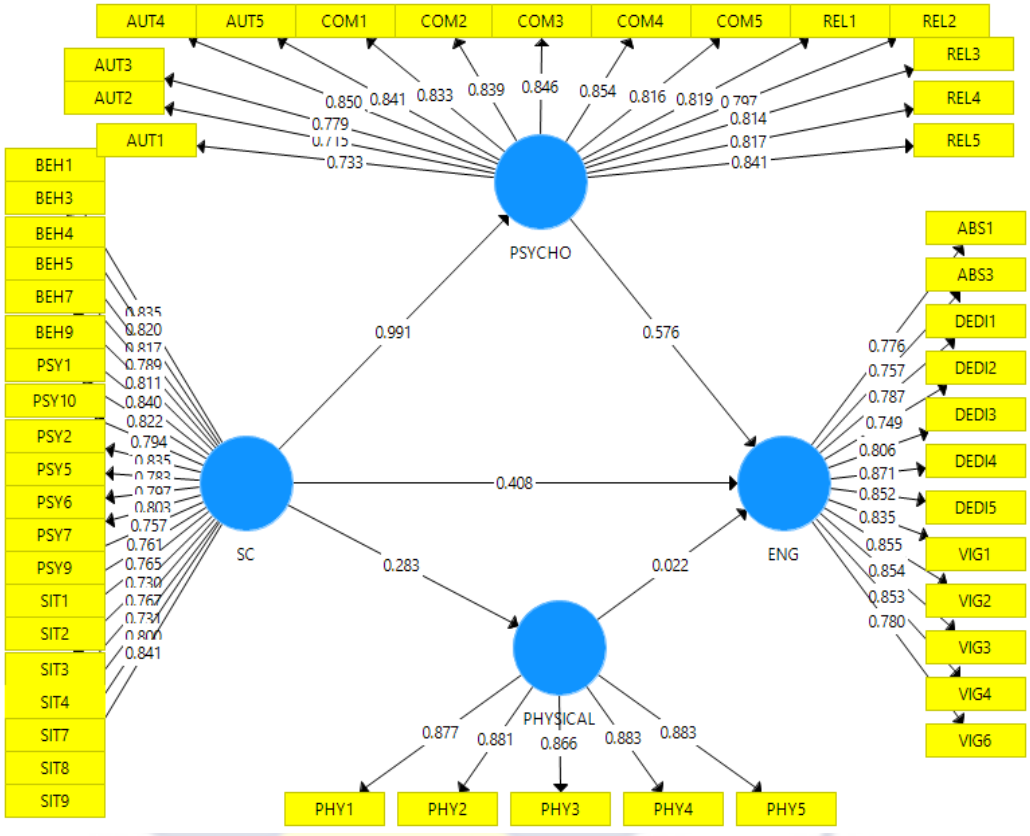


Figure 3: Measurement Model

Source: Field Survey (2022)

The next step in the measurement model is to assess the internal reliability of the constructs. Ringle et al. (2020) suggest that, in addition to the use of the Cronbach alpha and the Composite reliability metrics, the Rho A provides a more reliable measure as the Cronbach Alpha is a conservative measure while the composite reliability is a liberal measure. It is recommended that the reliability metrics should be greater than 0.70 but lesser than 0.95, as higher values could be indicative of collinearity issues (Hair et al., 2019). The results presented in Table 14 shows that all the constructs have reliability coefficients greater than 0.7 and lesser than 0.95, indicating that there are no issues of reliability.

Table 14: Reliability and Validity

Construct	Cronbach alpha	Rho A	Composite Reliability	AVE
Safety Culture	0.909	0.936	0.920	0.633
Psychological Well-being	0.815	0.872	0.842	0.662
Physical Well-being	0.898	0.898	0.886	0.771
Employee Engagement	0.860	0.913	0.873	0.665

Source: Field Survey (2022)

The next step in the measurement model is to evaluate the convergent and discriminant validities of the constructs. To assess convergent validity, the average variance extracted (AVE) is used. Ringle et al. (2020) recommend that the AVE should be greater than 0.5 to confirm convergent validity, as this means more than 50% of the variation in the items is explained by the constructs (Hair et al., 2019). A look at Table 14 reveals that the AVE for all the constructs exceed 0.5 (ranges from 0.633 to 0.771), therefore convergent validity is not a problem for this model.

Finally, the discriminant validity of the model is checked to complete the measurement model. The Fornell-Larcker criterion is the traditional metric for assessing discriminant validity. As an indication of discriminant validity, the FL criterion requires that "the square root of the AVE of a construct should be greater than the correlation between the same construct and all other reflectively measured constructs" (Ofori, 2021, p.184). Even though the Fornell-Larcker criterion has been the most used measure for discriminant

validity, Henseler, Ringle and Sarstedt (2015) contend that this metric performs badly in disclosing discriminant validity. Therefore, they suggest the use of the heterotrait-monotrait (HTMT) ratio, which is the "mean value of the item correlations across constructs relative to the (geometric) mean of the average correlations for the items measuring the same construct" (Hair et al., 2019, p. 9). The HTMT values must be lower than 0.85 or 0.90 to indicate that discriminant validity is present in the model. In this study, both the FL metric and the HTMT are presented to show that the model has no issues of discriminant validity. The results of the FL procedure are shown in Table 15. From the results, it is observed that the square root of the AVEs (in bold) are greater than the inter- item correlations, concluding that discriminant validity is achieved using the FL criterion.

Table 15: Discriminant Validity Using Fornell-Larcker Criterion

	Engage	Physical	Psycho	SC
Eng	0.816			
Physical	0.590	0.878		
Psycho	0.354	0.264	0.814	
SC	0.168	0.283	0.249	0.796

Source: Field Survey (2022)

Table 16: Heterotrait-Monotrait (HTMT) Ratio

Constructs	Engage	Physical	Psycho	SC
Engage				
Physical	0.590			
Psycho	0.354	0.390		
SC	0.168	0.175	0.249	

Source: Field Survey (2022)

The HTMT values in Table 16 above also show that the they are below the recommended score of 0.85, confirming discriminant validity.

Structural Model Assessment

Having assessed the measurement model for all the requirements, the study proceeds to assess the structural model for its predictive power before discussing the findings of the study. As a guide, Ringle et al. (2020) recommend the use of metrics such as the R^2, Q^2, and the f-square as measures for the predictive accuracy of the model in a PLS-SEM analysis. The constructs were first subjected to collinearity assessments to ensure that the model is free from any multicollinearity issues. In checking for multicollinearity among the constructs, it is required that the variance inflation factors (VIFs) of the endogenous variables should be below 3.3 or at most 5 (Hair et al., 2019; Ringle et al., 2020) to confirm the absence of multicollinearity in the structural model.

The PLS-SEM analysis showed that the VIFs are all below the acceptable threshold of 3.3, denoting the absence of collinearity. This means the correlation among the constructs do not bias the regression estimates. The study therefore proceeded to examine the predictive power of the model. To

assess the predictive relevance and the goodness of fit for the current model, the r-square, f-square, q-square and the statistical significance of the path coefficients were examined. A thorough description of each procedure is provided below;

To begin with, Hair et al. (2019) suggests that after dealing with issues of collinearity, the next step is to assess the R-square of the model. The R^2, also known as the coefficient of determination, measures the variation in the dependent variable that is being explained by the independent variables in a model. It gives an indication of the model's in-sample or predictive power. As a guide, R^2 values above 0.25, 0.5 and 0.75 signify weak, moderate and strong predictive power respectively (Ringle et al., 2020). Table 17 depicts a summary of the model's predictive power metrics.

Table 17: Predictive Power of Model

	Psychological Well-being	**Physical Well-being**	**Employee Engagement**
Safety Culture	0.572	0.087	0.107
Psychological Well-being			0.249
Physical Well-being			0.018
R^2	0.684	0.086	0.792
Adjusted R^2	0.676	0.084	0.781
Q^2	0.644	0.058	0.646

Source: Field Survey (2022)

Consistently, the model presented in this study depicted R^2 values ranging from 0.086 to 0.792, implying a weak to strong predictive power of the model. It is noticed that safety culture, psychological well-being and physical well-being jointly explained about 79.2% (R^2 = 0.792) of the variation in employee engagement, while safety culture explained 8.6% (R^2 = 0.086) and 68.4% (R^2 = 0.684) of the variations in physical well-being and psychological well-being respectively. The R^2 values are statistically significant at 5%. The implication is that, the three endogenous variables collectively explain 79% of the changes in employee engagement among fuel station attendants employed by OMCs in Ghana, while the safety culture practices in these OMCs explained 8.6% and 68% in the variations in employees' physical and psychological well-being respectively. These values suggest that the current model has moderate to strong in-sample predictive accuracy.

The next metric presented is the f-square (f^2) which gauges the effect size of each endogenous variable. Hair et al. (2019) surmised that the f^2 is indicative of a latent variable's effect on the R^2 when the latent variable is deleted. As per Cohen's (1988) interpretation, f^2 values of 0.35, 0.15 and 0.02 represent large, medium and small effect sizes. Based on this interpretation, it is noted that psychological well-being has the highest effect size on employee engagement, followed by safety culture and physical well-being. These are also shown in Table 17.

The third metric that was used to examine the model's predictive power is the Stone-Geisser's Q^2. Ringle et al. (2020) assert that the Q^2 is "obtained by means of the blindfolding procedure, which omits a part of the

data matrix, estimates the model parameters, and predicts the omitted part by using the previously computed estimates". Again, the evaluation criterion is that, the higher the Q^2 value, the higher the model's predictive power, with values greater than 0, 0.25 and 0.5 representing small, medium and large predictive accuracy (Ringle et al., 2020). The results reflect that all the Q^2 values were above zero, hinting that there is predictive accuracy.

Assessment of Path Relationships

Finally, the path relationships in the model were assessed to aid in the interpretation and discussion of the results obtained. In this regard, the path coefficients and their statistical significance are evaluated to form the basis of the interpretation of results. These hypotheses were therefore tested in the SEM through a bootstrapping procedure to obtain the p-values and t-statistics of the path coefficients. The results of this process are shown in figure 4 and Table 18.

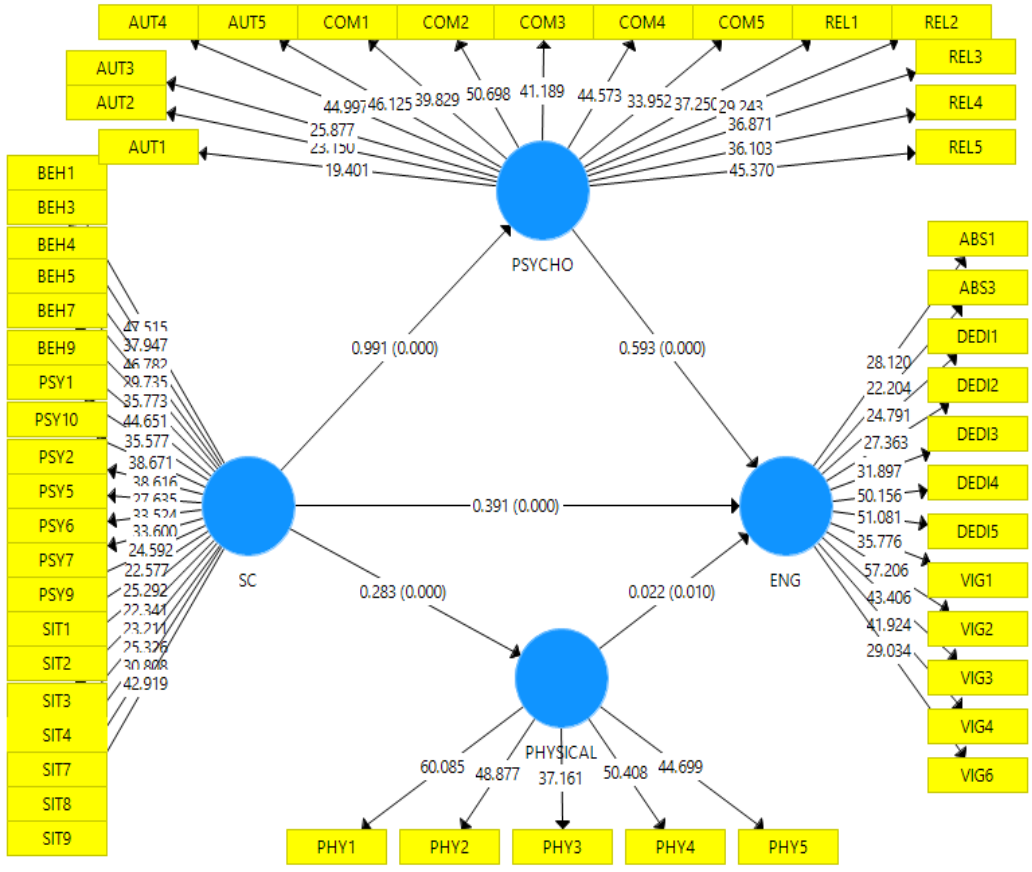


Figure 4: Structural Model
Source: Field Survey (Amfo-Antiri, 2022)

Table 18: Results Based on Path Coefficients

Direct Paths	Original Sample (O)	ST. DEV	T Stat	P-values	Decision
SC -> ENG	0.391	0.064	6.101	0.000	Reject
SC -> PHYSICAL	0.283	0.057	4.948	0.000	Reject
SC -> PSYCHO	0.991	0.096	10.322	0.000	Reject
PHYSICAL -> ENG	0.022	0.01	2.659	0.010	Reject
PSYCHO -> ENG	0.593	0.064	9.215	0.000	Reject
Indirect Paths					
SC -> PHYSICAL -> ENG	0.006	0.003	2.315	0.021	Reject
SC -> PSYCHO -> ENG	0.588	0.065	9.089	0.000	Reject
Total Indirect Effect	0.594				

Source: Amfo-Antiri (2022)

The results in Figure 4 depicts the direct relationships among the latent variables as well as the indirect relationships. Table 18 also highlights the t-values of the hypothesized relationships together with the indirect paths in the mediation analysis. The results also depict the effect of each exogenous variable on the endogenous variable both directly and indirectly. These relationships were hypothesized based on the research objective four and the ensuing hypotheses.

H_1: Safety culture has no significant influence on employee engagement

A closer look at the path coefficients in Table 18 and Figure 4 reveals a positive relationship between safety culture and employee engagement in the oil marketing sector. The results depict that safety culture has a statistically significant and direct effect on employee engagement ($\beta = 0.391$; p-value = 0.000; t-stat = 6.101). The results imply that as safety culture is enhanced by OMCs, employees are more likely to be engaged.

Therefore, first hypothesis (H_1) that states that "safety culture has no significant influence on employee engagement" was therefore rejected. The results connote that as employees and organisations step up their safety attitudes and behaviour, they are able to make the workplace safer and less risky to employees. This makes the workplace more conducive for the employee, thereby increasing their chances of staying with the organization (Gyensare et al., 2018). It is also noteworthy that most accidents and injuries that occur at the work environment are occasioned by prolonged exposure to dangerous substances such as chemicals, gases, flammable liquids and malfunctioning machinery and equipment. These issues are related to the

safety cultural practices at the workplace and can therefore impact on the level at which employees become engaged in their work (Gyensare et al., 2018).

This presupposes those organisations, especially within risky sectors, will take steps to improve the safety programs in those organisations (Choudhry, et al., 2007). This is because a working environment perceived to be unsafe by employees is likely to influence their decision whether to stay engaged with an organization or be disengaged (Thorp et al., 2012). An individual's level of absorption, dedication and the vigour demonstrated during work can be influenced by the level of safety culture at the work environment. This is also because, when employees, especially at fuel stations perceive safety culture to be low, they will not want to exert much energy or be absorbed in their roles for the fear of being involved in an accident or any work-related incident.

The findings in this study are similar to those reported by Gyensare, et al. (2018). Their study revealed that safety culture positively enhanced all dimensions of employee engagement among SMEs, concluding that promoting occupational health and safety among SMEs is paramount to keeping employees engaged in the sector to harness their potential for economic growth. Thorp et al. (2012) also confirmed this finding by suggesting that organisations can improve engagement levels of their employees by instituting safety procedures and policies to the fullest, with the optimal aim of improving safety culture.

Moreover, Hussain et al. (2022) surmised that when employees in oil and gas companies do not fully understand and practice safety culture, accidents are likely to increase, thereby affecting employee engagement,

especially during pandemics like COVID-19. Similar results have also been reported by researchers including Collier et al. (2016), Biddison et al. (2016) and Naji et al. (2020). In the view of Biddison et al. (2016), keeping an engaged workforce means creating the safety conditions and safety culture that ensures that employees find joy and meaning in their work.

Safety Culture and Employee Well-being

The study further sought to examine the relationship between safety culture and employee well-being. In this study, employee well-being was conceptualized to include both the psychological and physical dimensions of well-being. This gave birth to two related hypotheses, H_2 and H_3.

H_2: Safety culture has no significant influence on employee psychological well-being

This hypothesized relationship investigates the association between safety culture and psychological well-being of employees in the OMCs in Accra. From Table 18 and Figure 4, it is revealed that safety culture has the greatest effect on psychological well-being of employees. The results depict that safety culture has a positive and significant impact on psychological well-being ($\beta = 0.991$; p-value = 0.000; t-stat=10.322). This implies that improvements in safety culture can enhance the mental and psychological well-being of employees. Thus, H_2 is rejected.

A psychologically sound employee connotes an employee who is not depressed, anxious, angry or afraid. In work environments where safety is prime and all organizational members consider safety culture as a priority, there is a higher likelihood that employees will achieve a sound mental state or psychological well-being since they would not be anxious

or afraid when going about their daily roles (Adler et al., 2017). Similarly, when safety culture is a day-to-day activity that transcends the whole organization – from top management to the last employee – it gives employees the assurance that their mental and psychological human experience at the workplace will be enhanced rather than crippled (Adler et al., 2017).

Particularly for the oil marketing industry, Cox and Flin (2015) surmised that the most important cause of accidents in this sector is weak safety culture level. Idris et al. (2011) therefore lamented on the silence of the safety culture literature in helping "employers meet their duty of care obligations at work in relation to the prevention of workplace stress and the protection of psychological well-being" of employees (Idris et al., 2011, p. 25). In the oil and gas, industry, stress at work can reduce workers' safety and increase the likelihood of occupational injury. Employees who are aware of such a predicament would always be anxious even as they go about their tasks at the fuel stations. This is likely to have negative repercussions on their psychological well-being. It can also be argued that promoting safety culture among employees in the oil and gas industry enhances organisational effectiveness, employee well-being and safety (Bjerkan, 2010).

The finding is consistent with a number of previous studies in the area. For instance, Ehiaguina and Moda (2020) documented that when safety culture is low within the oil and gas industry, employees lack the motivation to work safely and the confidence to report concerns, especially as they are pressured to prioritize production over safety or

sometimes ignore safety regulations to get their job done. This negatively affects their psychological well-being. The result is also corroborated by the findings of Bjerkan (2010) who found safety culture and work environment to be related to diverse levels of employee well-being in the Norwegian oil and gas industry. In another study, Denning et al. (2021) also found that the psychological well-being of employees (measured as anxiety, depression and burnout) is associated with the safety attitudes and culture at the workplace. The finding on this nexus is also consistent with the results of Idris et al. (2011) who reported a negative relationship between both physical and psychosocial safety and psychological health problems among employees in Malaysia and Australia. Their results suggest that, when safety culture is low, employees' psychological well-being suffers.

H_3: Safety culture has no significant influence on employee physical well-being

H_3 examined the influence of safety culture on the physical well-being of employees in the sampled OMCs. The revelation from the SEM analysis was again consistent with H_2 and the researcher's expectation. From the analysis, it was found that safety culture has a direct and significant effect on physical well-being ($\beta = 0.283$; p-value = 0.000; t-stat=4.498). This means that promoting safety culture among OMCs could enhance the physical well-being of employees in the industry. Based on this finding, hypothesis H_3 was also rejected.

The implication of this result is that, OMCs can improve the physical well-being of employees when safety culture is instituted and

practiced even when no one is watching within the OMCs. The risky nature of the industry is such that safety precautions cannot be ignored. According to Lawn et al. (2020), the nature of work and the physical demands of the job within OMCs does not allow for physical rest and processing of incidents, resulting in occupational stress such as fatigue, sleep disruption, injuries, accidents and associated effects on work performance. Improving safety culture practices can therefore be a giant step towards enhancing the physical well-being of employees at the fuel stations. Additionally, good safety culture suggests that the organization and its employees will put in place the structural, procedural and the personal elements required to promote a behaviour of safety at the workplace. It is believed that as the whole organization puts up a culture of safety, instances that could trigger accidents and other physical limitations on the health and well-being of employees would be minimised.

As per Bjerkan's (2010) exposition, there are several stressors in the oil and gas industry such as work overload, role ambiguity, performance pressure, chemicals emissions, pacy work schedules, that could have negative implications on the physical health and well-being of employees. Therefore, "any organisation that seeks to establish the best state of social, physical and mental well-being for its workers needs to have policies and procedures that comprehensively address occupational health and safety" (Bjerkan, 2010, p. 449). This is also because, a satisfactory working environment conditioned on good safety culture is an

essential predictor of a physically well workforce (Bjerkan, 2010; Schaufeli & Bakker, 2004).

This finding is consistent with the empirical literature. For instance, Yankson (2012) emphasised that the importance of the adoption of a safety culture in an organisation is to enhance the well-being of the human resource, which is the most essential resource in any corporate setup. Similarly, Keeman, Naswall, Malinen and Kuntz (2017) argued that the creation of improved work environment and prevention of harm from work are important means of enhancing employee well-being. McGuire and McLaren (2009) also reported that the ergonomics of the workplace (which includes equipment present and the physical layout) have implications for employee well-being.

Employee Well-being and Employee Engagement

The study further assessed the effects of employee well-being on employee engagement within the oil marketing industry. The two well-being dimensions were regressed on employee engagement, leading to two hypotheses, H_4 and H_5.

H_4: Employee psychological well-being has no significant influence on employee engagement

From the results presented in Table 18 and Figure 4, it is observed that psychological well-being exerts a significant effect on employee engagement, implying that improvements in the psychological state of employees is likely to drive their engagement levels within the organization. Specifically, the results depict that psychological well-being has a positive effect on employee engagement among employees of OMCs

in Accra (β = 0.593; p-value = 0.000; t-stat=9.215). Based on this, the study rejects hypothesis H_4. The results mean that when employees of OMCs experience positive emotions at work, within the larger framework of purpose and meaning, they are said to be psychologically well and in this frame of mind, they would be more likely to be engaged with the organisation (Rasool et al., 2021).

Employee psychological well-being is linked to individual outcomes such as physical health and a range of mental health while a low level of psychological well-being is associated with poor physical and mental health which affects employee engagement negatively (Bandyopadhyay & Srivastava, 2017). According to Rasool et al. (2021), apprehension, depression, burnout and stress are all evidence of a poor psychological health and overall well-being of any employee. Bakker (2015) further adds symptoms such as moodiness, anxiousness, lack of concentration, feeling tensed and loneliness. When employees exhibit these psychological problems, they tend to develop negative behavioural patterns at work and this can adversely impact their level of engagement at the workplace (Bakker, 2015). Poor ratings on psychological dimensions such as low level of control and autonomy are also associated with an increased risk of serious illness and accidents, and leads to turnover which reduces employee engagement in the workplace (Kuper & Marmot, 2013). Hoert et al. (2018) further reports that a quarter of employees are likely to leave their jobs due to psychological burnout. This makes employee psychological well-being an important driver of employee engagement.

Empirically, a number of studies have found results similar to those reported in this study. For instance, Grover et al., (2018) reported a positive relationship between psychological well-being and employee engagement among nurses in Australia. Morrison (2019) found that employees who reported higher levels of engagement were likely to benefit from a broadened allocation of psychological resources, one of which is employee well-being. Al-Ghamdi et al. (2021) examined the well-being of employees and engagement in an oil marketing company in Saudi Aramco and reported that increased psychological well-being leads to improved employee engagement among Saudi Aramco employees.

Furthermore, Lizano (2021) concluded that being engaged with work can be attributed to greater levels of life satisfaction and well-being of workers in the USA. The findings from Abun et al. (2020) also suggest that a significant correlation exists between workplace psychological well-being and work engagement. Shuck and Reio (2014) also studied the relationship between well-being and employee engagement and its implication for practice using a sample of 216 health care employees from the United States, Canada, and Japan through an online survey. The study revealed that highly engaged employees exhibited higher levels of well-being and personal accomplishment. The above studies provide some support for the findings of the current study to suggest that when OMCs seek to promote the psychological welfare of their employees, they will be able to achieve higher levels of engagement since a psychologically sound worker is more likely to be engaged with the OMC than one who is not well psychologically.

H_5: Employee physical well-being has no significant influence on employee engagement

From Figure 4 and Table 18, the results show that the physical well-being construct exhibited a positive effect on employee engagement, connoting that improvements in the physical wellness of employees are likely to drive their engagement levels within the organization. Specifically, the results show that physical well-being has a direct effect on employee engagement ($\beta = 0.022$; p-value = 0.010; t-stat = 2.659). The findings indicate that employee physical well-being generally leads to employee engagement. This means that enhancing the physical well-being of employees in the OMSs is likely to promote their engagement with the organisation. Based on the results above, hypothesis H_5 is also rejected.

This means seeking the physical well-being of employees play a central role in achieving better organizational outcomes such as satisfaction, commitment, productivity and engagement (Robertson & Cooper, 2018). Similarly, when the physical demands of the job do not pose stressors beyond the job resources available to employees, as postulated by the job demand-resources theory, and employees work within a conducive environment, safe and free from physical danger, their physical well-being also prospers. Such employees are more likely to stay with an OMC and offer better performance than employees with lower levels of physical well-being. Rasool et al. (2021) further argues that, well-being issues motivate employees to be committed to their organisations, and so if the well-being of the employees are catered for,

they will respond positively by engaging with their respective organisations.

According to Haridoss (2017), headaches, muscular aches, chest pains, insomnia, regular colds and fatigue are signals of physical ill-health and overall well-being of any employee. When these symptoms persist among employees of the respective OMCs, their overall physical well-being is likely to be low, thereby affecting their work behaviour, engagement and other organizational outcomes. Organisations must therefore make explicit and thorough acknowledgment of the importance of preserving employee well-being. This does not imply a strategy that only seeks to mitigate the worst side effects of physical dangers and work overload. Instead, it suggests a strategy that aims to take steps to support and encourage favourable employee well-being (Johnson, et al., 2018). As employees demonstrate a high level of physical well-being, the organization reaps the benefit of a highly engaged workforce (Sivapragasam & Raya, 2017).

The findings on these hypotheses are comparable to some empirical studies. For instance, Kahya (2007) posit that to achieve sustainable levels of employee engagement, employee well-being ought to be integrated into engagement strategies. The Towers Perrin Report (2003) as cited in Anitha (2014) also reports that senior management's concern for employee well-being is the most important driver of employee engagement.

The findings are also in line with the results of Haridoss (2017) who documented a positive relationship between employee well-being

(physical, nutritional and psychological) and organizational outcomes such as employee commitment, satisfaction, engagement and productivity. Furthermore, Rasool et al. (2021) found that employee well-being has a positive impact on the organizational behaviour of employees, which enhances their engagement with the work they do as well as the organisation they work for. Judge and Watanabe (1993) found similar results that well-being and engagement were positively related. Therefore, this study provides evidence from the results and prior studies to support the hypotheses that employee well-being significantly influences employee engagement.

H_6: Employee well-being does not mediate the effect of safety culture on employee engagement

The final hypothesis for this study examined the mediating effect of employee well-being in the nexus between safety culture and employee engagement. To test for the mediating effect of employee well-being in this relationship, the study followed the procedure outlined in Baron and Kenny (1986) and McGuire and McLaren (2009). According to Baron and Kenny (1986), to establish a mediation relationship, four analytical procedures must be followed. These are;

1. Establish a significant relationship between the explanatory variable and the explained variable.
2. Show a significant nexus between the explanatory variable and the mediator
3. Establish a significant relationship between the mediator and the explained variable and

4. Show that the initial association between the explanatory variable and the explained variable becomes insignificant (full mediation) or is reduced (partial mediation) after controlling for the effects of the mediator (McGuire & McLaren, 2009). In other words, the indirect effect of the relationship between the dependent and independent variables should be greater than the direct effect to establish partial mediation. If the direct effect is insignificant but the indirect is significant, a full mediation exists.

The regression analyses in SEM were conducted based on these procedures. Indeed, the results presented above on the earlier hypotheses suggest that there is a significant relationship between safety culture (independent variable) and employee engagement (dependent variable), safety culture and employee well-being (mediator variable) as well as employee well-being and employee engagement, confirming procedures 1 to 3. These are also consistent to the study's hypotheses H_1 to H_5. To establish whether there is a mediation relationship or not, the direct and indirect effects were also computed using PLS-SEM. The results have been presented in Table 18.

The results suggest that employee well-being partially mediates the relationship between safety culture and employee engagement, even though psychological well-being has a more significant mediating effect. From the results, it is observed that the direct effect of safety culture on employee engagement is positive and significant (β = 0.391; p-value = 0.000; t-stat = 6.101). However, the psychological well-being depicts a significant indirect effect in the relationship to confirm a mediating role (β = 0.588; p-value = 0.000; t-stat=9.089). Again, physical well-being also exhibited a marginally

significant indirect effect to confirm its partial mediating effect (β = 0.006; p-value = 0.021; t-stat = 2.315). From the PLS-SEM computations, this gives a total indirect effect of 0.594 as compared to the direct effect of 0.391. H_6 is rejected.

Drawing inferences from these results, the findings suggest that when organisations, especially those in the oil marketing industry, prioritize safety within the organisation, it will improve safety culture. Since poor working conditions, coupled with poor safety culture within the OMCs are basic drivers of poor mental and physical health among employees, it is believed that OMCs must make frantic efforts to improve safety culture within their premises to engender employee well-being. As employees feel safe and secured at the workplace, they settle well in the organization and become committed, and this in the long run increases employee engagement (McGuire & McLaren, 2009). It therefore stands to reason that promoting a safety culture is an effective way to ensuring occupational health and employee well-being. Physically and psychologically well employees are more likely to be engaged with their organisations and reward the organization with improved performance and overall productivity.

Within a safe environment, employees whose wellness has been catered for are more likely to be productive, stay with the organization and interact more effectively with customers (Cooper, 2018). The results therefore indicate that employees in the oil marketing industry work in stressful conditions arising from employees' responsibilities toward safety and therefore there is a need to pay attention to providing a safety culture that ensures employees' well-being leading to performance.

Consistent with this results, Tengilimoglu, Celik and Guzell (2018) indicated that organisations that had instituted a safety culture and well-being activities reported positive results including, improved employee morale and engagement, a healthier and more inclusive workplace culture and reduced absenteeism. Rasool et al. (2021) also presented similar evidence to suggest that employee well-being mediates the relationship between toxic work environment and employee engagement among SME workers in China. Moreover, McGuire and McLaren (2009) found employee well-being to mediate the relationship between physical conditions in the working environment and employee commitment in Britain. Langove, Isha, and Javaid (2016) also supported this line of reasoning by providing a conceptual framework that suggests that employee well-being plays an intervening role in the relationship between role stressors and intentions to leave an organization.

Chapter Summary

This chapter presented the results on the demographic characteristics of the respondents for the study as well as the findings on each objective. Both the quantitative and qualitative results on safety culture, well-being and engagement of employees in OMCs were also highlighted. The results revealed that the situational characteristics and psychological dimension of safety culture are high in OMCs, however the behavioural characteristics of safety culture was relatively low. Also, the components of psychological well-being (autonomy, competence and relatedness) were relatively high among the respondents. Nonetheless, the respondents reported low levels of physical well-being while employee engagement was relatively high in OMCs. The SEM results revealed a positive and significant relationship between safety

culture and employee engagement. The results also confirmed that higher employee physical and psychological well-being are likely to result in higher employee engagement among the OMCs in Accra. Finally, the study found that employee well-being mediates the relationship between safety culture and employee engagement in the OMCs.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents the summary, conclusions and recommendations. The chapter also describes the contribution of the study to theory and practice. In recognition of the limitation of the study, a number of suggestions are made for further studies. Paramount among the findings is that OMCs can improve the physical and psychological well-being of employees when safety culture is instituted and practiced, and this can have significant impact on employee engagement within OMCs.

Overview of the Study

The purpose of the study was to assess the effect of safety culture on employee engagement in OMCs and the mediating role of well-being in the relationship. The study was necessitated by the many fire explosions, high turnover and the health and safety of employees in the oil marketing companies. The ongoing fire explosions in the industry has led to many people losing their lives and the destruction of properties which affect the economy. The study argues that instituting and practicing safety culture can improve employee well-being and promote employee engagement. Therefore, a safety culture that leads to employee well-being will promote employee engagement.

Safety culture is central to the total improvement of the working conditions of employees and any individual or groups of individuals associated with the work and the work environment. It aims at enhancing a positive workplace environment, protecting, preserving and promoting the health and safety of employees and ensuring their well-being and engagement.

Safety culture influences employee well-being by creating a work environment that ensures that employees have a degree of control over their work, clarity about their responsibilities, variety of task and working hours that give flexibility. The purpose of the study was to examine the mediating role of employee well-being on the relationship between safety culture and employee engagement in the oil marketing sector in Ghana. The specific objectives of the study were to:

1. assess the level of safety culture in the sector
2. examine the level of well-being of employees
3. examine the level of employee engagement
4. assess the mediating role of employee well-being in the relationship between safety culture and employee engagement

The study followed the mixed methods study approach and specifically adopted an explanatory study design. The target population comprised of all employees of Ghana Oil Company (GOIL), TOTAL and Shell fuel stations in the Greater Accra Region. The Greater Accra Region has over 1,472 retail outlets operated by 45 OMCs. However, the three OMCs own the majority of market share (32%) and also operate more retail outlets than the other OMCs in the Region (NPA, 2022). A total of 415 questionnaires were administered in the three OMCs selected for the study. In addition, 6 managers from the selected OMCs were interviewed to provide detailed first-hand information to augment the quantitative data collected. Questionnaires were both self-administered and researcher-administered. A pilot study was undertaken in Cape Coast Metropolis before the main data collection exercise. The data

collection spanned a period of two months from October 2022 to November 2022.

The quantitative data was processed using SPSS and SmartPLS 3.3. The data analysis techniques were descriptive statistics and partial least squares regression using structural equation modelling. Descriptive statistics, mainly frequency and percentages, were employed to provide a summary of the categorical data while the measures of central tendency (mean) and dispersion (standard deviation) were employed to describe the continuous variables. Specifically, the demographic characteristics of the respondents were presented using frequencies and percentages. Objectives one, two and three were also analysed using means and standard deviations to assess the safety culture, employee well-being and employee engagement levels within the selected OMCs. The fourth objective was analysed using SEM. All quantitative variables were measured on a scale of 1 to 5 (where 1 represents strongly disagree, and 5, represents the strongly agree).

The qualitative data was transcribed by typing the audio recordings into text in Microsoft Word manually. This was further augmented by using Microsoft transcribing software to improve the quality of the audio transcript. For thorough coding and analysis, the transcribed data were entered into HyperRESEARCH 4.5.3 software. The key findings from the study are presented in the section below.

Summary of Findings

The findings of the study have been summarised in this section relative to each objective. In respect of the first objective which was to assess the

safety culture in the oil marketing sector in Ghana, the following key finding were observed from the study:

First, it was established that the situational dimension of safety culture recorded a high overall average of 3.66 and standard deviation of 1.492. Specifically, availability of clear rules and regulations, personal protective equipment and regular information about recurring causes and factors to accidents given to employees all scored a mean above 4.0. The psychological dimension of safety culture was also high (M=3.94, SD=1.062). Items such as 'good collaboration among employees to promote safety', 'abiding by the safety rules before production' and 'encouraging employees to raise safety concerns that they have all scored means above 4.0 on the 5-point likert scale. The final dimension of safety culture, behavioural safety culture, however recorded a lower mean of 2.03. Only the item "if I make a mistake that has significant consequences and nobody notices, quickly I report it" scored above 2.5 (M=2.84, SD=1.540). Consequently, the results suggest that even though overall safety culture was found to be high within the oil marketing sector, the actual behaviour of employees that would ensure safety within the industry was lacking. This could increase the occurrence of accidents and other safety incidents within the sector.

The well-being of employees within the oil marketing sector was assessed as the second objective of the study. Employee well-being was segregated into physical and psychological components, with the psychological component being made up of three dimensions (competence, relatedness and autonomy). The key findings are presented below:

Overall, psychological well-being was found to be relatively high among employees in the sampled OMCs. The study found that, of the three dimensions of psychological well-being, competence had the highest overall mean of 4.14 and a standard deviation of 1.027. Thus, the respondents were in agreement with the items on the research instrument. Five out of the six items on this dimension had means greater than 4, with only one item with a mean of 3.87. This shows that employees of the OMCs demonstrate the desired level of competence in the discharge of their duties. Employees indicated they had the capacity in terms of knowledge, experience and confidence to do their work on a daily basis. Relatedness was the next factor, depicting an overall average of 4.01 and a standard deviation of 1.071, to show that employees related well with their colleagues at the workplace, contributing to their psychological well-being. Again, they reported that there was good relationship among the employees and therefore feel happy at work. Among other factors, items such as easy-going and friendly colleagues, readily available assistance from colleagues, happy working relations, effective collaboration and good guidance from colleagues had means greater than 4 on a five-point Likert scale.

However, the autonomy dimension of psychological well-being recorded a moderate mean of 3.04. The item that scored the least was "management allows employees to work the way they prefer to work (M=2.64, SD=1.508). Autonomy, which involves opportunities to be involved in goal setting and involvement in teams and committees that influence decisions provide intrinsic satisfaction to employees. This suggests that employees do not have the luxury or freedom to go about their duties

according to their preferences. This could also explain the low score of the behavioural component of safety culture since employees would take on shortcuts and other inappropriate practices to circumvent the rules they might be expected to work with. Finally, the study observed physical well-being to be relatively low among employees of these OMCs, with an overall mean of 2.74 and standard deviation of 1.616. The indicators measuring physical had mean values ranging between 2.61 to 2.84, depicting that employees within the sector are not satisfied with their standard of well-being.

The third objective was to examine the employee engagement in the OMCs in Ghana. Again, the study conceptualised engagement using the three dimensions proposed by UWES-17. The study found that the overall employees' engagement was high (M=3.78, SD=1.206). The highest scoring items were 'at my work I always persevere, even when things do not go well and I am enthusiastic about my job' at (M=4.13, SD=0.713). on the other hand, the least scoring items were "I do not care about time when I am working" (3.03, 1.569) and "When I am working, I forget everything else around me" (M=3.03, SD=1.480). This finding also suggests that employees of the three topmost OMCs in the country are relatively engaged with their firms. That is to say, employees exhibit higher levels of vigour and dedication even though their absorption levels were relatively moderate.

The qualitative analysis provided further evidence to support the quantitative findings on objectives one to three. Concerning the first objective, the interviewees confirmed a high safety culture within the sector. Four sub-themes emerged from the analysis to confirm the high level of safety culture in the sector. These are availability of safety tools and equipment, special

department for ensuring safety culture, exemplary leadership qualities, and strict rules and regulations on ensuring safety. Among other factors, the interviewees suggest that instituting these measures helps to contribute to a higher safety culture in the oil marketing sector.

Relative to the second objective, the qualitative analysis revealed somehow similar to the low autonomy observed from the quantitative analysis that employees are more likely to be involved in decision making than to allow them take decisions on their own. The qualitative analysis also suggested that employees are competent by demonstrating high skills in the services they provide due to the experience they have gained on the job over the years. However, physical well-being was suggested to be low especially in the face of the risky nature of the sector. The results presupposes that the dangers involved in the work of OMCs have a toll on the physical well-being of the workers, hence the workers reporting low levels of physical well-being. The final qualitative analysis also highlighted the role of employees and management in promoting engagement. It was established from the sentiments and views shared in the interview that when employees are compliant and persevere with their roles, they are more likely to stay with the organisation for some time.

The fourth objective was to investigate the relationship between safety culture and employee engagement and the mediating role of employee well-being in the relationship. Six hypotheses were therefore formulated and tested using SEM. Regarding the first hypothesis (H_1) that states that "safety culture has no significant influence on employee engagement", the results show that safety culture has a statistically significant and direct effect on employee

engagement in the OMCs (β = 0.391; p-value = 0.000; t-stat = 6.101). Hypothesis H_1 was therefore rejected. This denotes that safety culture is a predictor of the level of engagement among employees in the sampled OMCs. Based on this finding, it was established that instituting and practicing sound safety culture can enhance employee engagement among employees of oil marketing companies.

Regarding the second hypothesis that states that "safety culture has no significant effect on employee psychological well-being", the results revealed that safety culture significantly predicts psychological well-being of employees. It was found that safety culture has a positive and significant impact on psychological well-being (β = 0.991; p-value = 0.000; t-stat=10.322). This meant that the study rejected Hypothesis H_2. This finding implied that high safety culture would ensure that employees have sound mental state or psychological well-being. The study also rejected Hypothesis H_3 as safety culture was found to have a direct and significant effect on physical well-being (β = 0.283; p-value = 0.000; t-stat=4.498), suggesting that when safety is promoted, the physical well-being of employees thrive. On the whole the findings suggest that safety culture has a significant effect on employee well-being in the oil marketing sector.

The study also examined the impact of well-being on employee engagement under two hypotheses, H_4 and H_5. In relation to Hypothesis H_4, psychological well-being was found to have a significant effect on employee engagement (β = 0.593; p-value = 0.000; t-stat=9.215) while physical well-being also maintained a positive effect on employee engagement (β = 0.022; p-value = 0.010; t-stat=2.659). Thus, H_4 and H_5 were both rejected in line with

the findings of the study. From the results, the study establishes that improvements in employee well-being (be it psychological or physical) can promote engagement within the sector. It is also worth noting that psychological well-being had a more pronounced effect on employee engagement than physical well-being. This also corroborates the results of objective two which suggested that psychological well-being seem to be higher than physical well-being among employees of the OMCs.

The final hypothesis tested the mediating effect of employee well-being on the relationship between safety culture and employee well-being. It was found that employee well-being partially mediates the relationship between safety culture and employee engagement, even though psychological well-being has a more significant mediating effect. From the results, it is observed that the direct effect between safety culture and employee engagement is positive and significant (β = 0.391; p-value = 0.000; t-stat=6.101). However, the psychological well-being depicts a significant indirect effect in the relationship (β = 0.588; p-value = 0.000; t-stat=9.089) to confirm a mediating role. Again, physical well-being also exhibited a marginally significant indirect effect (β = 0.006; p-value = 0.021; t-stat = 2.315) to confirm its partial mediating effect. From the PLS-SEM computations, this gives a total indirect effect of 0.594 as compared to the direct effect of 0.391. Accordingly, the study rejected hypotheses H_6 based on the results.

Conclusions

Based on the results of the study, it can be concluded that safety culture is central to the total improvement of the working conditions of

employees and any individual or groups of individuals associated with the work and the work environment. Even though the situational and psychological dimensions of safety culture recorded high average scores, the behavioural dimensions were lower. This suggests that employees' behaviour in terms of safety in the OMCs was relatively low as compared to the other dimensions of safety culture. Thus, although the practices are available and confirmed by these employees, the motivation to put up safety behaviour is lacking. To reverse this predicament, good reward (and punishment) systems should be institutionalized to promote safe behaviour. When OMCs respond positively to employees' safety behaviours by rewarding these employees it serves as motivation to engage in safe behaviour at all times which is what safety culture seeks to achieve. This can help reduce the numerous safety incidents within the sector.

Moreover, the study concluded that the psychological well-being of employees of OMCs was high. However, physical well-being was relatively low indicating that the dangers in the work environment affect their physical well-being. This is not surprising as the oil marketing sector poses higher hazards to both employees and other people due to the nature of the job which demands manual tasks, lengthy shifts, physical location, and support infrastructure. Moreso, most of these employees may not be able to gauge their psychological well-being appropriately as the indications are accumulated over time. Since the physical dimensions are relatively overt to employees, they will be in a better position to disclose their welfare in that regard.

Based on the level of employee engagement in the OMCs, the study concludes that there is high level of employee engagement in the OMCs. Given the working conditions of these employees and nature of their work, high engagement could be explained by several other factors. One could argue that, since the sampled OMCs are the topmost in the sector, they might have the financial muscles to provide better conditions of service and motivation for their employees, thereby getting them engaged. It could also be argued that employees held on to their jobs due to the higher levels of unemployment in the country. Since engagement is high in the OMCs, the findings contradict the assumptions of the ABC theory of safety, that antecedents /activators tell people how to behave to receive a consequence, and the consequences influence behaviour. The findings also contradict the assumption that high level of engagement will reduce accident and turnover in the sector.

The study also concluded that safety culture can significantly predict the level of employee engagement in the oil marketing sector. The results imply that as safety culture is enhanced within the sector, employees are more likely to be engaged with the OMCs. In line with the tenets of the J-DR model, when safety culture is instituted, it can provide some buffer or support to employees in terms of resources to help meet the demands of their job. Similarly, the ABC theory of safety would also suggest that when safety culture is practiced, the ultimate consequence would be engagement of employees. Thus, safety culture within the organization is going to make the workplace less risky and lead employees to be engaged.

Concerning the relationship between safety culture and employee well-being, the study concluded that improvements in safety culture can enhance

the psychological (mental) and physical well-being of employees in the sector. This means that as employees of these OMCs take safety practices seriously and make it a way of life in their respective stations, this can attenuate the adverse demands of the work on their welfare and improve their general well-being. This also resonates with the proposition of the JD-R theory since safety practices can provide some resources to accommodate the demands from the job, thereby enhancing their well-being.

The study further concludes that when the general well-being needs (psychological and physical) of employees are catered for, they are more likely to be engaged by their respective employers. Thus, an engaged employee is probably going to be the employee who has high physical and psychological well-being. Such employees can be expected to be more dedicated and committed, exhibiting great desire to improve organisational outcomes. Simply say, improvement in the well-being of employees will also improve employee engagement in the oil marketing sector.

Finally, the study concludes that, both dimensions of employee well-being partially mediate the relationship between safety culture and employee engagement, connoting that improvements in the safety culture and practices among employees of OMCs can improve their well-being, thereby making them more engaged with their employers. The implication is that poor working conditions, coupled with poor safety culture within the OMCs could be basic drivers of poor mental and physical health among employees. It is therefore believed that OMCs must make frantic efforts to improve safety culture within their premises so as to engender employee well-being. As employees feel safe and secured at the workplace, they settle well in the

organization and become committed, and this in the long run increases employee engagement.

Contribution to Knowledge

The study contributes to theory and methods. Overall, the study contributes to the understanding of the role of employee well-being in the relationship between safety culture and employee engagement within the oil marketing companies in Ghana. Efforts to curb the many safety incidents in the oil marketing companies demands a better understanding of safety culture and employee engagement and how well-being affects the relationship. The findings of the study contribute to the broad literature by revealing the state of safety culture, employee well-being and employee engagement among OMCs in Ghana.

Moreover, the study adopted the safety culture product definition by implementing Cooper's (2000) reciprocal model to assess the nature of safety culture and help organisations adopt the right strategies in creating a good safety culture. The present study also contributes to knowledge, especially in the occupational safety literature, occupational health psychology and research on complex industries. In complex industries such as the oil and gas sector, where working conditions are stressful, it becomes necessary for organisation to focus on the stress arising from the psychological and physical demands of the job and their impact on the level of engagement.

Previous studies that have attempted to examine the relationship among these variables paid little or no attention to the importance of the psychological and physical well-being levels in describing the safety culture – employee well-being nexus. Accordingly, by investigating the intermediating

role of employee well-being in the relationship between safety culture and engagement provides an elaborate explanation on how poor employee well-being can affect employee engagement. Thus, examining the role of employee well-being in describing the association is essential.

Contribution to Practice

This study provides practical insights for management and employees who may want to enhance workers' safety behaviour. Several practical interventions can be instituted to enhance remote oil and gas workers' safety behaviour and promote an effective balance in their mental health and level of fatigue. Additionally, the findings suggest strategies or guidelines (strict adherence to safety rules and regulations and setting up special departments to ensure safety culture at the filling stations) that promote safety behaviour by focusing on continuous creation of awareness to get employees to behave in a safe manner even under no supervision.

This research further has practical implications for managers and experts working in the field of occupational safety, who are involved in the prevention of occupational accidents. The research findings show that it is important for managers and experts who want to increase the safe behaviour of employees to provide leadership by example. Accordingly, a transformational safety leadership skill will lead to a more positive perception of the safety by employees and ultimately to safer behaviours and lower work accidents. At this point, it is suggested that organizations pay attention to the employees that they will assign in the field of occupational safety to ensure suitability for a transformational leadership style. The results of the research study shows that the leadership perceptions of the employees and the perceptions of safety cli-

mate by the employees are important in promoting the safety behaviours of employees. Considering the human and economic losses caused by occupational accidents, it would be beneficial to consider this point in the studies carried out on a national scale to prevent occupational accidents.

Recommendations

Results of the study show that safety culture has a considerable impact on employee engagement which is known to reduce accident and turnover. Consequently, it requires the development of new ways of thinking and behavioural change along the safety culture dimensions and employee well-being. Based on the key findings of the study, the following recommendations are put forth.

To begin with, continuous awareness creation about safety culture practices in the OMCs should be intensified particularly by the managers of the respective OMCs. Safety culture will continue to improve when employees are informed of the risk associated with their noncompliance to safety rules and regulation. Using multiple information dissemination platforms such as billboards, social media and free flow of information within the OMCs will help curb the menace. Advocacy programmes centred on economic gains from the prevention of accidents can influence behaviours toward safety and environmental protection.

There is the need for the continuous use of PPEs in the oil marketing sector. These PPEs have to comply with international best standards authorised by safety agencies. These PPEs include protective clothing, helmets, hearing protectors, gloves, goggles, boots, nose musk and other equipment which would help minimise the impact of injuries in the workplace and also protect

the worker from different physical, chemical, heat, electrical, and blunt impacts in the work site. Aside from the use of these PPEs, PPE programmes also have to be set in place. These programs would help implement the training needs of the workers on the proper use of these PPEs. It is important for employees to understand why they are wearing PPEs, and the need to keep them on at all times. Surveying the work site and assessing the knowledge of the workers on the use of these PPEs is also important because it would help establish gaps in the worker's knowledge about the use of PPEs. With this, addressing these gaps would therefore become easier.

In order to take advantage of safety culture as a useful tool to manage risks and enhance engagement, the effective assessment of safety culture is imperative. It would be prudent for leadership of the OMCs to conduct a retrospective and prospective assessment of their safety systems in place and juxtapose it with industry best practices. It will also be important for managers at the retail points of OMCs to write down safety policies for their employees in order to set safety and health standards. Ultimately, such safety should be one of their objectives. This policy must assign roles to those who would be responsible for ensuring that the responsibilities are fulfilled. Management must insist on good employee leadership skills as a policy that must be exhibited at the workplace since this will make the individual employees to always think of the safety of the other employees. Response to safety incidents must be less reactive and be more proactive and preventive.

A collective effort by all stakeholders, such as the OMC, employees, management, regulators and customers, is also required to ensure safety compliance at the fuel retail stations. An example is the need to develop a detailed

inspectorate protocol for the industry for the purpose of compliance. Appropriate reward systems should also be implemented to incentivize good safety practices while punishing culprits to deter non-compliance to safety protocols. Employees must be held liable for their actions and inactions. When employees are held liable for their actions, it will be easier to apply the punishment and reward system. There should be suitable means for employees to report their safety concerns as this can also enhance their compliance. Employees are the first line of defence against any safety and health hazard. Their opinion is therefore important because they can see the real time, live images of any threat situation.

As a recommendation on the value of safety practices in the oil marketing sector, this study recommends that of OMCs and the regulatory bodies collaborate to establish a mechanism for collecting accidents and incidents record keeping from every retail station in order to establish a pattern for the industry. Information related to each incident has to be published and studied with the hope of ultimately avoiding any repeats of these incidents. It is important to therefore establish frameworks and models of practice which would be localised to a specific area. These models would be supported by the practices, culture, specific qualities, beliefs, and behaviour of the area or region. Under these conditions, the policy-makers would therefore have to be guided by these specific localized qualities.

Finally, it is recommended that beyond promoting safety culture, other overt means of improving the well-being of employees and getting them to be engaged need to be given a careful look by the Human Resource managers of these OMCs. Issues such as the shift hours, work environment, conditions of

service, salaries and other financial incentives can also be re-evaluated to iron out any discrepancies and grievances employees may hold. Moreso, other non-financial benefits could also be designed and implemented for these employees to feel appreciated and boost their morale at the workplace. This can help improve their well-being and engagement levels.

Suggestions for Future Studies

Given that the cross-sectional nature of the study, an area for future research should be conducted using experimental design to assess the safety culture scores before and after participants have experienced or witnessed an injury or near miss, as this will provide insight into whether the safety culture score is lower due to engaging in hazardous behaviour or due to becoming more safety conscious. Future research can also develop a safety culture assessment tool that incorporates document reviews of safety policies and accident reports, observation of employees to determine the norms within the organization, and interviews with both management and employees.

Relative to the scope of this study, the research hypotheses were tested based on data from a sample that included only three OMCs and their employees. Besides, the focus on only Greater Accra Region might not give a full picture of the situation on the ground. Future research on this subject can be extended to include more employees from various OMCs, and in different regions to provide a more generalisable findings and contribute to the full disclosure of all aspects of the phenomenon.

Again, a number of conceptualisations and dimensions are available for each of the constructs employed in this study, i.e., safety culture, employee well-being and employee engagement. This research employed Cooper's

model to conceptualise safety culture and the UWES-17 scale to operationalise employee engagement while well-being had only psychological and physical dimensions. Examining this relationship using other measurement scales and conceptualisations in future research will make significant contributions to revealing all aspects of the subject.

This study is largely focused on the integration of situational characteristics psychological characteristics and behavioural characteristics of safety culture. However, real-world cases often entail the consideration of all the risk factors aforementioned: technical, human, organizational and societal factors. Therefore, it is suggested to perform further studies to investigate the relationship among these factors and to incorporate all of them in a quantitative risk analysis.

REFERENCES

Abun, D., Magallanes, T., Foronda, S. L. G. L., & Encarnacion, M. J. (2020). Employees' workplace well-being and work engagement of divine word colleges' employees in Ilocos region, Philippines. *International Journal of Research in Business and Social Science, 9*(2), 70-84.

Achaw, O. W., & Boateng, E. D. (2012). Safety practices in the oil and gas industries in Ghana. *International Journal of Development and Sustainability*, *1*(2), 456-465.

Adcock, R., & Collier, D. (2001). Measurement validity: A shared standard for qualitative and quantitative research. *American Political Science Review*, *95*(3), 529-546.

Adler, A., Unanue, W., Osin, E., Ricard, M., Alkire, S., & Seligman, M. (2017). Psychological well-being. *Social Psychological and Personality Science, 8*(5), 519-527.

Advisory Committee on the Safety of Nuclear Installations (ACSNI) (1993). *Third Report of the Human Factors Safety Group of the Advisory Committee on safety in the Nuclear Industry*. Health and Safety Commission, HMSO, London.

Affandhy, L. R., & Nilamsari, N. (2017). Safe behavior analysis of workers with ABC (Activator-Behavior-Consequence) Model. *Journal of Industrial Hygiene and Occupational Health*, *2*(1), 14-30.

Agwu, M. O. (2012). Impact of employees' safety culture on organisational performance in shell bonny terminal integrated project (BTIP). *European Journal of Business and Social Sciences*, *1*(5), 70-82.

Aiello, A., & Tesi, A. (2017). Psychological well-being and work engagement among Italian social workers: Examining the mediational role of job resources. *Social Work Research, 41*(2), 73-84.

Aithal, P. S., & Kumar P.M. (2017). Interconnecting Theory, A and ABC Model of organisational performance. *International Journal of Management Technology and Social Sciences 1(1)*, 1-13.

Ajala, E. M. (2012). The influence of workplace environment on workers' welfare, performance and productivity. The African Symposium.

Ajmal, M., Isha, A. S. N., Nordin, S. M., & Al-Mekhlafi, A. B. A. (2022). Safety-management practices and the occurrence of occupational accidents: assessing the mediating role of safety compliance. *Sustainability*, *14*(8), 4569-4585.

Al Hammadi, N., Bin Masrom, A. y Mohamed, S. (2019). Happiness Of Oil and Gas Industry Employees in Relations to Productivity: Abu Dhabi, UAE. *International Journal of Engineering and Advanced Technology (IJEAT)*, *8*(5), 1107-1121.

Albrecht, S. L., & Andreetta, M. (2011). The influence of empowering leadership, empowerment and engagement on affective commitment and turnover intentions in community health service workers: Test of a model. *Leadership in Health Services*, *24*(3) 228-237.

Alexander, E. L. (2004). *Safety culture in the nuclear power industry: attributes for regulatory assessment* (Doctoral dissertation, Massachusetts Institute of Technology).

Al-Ghamdi, S., Kazmi, A., & Ghamdi, A. A. (2022). Deciphering organisational culture: case study of a diversified conglomerate in

Saudi Arabia. *Journal for International Business and Entrepreneurship Development*, *14*(2), 226-242.

Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology*, *63*(1), 1-18.

Alroomi, A. S., & Mohamed, S. (2021). Occupational stressors and safety behaviour among oil and gas workers in Kuwait: the mediating role of mental health and fatigue. *International Journal of Environmental Research and Public Health*, *18*(21), 11700.

Alston, A. J., & Miller, W. W. (2002). Analysing the Barriers and Benefits toward Instructional Technology Infusion in North Carolina and Virginia Secondary Agricultural Education Curricula. *Journal of Agricultural Education*, *43*(1), 2-15

Amponsah-Tawiah, K. (2013). Occupational health and safety and sustainable development in Ghana. *International Journal of Business Administration*, *4*(2), 74-78.

Ansah, E. (2017). *Psychosocial safety climate as predictor of occupational health and safety of fuel station attendants in Accra, Ghana* (Doctoral dissertation, University of Cape Coast).

Arenas, A., Giorgi, G., Montani, F., Mancuso, S., Perez, J. F., Mucci, N., & Arcangeli, G. (2015). Workplace bullying in a sample of Italian and Spanish employees and its relationship with job satisfaction, and psychological well-being. *Frontiers in Psychology*, *6*, (1912), 1-10

Armaou, M., Konstantinidis, S., & Blake, H. (2020). The effectiveness of digital interventions for psychological well-being in the workplace: A

systematic review protocol. *International Journal of Environmental Research and Public Health*, *17*(1), 255-267.

Armstrong, M. (2012). Armstrong's handbook of human resources management practice, 12th ed, London, Library of Congress Cataloguing.

Armstrong, M., & Taylor, S. (2014). Armstrong's handbook of human resource management practice (13 ed.). London.

Aronson, E. (1999). The power of self-persuasion. *American Psychologist*, *54*(11), 875-884.

Asamani, L. (2020). Promote safety culture and enhance safety performance through safety behaviour. *European Journal of Business and Management Research*, *5*(4), 1-11.

Austin, D. (2019). Windmills of your mind: understanding the neurobiology of emotion. *Wake Forest Law Rev.*, *54*, 931-971.

Avolio, B. J., & Sosik, J. J. (1999). A life-span framework for assessing the impact of work on white-collar workers. In *Life in the middle* (pp. 249-274). Academic Press.

Baer, R. A., Lykins, E. L., & Peters, J. R. (2012). Mindfulness and self-compassion as predictors of psychological well-being in long-term meditators and matched nonmeditators. *The Journal of Positive Psychology*, *7*(3), 230-238.

Bakidamteh, S. A. (2018). *Safety Climate, Proactive Personality and Safety Behaviour: A Study among Fuel Station Attendants in Accra* (Doctoral dissertation, University of Ghana).

Bakker, A. B. (2015). A job demands–resources approach to public service motivation. *Public Administration Review*, *75*(5), 723-732.

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273-285.

Bakker, A. B., & Demerouti, E. (2018). Multiple levels in job demands-resources theory: implications for employee well-being and performance. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being* Noba Scholar.

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, *99*(2), 274 – 284.

Bamel, U. K., Pandey, R., & Gupta, A. (2020). Safety climate: Systematic literature network analysis of 38 years (1980-2018) of research. *Accident Analysis & Prevention*, *135*, 105387.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173.

Bashshur, M. R., Hernández, A., & González-Romá, V. (2011). When managers and their teams disagree: a longitudinal look at the consequences of differences in perceptions of organizational support. *Journal of Applied Psychology*, *96*(3), 558-573

Bates, S. (2004). Getting engaged. *HR Magazine*, *49*(2), 44-51.

Baumeister, R. F., & Leary, M. R. (2017). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Interpersonal Development, 3*(5) 57-89.

Bergh, L. I. V., Leka, S., & Zwetsloot, G. I. (2018). Tailoring psychosocial risk assessment in the oil and gas industry by exploring specific and common psychosocial risks. *Safety and health at work, 9*(1), 63-70.

Bevan, S. (2019). Pain, employment, and policy. *Pain and Work: A Lifespan Development Approach. Oxford: OUP*, 160-77.

Bhuvanaiah, T., & Raya, R. P. (2015). Mechanism of improved performance: Intrinsic motivation and employee engagement. *SCMS Journal of Indian Management, 12*(4), 92-97.

Biddison, E. L. D., Paine, L., Murakami, P., Herzke, C., & Weaver, S. J. (2016). Associations between safety culture and employee engagement over time: a retrospective analysis. *BMJ Quality Safety, 25*(1), 31-37.

Biggs, S. E., Banks, T. D., Davey, J. D., & Freeman, J. E. (2013). Safety leaders' perceptions of safety culture in a large Australasian construction organisation. *Safety Science, 52*, 3-12.

Bisbey, T. M., Kilcullen, M. P., Thomas, E. J., Ottosen, M. J., Tsao, K., & Salas, E. (2021). Safety culture: An integration of existing models and a framework for understanding its development. *Human Factors, 63*(1), 88-110.

Bjerkan, A. M. (2010). Health, environment, safety culture and climate–analysing the relationships to occupational accidents. *Journal of Risk Research, 13*(4), 445-477.

Blasco-Belled, A., & Alsinet, C. (2022). The architecture of psychological well-being: A network analysis study of the Ryff Psychological Well-Being Scale. *Scandinavian Journal of Psychology*, *63*(3), 199-207.

Boone, H. N., & Boone, D. A. (2012). Analyzing likert data. *Journal of Extension*, *50*(2), 1-5.

Bose, A. (2016). Retaining the best talent: Challenge for private education sector in Kolkata. *Journal of Advances in Business Management*, *25*(2), 102-105.

Bowling, N. A., Eschleman, K. J., & Wang, Q. (2010). A meta-analytic examination of the relationship between job satisfaction and subjective well-being. *Journal of Occupational and Organizational Psychology*, *83*(4), 915-934.

Brauchli, R., Schaufeli, W. B., Jenny, G. J., Füllemann, D., & Bauer, G. F. (2016). Disentangling stability and change in job resources, job demands, and employee well-being—A three-wave study on the Job-Demands Resources model. *Journal of Vocational Behaviour*, *83*(2), 117-129.

Braun, V., & Clarke, V. (2013). Successful qualitative research: A practical guide for beginners. *Successful Qualitative Research*, 1-400.

Brehm, J. W. (1972). *Responses to loss of freedom: A theory of psychological reactance*. General Learning Press.

Brunetto, Y., Teo, S. T., Shacklock, K., & Farr-Wharton, R. (2012). Emotional intelligence, job satisfaction, well-being and engagement: explaining organisational commitment and turnover intentions in policing. *Human Resource Management Journal*, *22*(4), 428-441.

Bryman, A. (2008). Of methods and methodology. *Qualitative Research in Organizations and Management: An International Journal*, 3(2), 159-168

Budrienė, D., & Diskienė, D. (2020). Employee engagement: types, levels and relationship with practice of HRM. *Malaysian Ecommerce Journal*, *4*(2), 42-47.

Burdorf, A., Porru, F., & Rugulies, R. (2020). The COVID-19 (coronavirus) pandemic. *Scandinavian journal of work, environment & health*, *46*(3), 229-230.

Burns, R. A., & Machin, M. A. (2010). Identifying gender differences in the independent effects of personality and psychological well-being on two broad affect components of subjective well-being. *Personality and Individual Differences*, *48*(1), 22-27.

Burton-Jones, A. (2009). Minimizing method bias through programmatic research. *MIS Quarterly*,33(3) 445-471.4

Byrne, Z. S. (2014). *Understanding employee engagement: Theory, research, and practice*. New York: Routledge.

Capio, C. M., Sit, C. H., & Abernethy, B. (2014). Physical well-being. In *Encyclopedia of quality of life and well-being research* (pp. 4805-4807). Springer.

Carmeli, A., Yitzhak-Halevy, M., & Weisberg, J. (2009). The relationship between emotional intelligence and psychological well-being. *Journal of Managerial Psychology*, *24*(1), 66-78.

Carthey, J. (2018). Improving safety culture in healthcare organisations. In *Patient Safety Culture*, 139-158. CRC Press.

Celma, D., Martinez-Garcia, E., & Raya, J. M. (2018). Socially responsible HR practices and their effects on employees' well-being: Empirical evidence from Catalonia, Spain. *European Research on Management and Business Economics*, *24*(2), 82-89.

Changwon, S. (2016). A study of safety culture assessment framework for process industries and its application to a Bayesian belief network analysis. (*Master's Thesis, Texas A & M University*).

Chenhall, E. C. (2010). *Assessing safety culture, values, practices, and outcomes*. Colorado State University.

Choudhry, R. M., Fang, D., & Mohamed, S. (2007). Developing a model of construction safety culture. *Journal of Management in Engineering*, *23*(4), 207-212.

Clarence, M., Devassy, V. P., Jena, L. K., & George, T. S. (2021). The effect of servant leadership on ad hoc schoolteachers' affective commitment and psychological well-being: The mediating role of psychological capital. *International Review of Education*, *67*(3), 305-331.

Clarke, S., & Ward, K. (2006). The role of leader influence tactics and safety climate in engaging employees' safety participation. *Risk Analysis*, *26*(5), 1175-1185.

Cohen, S. (1988). Perceived stress in a probability sample of the United States.

Cole, K. S., Stevens-Adams, S. M., & Wenner, C. A. (2013). *A literature review of safety culture*. The SANDIA Report 2013, Unlimited Release, New Mexico.

Cole, P., Hallard, R., Broughton, J., Coates, R., Croft, J., Davies, K., ... & Shaw, A. (2014). Developing the radiation protection safety culture in the UK. *Journal of Radiological Protection*, *34*(2), 469.

Collier, S. L., Fitzpatrick, J. J., Siedlecki, S. L., & Dolansky, M. A. (2016). Employee engagement and a culture of safety in the intensive care unit. *The Journal of Nursing Administration*, *46*(1), 49-54.

Cooper, D. & Schindler, P. (2014). *Business research methods* (13th ed.). New York: McGraw-Hill Education.

Cooper, M. D. (2000). Towards a model of safety culture. *Safety Science*, *36*(2), 111-136.

Cooper, M. D. (2002). Safety culture. *Professional Safety*, *47*(6), 30-36.

Cooper, M. D. (2018). The safety culture construct: theory and practice. In *Safety Cultures, Safety Models* (pp. 47-61). Springer, Cham.

Cooper, M. D., & Finley, L. J. (2013). Strategic Safety Culture Roadmap, BSMS Inc. *Franklin, IN, USA*.

Cooper, M. D., & Phillips, R. A. (1995). Killing two birds with one stone: achieving quality via total safety management. *Leadership & Organization Development Journal*, 16(8), 3-9.

Cooper, M. D., & Phillips, R. A. (2004). Exploratory analysis of the safety climate and safety behaviour relationship. *Journal of Safety Research*, *35*(5), 497-512.

Cowley, C., Denyer, D., Kutsch, E., & Turnbull James, K. (2021). Constructing Safety: Reconciling Error Prevention and Error Management in Oil and Gas and Petrochemical Operations. *Academy of Management Discoveries*, *7*(4), 554-580.

Cox, S., & Cox, T. (1991). The structure of employee attitudes to safety: A European example. *Work & Stress*, *5*(2), 93-106.

Cox, S., & Flin, R. (2015). Safety culture: philosopher's stone or man of straw? *Work & Stress*, *12*(3), 189-201.

Coyle, I. R., Sleeman, S. D., & Adams, N. (1995). Safety climate. *Journal of Safety Research*, *26*(4), 247-254.

Creswell, J. W. (2007). *An introduction to mixed methods research*. Lincoln, Nebraska, USA: University of Nebraska.

Creswell, J. W. (2013). *An introduction to mixed methods research*. Lincoln, Nebraska, USA: University of Nebraska.

Creswell, J. W. (2014). *Qualitative, quantitative and mixed methods approach*. Thousand Oaks, CA: SAGE Publication Inc.

Creswell, J. W., & Clark, V. L. P. (2018). *Designing and conducting mixed methods research*. Sage publications.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approach*. Sage publications.

Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C. (2011). Best practices for mixed methods research in the health sciences. *Bethesda (Maryland): National Institutes of Health*, *2013*, 541-545.

Curcuruto, M., & Griffin, M. A. (2016). Safety proactivity in the workplace: The initiative to improve individual, team, and organizational safety. In *Proactivity at work* (pp. 123-155). Routledge.

Dahl, O., & Kongsvik, T. (2018). Safety climate and mindful safety practices in the oil and gas industry. *Journal of Safety Research*, *64*, 29-36.

Daniels, K., & Harris, C. (2000). Work, psychological well-being and performance. *Occupational Medicine*, *50*(5), 304-309.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-de-termination in human behaviour*. New York: Plenum.

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-determination theory in work organizations: The state of a science. *Annual Review of Organizational Psychology and Organizational Behaviour*, *4*, 19-43.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499.

Demo, G., & Paschoal, T. (2016). Well-being at work scale: Exploratory and confirmatory validation in the USA. *Paidéia Ribeirão Preto*, *26*, 35-43.

Denning, M., Goh, E. T., Tan, B., Kanneganti, A., Almonte, M., Scott, A., ... & Kinross, J. (2021). Determinants of burnout and other aspects of psychological well-being in healthcare workers during the Covid-19 pandemic: A multinational cross-sectional study. *Plos one*, *16*(4), e0238666.

Díaz-Cabrera, D., Hernández-Fernaud, E., & Isla-Díaz, R. (2007). An evaluation of a new instrument to measure organisational safety culture values and practices. *Accident Analysis & Prevention*, *39*(6), 1202-1211.

Diener, E. & Ryan, K. (2011). *Applied positive psychology: National accounts of well-being for public policy*. Psychology Press: New York.

Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, *55*(1), 34-43

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, *125*(2), 276-302.

Dodge, R., Daly, A. P., Huyton, J., & Sanders, L. D. (2012). The challenge of defining well-being, *International Journal of Well-being*, *2*(3), 222–235.

Donald, I., & Canter, D. (1994). Employee attitudes and safety in the chemical industry. *Journal of Loss Prevention in the Process Industries*, *7*(3), 203-208.

Duan, J., Wang, X., Brinsfield, C. T., & Liu, S. (2020). How enhancing employee well-being can encourage voice behaviour: A desire fulfilment perspective. *Human Performance*, *33*(5), 425-446.

Duffield, C. M., Roche, M. A., Homer, C., Buchan, J., & Dimitrelis, S. (2014). A comparative review of nurse turnover rates and costs across countries. *Journal of Advanced Nursing*, *70*(12), 2703-2712.

Dugguh, S. I., & Dennis, A. (2014). Job satisfaction theories: Traceability to employee performance in organizations. *IOSR Journal of Business and Management*, *16*(5), 11-18.

Dulagil, A. (2012). The relationship of employee engagement and well-being to organisational and student outcomes. *Business HDR Student Conference*, *2010*(13), 1-12.

Dwomoh, G., Owusu, E. E., & Addo, M. (2013). Impact of occupational health and safety policies on employees' performance in the Ghana's

timber industry: Evidence from Lumber and Logs Limited. *International Journal of Education and Research*, *1*(12), 1-14

Dworkin, S. L. (2012). Sample size policy for qualitative studies using in-depth interviews. *Archives of Sexual Behaviour*, *41*(6), 1319-1320.

Ehiaguina, E., & Moda, H. (2020). Improving the safety performance of workers by assessing the impact of safety culture on workers' safety behaviour in Nigeria oil and gas industry: A pilot study in the Niger delta region. *International Journal of Medical and Health Sciences*, *14*(6), 152-156.

Eljaaidi, N. (2016). Structural and psychological empowerment: A literature review, theory clarifications and strategy building. *Journal of Economics and Political Science*, *7*(6), 446-479.

Emetumah, F. C. (2016). Appraising management perception of health safety and environment culture in a Nigerian petroleum company. *Advances in Research*, *7*(5), 1-15.

Environmental Protection Agency Act, 1994 (Act 490).

Fairlie, P. (2017). Work engagement and employee well-being. In *Research handbook on work and well-being* (pp. 292-313). Edward Elgar Publishing, 292-391

Fan, C. J., Pawlik, T. M., Daniels, T., Vernon, N., Banks, K., Westby, P., ... & Makary, M. A. (2016). Association of safety culture with surgical site infection outcomes. *Journal of the American College of Surgeons*, *222*(2), 122-128.

Fapohunda, T. M. (2012). Employment casualization and degradation of work in Nigeria. *International Journal of Business and Social Science*, *3*(9), 257-267.

Ferreira, M., Consciência, J., Duarte, J., & Silva, D. (2018). Patient safety culture: study of some intervening factors. *Millenium*, 2 (6), 33-39.

Fetherston, C., Fetherston, A., Batt, S., Sully, M., & Wei, R. (2021). Well-being and work-life merge in Australian and UK academics. *Studies in Higher Education*, *46*(12), 2774-2788.

Fleming, M. (2012). *Assessing employee safety motivation.* Canadian Electronic Library. Retrieved from https://policycommons.net/ artifacts /1200411/assessing-employee-safety-motivation/ 1753532/ on 30 Dec 2022. CID: 20.500.12592/mm0n30.

Flin, R., Mearns, K., O'Connor, P., & Bryden, R. (2000). Measuring safety climate: identifying the common features. *Safety Science*, *34*(1-3), 177-192.

Ford, M. T. & Tetrick, L. E. (2011). Relations among occupational hazards, attitudes, and safety performance. *Journal of Occupational Health Psychology.16*, 48–66.

Frank, F. D., Finnegan, R. P., & Taylor, C. R. (2004). The race for talent: Retaining and engaging workers in the 21st century. *Human Resource Planning*, *27*(3), 12-25.

Freeney, Y. M., & Tiernan, J. (2009). Exploration of the facilitators of and barriers to work engagement in nursing. *International Journal of Nursing Studies*, *46*(12), 1557-1565.

Frey, B. B. (Ed.). (2018). *The SAGE encyclopedia of educational research, measurement, and evaluation*. Sage Publications.

Fugard, A. J., & Potts, H. W. (2015). Supporting thinking on sample sizes for thematic analyses: a quantitative tool. *International Journal of Social Research Methodology*, *18*(6), 669-684.

Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research*, *69*(8), 3192-3198.

Funmilayo, O. S. (2014). Influence of occupational health and safety (OHS) information availability and use on job performance of library personnel in public universities in South-West Nigeria. *European Scientific Journal*, *10*(14), 337-350.

Gadd, S., & Collins, A. M. (2002). *Safety culture: A review of the literature*. Report by the Health & Safety Laboratory, UK: Sheffield University.

Game, A. M. (2007). Workplace boredom coping: Health, safety, and HR implications. *Personnel Review, 36(5), 701-721.*

Gao, L., Zheng, X., & Yan, B. B. (2010). The differences of well-being between the East and the West: From the view of selfconstrual. *Advances in Psychological Science*, *18*(7), 1041–1045.

Garg, P., & Rastogi, R. (2009). Effect of psychological well-being on organizational commitment of employees. *Journal of Organizational Behavior*, *8*(2), 42-51.

Geller, E. S. (2001). Dream-Operationalize-Intervene-Test: If You Want to Make a Difference-Just DO IT!. *Journal of Organizational Behaviour Management*, *21*(1), 109-121.

George, A. L., & Bennett, A. (2005). *Case studies and theory development in the social sciences*. MIT Press.

Ghana Statistical Service (2021). *District Analytical Report*. Population and Housing Census.

Grant, A. M., & Parker, S. K. (2009). 7 redesigning work design theories: the rise of relational and proactive perspectives. *Academy of Management Annals*, *3*(1), 317-375.

Greater Accra Regional Coordinating Council (2022). *End of Year Report.* http:/www.garcc.gov.

Griffin, M. A., & Neal, A. (2000). Perceptions of safety at work: a framework for linking safety climate to safety performance, knowledge, and motivation. *Journal of Occupational Health Psychology*, *5*(3), 347-358.

Groenewold, M. R., Sarmiento, R. F., Vanoli, K., Raudabaugh, W., Nowlin, S., & Gomaa, A. (2018). Workplace violence injury in 106 US hospitals participating in the Occupational Health Safety Network (OHSN), 2012-2015. *American Journal of Industrial Medicine*, *61*(2), 157-166.

Grover, S. L., Teo, S. T., Pick, D., Roche, M., & Newton, C. J. (2018). Psychological capital as a personal resource in the JD-R model. *Personnel Review*. 47(4), 968-984.

Guest, D. E. (2017). Human resource management and employee well-being: Towards a new analytic framework. *Human Resource Management Journal*, *27*(1), 22-38.

Guldenmund, F. W. (2010). (Mis) understanding safety culture and its relationship to safety management. *Risk Analysis: An International Journal*, *30*(10), 1466-1480.

Gupta, M., & Shaheen, M. (2018, November). Does work engagement enhance general well-being and control at work? Mediating role of psychological capital. In *Evidence-based HRM: a global forum for empirical scholarship*. Emerald Publishing Limited, 6(3), 272-286

Gyensare, M. A., Anku-Tsede, O., Boakye, K. O., & Twumasi, E. (2018, July). Occupational health and safety and employee engagement: Evidence from the SMEs sector in Ghana. In *International Conference on Applied Human Factors and Ergonomics* (pp. 202-216). Springer, Cham.

Haga, S. (2016). Psychology and safety practice: how can we psychologists contribute to safety. *International Journal of Industrial and Organisational Psychology*, *732*(2), 425-490.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2-24.

Hakanen, J. J., Peeters, M. C., & Schaufeli, W. B. (2018). Different types of employee well-being across time and their relationships with job crafting. *Journal of Occupational Health Psychology*, *23*(2), 289-301

Hanaysha, J. (2016). Testing the effects of employee engagement, work environment, and organizational learning on organizational commitment. *Procedia-Social and Behavioral Sciences*, *229*, 289-297.

Hansez, I., & Nyssen, A. S. (2006). Impact of work variables and safety appraisal on well-being at work. In *16th World Congress of Ergonomics*. Elsevier, Maastricht, Netherlands.

Haridoss, S. (2017). Health and safety hazards management in oil and gas industry. *International Journal of Engineering Research and Technology*, *6*(6), 1058-1061.

Harrell, M. C., & Bradley, M. A. (2009). *Data collection methods. Semi-structured interviews and focus groups*. Rand National Defense Research Inst santa monica ca.

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. *Journal of Applied Psychology*, *87*(2), 268.

Haslam, C., O'Hara, J., Kazi, A., Twumasi, R., & Haslam, R. (2016). Proactive occupational safety and health management: Promoting good health and good business. *Safety Science*, *81*, 99-108.

Hayashi, R., Fujita, S., Iida, S., Nagai, Y., Shimamori, Y., & Hasegawa, T. (2020). Relationship of patient safety culture with factors influencing working environment such as working hours, the number of night shifts, and the number of days off among healthcare workers in Japan: A cross-sectional study. *BMC Health Services Research*, *20*(1), 1-9.

Hayat, A., & Afshari, L. (2020). Supportive organizational climate: a moderated mediation model of workplace bullying and employee well-being. *Personnel Review*, 50(7/8), 1685-1704.

Henn, C. M., Hill, C., & Jorgensen, L. I. (2016). An investigation into the factor structure of the Ryff Scales of Psychological Well-Being. *SA Journal of Industrial Psychology*, *42*(1), 1-12.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115-135.

Hoert, J., Herd, A. M., & Hambrick, M. (2018). The role of leadership support for health promotion in employee wellness program participation, perceived job stress, and health behaviours. *American Journal of Health Promotion*, *32*(4), 1054-1061.

Hofmann, D. A., Morgeson, F. P., & Gerras, S. J. (2003). Climate as a moderator of the relationship between leader-member exchange and content specific citizenship: safety climate as an exemplar. *Journal of Applied Psychology*, *88*(1), 170-178.

Howe, K., & Eisenhart, M. (1990). Standards for qualitative (and quantitative) research: A prolegomenon. *Educational researcher*, *19*(4), 2-9.

HSE (1993). Safety of New Austrian Tunnelling Method (NATM) tunnels. *Health & Safety Executive*. London, pp. 86.

Hughes, A. M., Gregory, M. E., Joseph, D. L., Sonesh, S. C., Marlow, S. L., Lacerenza, C. N., ... & Salas, E. (2016). Saving lives: A meta-analysis of team training in healthcare. *Journal of Applied Psychology*, *101*(9), 1266.

Hussain, W., Khan, S., & Mover, A. H. (2022). Development of quality, environment, health, and safety (QEHS) management system and its

integration in operation and maintenance (O&M) of onshore wind energy industries. *Renewable Energy*, *196*, 220-233.

Huta, V. (2016). Eudaimonic and hedonic orientations: Theoretical considerations and research findings. In *Handbook of eudaimonic well-being* (pp. 215-231). Springer, Cham.

Idris, S. M. B. M., Ayob, M. B., & Shahren, N. B. M. (2021). Risk Management: Safe Work Culture in Manufacturing Industry. *International Journal of Accounting*, *6*(34), 9-18.

International Labour Organization (2016). Snapshots on occupational safety and health: (OSH): The ILO

International Labour Organization. (2020). ILO Monitor: COVID-19 and the World of Work. *Updated Estimates and Analysis. Int Labour Organ*.

International Safety Advisory Group. (1991). *Safety Culture* (Safety Series No. 75- INSAG-4). International Atomic Energy Agency, Vienna.

Ishola, A. A. (2017). Workplace safety management as correlates of well-being among factory workers in Oluyole industrial estate, Ibadan, Oyo state Nigeria. *African Journal of Social Work*, *7*(2), 45-51.

Israel, G. D. (1992). *Sampling the evidence of extension program impact*. Gainesville, FL: University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS.

Johennesse, L. A. C., & Chou, T. K. (2017). Employee Perceptions of Talent Management Effectiveness on Retention. *Global Business & Management Research*, *9*(3), 46-58

Johnson, B., & Gray, R. (2010). A history of philosophical and theoretical issues for mixed methods research. *Sage Handbook of Mixed Methods in Social and Behavioural Research, 2*, 69-94.

Johnson, P., & Gill, J. (2010). Research methods for managers. *Research Methods for Managers*, 1-288.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26.

Johnson, T. P., & Wislar, J. S. (2012). Response rates and nonresponse errors in surveys. *Jama, 307*(17), 1805-1806.

Joo, B. K., & Lee, I. (2017, August). Workplace happiness: work engagement, career satisfaction, and subjective well-being. In *Evidence-based HRM: A global forum for empirical scholarship*. Emerald Publishing Limited, 5(2), 206-221

Judge, T. A., & Watanabe, S. (1993). Another look at the job satisfaction-life satisfaction relationship. *Journal of Applied Psychology, 78*(6), 939-948

Kaczur, M. B. (2017). *Culture and climate of safety in organizations: conceptualizations and assessment* (Doctoral dissertation, University of Saskatchewan).

Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, *33*(4), 692-724.

Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: Foundations of hedonic psychology*. Russell Sage Foundation.

Kahya, E. (2007). The effects of job characteristics and working conditions on job performance. *International Journal of Industrial Ergonomics*, *37*(6), 515-523.

Kalteh, H. O., Mortazavi, S. B., Mohammadi, E., & Salesi, M. (2021). The relationship between safety culture and safety climate and safety performance: a systematic review. *International Journal of Occupational Safety and Ergonomics*, *27*(1), 206-216.

Karigi, A. W. (2002). *Safety culture in nuclear installations: The role of the regulator*. Radiation Protection Board of Kenya, pp. 183-185.

Keeman, A., Näswall, K., Malinen, S., & Kuntz, J. (2017). Employee well-being: Evaluating a well-being intervention in two settings. *Frontiers in Psychology*, *8*(505), 1-14

Kilaparthi, J. (2014). Assessment of safety culture in global offshore environments. *Journal of Environmental Protection*, *5*(11),1003-1021.

Kloutsiniotis, P. V., & Mihail, D. M. (2020). Is it worth it? Linking perceived high-performance work systems and emotional exhaustion: The mediating role of job demands and job resources. *European Management Journal*, *38*(4), 565-579.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (ijec)*, *11*(4), 1-10.

Kongsvik, T. Ø., Størkersen, K. V., & Antonsen, S. (2014). The relationship between regulation, safety management systems and safety culture in the maritime industry. *Safety, reliability and risk analysis: Beyond the horizon*, 467-473.

Kortmann, S., Gelhard, C., Zimmermann, C., & Piller, F. (2014). Linking strategic flexibility and operational efficiency: The mediating role of ambidextrous operational capabilities. *Journal of Operations Management, 32*, 475-490.

Koskey, K. L., & Stewart, V. C. (2014). A concurrent mixed methods approach to examining the quantitative and qualitative meaningfulness of absolute magnitude estimation scales in survey research. *Journal of Mixed Methods Research*, *8*(2), 180-202.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, *30*(3), 607-610.

Krishna, H., & Kumar, K. (2011). Reliability estimation in Lindley distribution with progressively type II right censored sample. *Mathematics and Computers in Simulation*, *82*(2), 281-294.

Kruse, K. (2015). The ROI of employee engagement in hospitals. *Forbes/Leadership*.

Kumar, C. S., & Prakash, M. P. (2020). Improving the Safety Culture in the Organization by Implementing Behaviour Based Safety (BBS). *International Journal for Research in Applied Science & Engineering Technology*, *8*(7), 51-60.

Kuo, C. G. (1997). The Impact of Safety Requirements on Shipbuilding. *Journal of Ship and Ocean Technology*, *1*(2), 31-40.

Kuper, H., & Marmot, M. (2013). Job strain, job demands, decision latitude, and risk of coronary heart disease within the Whitehall II study. *Journal of Epidemiology & Community Health*, *57*(2), 147-153.

Kurse, M. U. (2012). *Inference of computational models of tendon networks via sparse experimentation*. University of Southern California.

Kvalheim, S. A., & Dahl, Ø. (2016). Safety compliance and safety climate: A repeated cross-sectional study in the oil and gas industry. *Journal of Safety Research*, *59*, 33-41.

Kwon, Y., & Marzec, M. L. (2016). Does worksite culture of health (CoH) matter to employees? Empirical evidence using job-related metrics. *Journal of Occupational and Environmental Medicine*, *58*(5), 448-454.

Laal, F., Mirzaei, R., Behdani, M. S., Mohammadi, M., & Khodami, K. (2017). Evaluation of the influence of ergonomic intervention on the musculoskeletal disorders of Zahedan tailors. *International Journal of Occupational Safety and Ergonomics*, *23*(3), 380-385.

Langove, N., Isha, A. S. N. B., & Javaid, M. U. (2016). The mediating effect of employee well-being in relation to role stressors and turnover intention: A conceptual study. *International Review of Management and Marketing*, *6*(4), 150-154.

Lawn, S., Roberts, L., Willis, E., Couzner, L., Mohammadi, L., & Goble, E. (2020). The effects of emergency medical service work on the psychological, physical, and social well-being of ambulance personnel: a systematic review of qualitative research. *BMC Psychiatry*, *20*(1), 1-16.

Lee, J. (2019). Safety culture evaluation model at construction site. *International Journal of Engineering Research and Technology*, *12*, 1972-1977.

Lee, S. E., & Quinn, B. L. (2020). Safety culture and patient safety outcomes in East Asia: A literature review. *Western Journal of Nursing Research*, *42*(3), 220-230.

LePine, J. A., & Van Dyne, L. (1998). Predicting voice behaviour in work groups. *Journal of Applied Psychology*, *83*(6), 853.

LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, *48*(5), 764-775.

Li, J. J., Lee, T. W., Mitchell, T. R., Hom, P. W., & Griffeth, R. W. (2016). The effects of proximal withdrawal states on job attitudes, job searching, intent to leave, and employee turnover. *Journal of Applied Psychology*, *101*(10), 14-36.

Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, *7*(10), 24-29.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Liu, J., Siu, O. L., & Shi, K. (2010). Transformational leadership and employee well-being: The mediating role of trust in the leader and self-efficacy. *Applied Psychology*, *59*(3), 454-479.

Liu, S., Nkrumah, E. N. K., Akoto, L. S., Gyabeng, E., & Nkrumah, E. (2020). The State of Occupational Health and Safety Management Frameworks (OHSMF) and Occupational Injuries and Accidents in the Ghanaian Oil and Gas Industry: Assessing the Mediating Role of Safety Knowledge. *BioMed Research International.* 1-14

Lizano, E. L. (2021). Work Engagement and Its Relationship with Personal Well-Being: A Cross-Sectional Exploratory Study of Human Service Workers. *Human Service Organizations: Management, Leadership & Governance, 45*(4), 326-336.

Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, *46*(2), 137-155.

MacKinnon, D. P., Coxe, S., & Baraldi, A. N. (2012). Guidelines for the investigation of mediating variables in business research. *Journal of Business and Psychology, 27*(1), 1-14.

Mäkikangas, A., Kinnunen, U., Feldt, T., & Schaufeli, W. (2016). The longitudinal development of employee well-being: A systematic review. *Work & Stress, 30*(1), 46-70.

Makori, E. M., Thuo, J. K., Kiongena, F. N., & Muchilwa, D. (2012). Assessment of Impact of Occupational Health and Safety programmes on employee productivity of manufacturing firms in western province of Kenya. *Global Advanced Research Journal of Education Research and Review*, *2*(10), 190-195

Manser, T., Brösterhaus, M., & Hammer, A. (2016). You can't improve what you don't measure: Safety climate measures available in the German-speaking countries to support safety culture development in healthcare. *Journal of Evidence, Education and Quality in Healthcare, 114*(1), 58-71.

Marin-Garcia, J. A., & Bonavia, T. (2021). Empowerment and employee well-being: A mediation analysis study. *International Journal of Environmental Research and Public Health*, *18*(11), 5822.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*(1), 397-422.

Mathur, S. K., & Gupta, S. K. (2012). Outside factors influencing behavior of employees in organizations. *International Journal of Information and Education Technology*, *2*(1), 48.

Matthews, L., Hair, J. O. E., & Matthews, R. (2018). PLS-SEM: The holy grail for advanced analysis. *Marketing Management Journal*, *28*(1).

McGuire, D., & McLaren, L. (2009). The impact of physical environment on employee commitment in call centres: The mediating role of employee well-being. *Team Performance Management: An International Journal*,14(5/6), 26-55

McKee-Ryan, F., Song, Z., Wanberg, C. R., & Kinicki, A. J. (2005). Psychological and physical well-being during unemployment: a meta-analytic study. *Journal of Applied Psychology*, *90*(1), 53-73.

Mearns, K. J., & Flin, R. (1997). Assessing the state of organizational safety—culture or climate? *Current Psychology*, *18*(1), 5-17.

Meiyani, E., & Putra, A. H. P. K. (2019). The relationship between Islamic leadership on employee engagement distribution in FMCG industry: Anthropology business review. *Journal of Distribution Science*, *17*(5), 19-28.

Merriam, S. B., & Grenier, R. S. (Eds.). (2019). *Qualitative research in practice: Examples for discussion and analysis*. John Wiley & Sons.

Mertens, D. M. (2015). Mixed methods and wicked problems. *Journal of Mixed Methods Research*, *9*(1), 3-6.

Meshkati, N., & Tabibzadeh, M. (2016). An integrated system-oriented model for the interoperability of multiple emergency response agencies in large-scale disasters: Implications for the Persian Gulf. *International Journal of Disaster Risk Science, 7*(3), 227–244.

Meyer, J. P., & Maltin, E. R. (2010). Employee commitment and well-being: A critical review, theoretical framework and research agenda. *Journal of Vocational Behaviour*, *77*(2), 323-337.

Milczarek, M., & Najmiec, A. (2004). The relationship between workers' safety culture and accidents, near accidents and health problems. *International Journal of Occupational Safety and Ergonomics*, *10*(1), 25-33.

Moletsane, M., Tefera, O., & Migiro, S. (2019). The Relationship between Employee Engagement and Organisational Productivity of Sugar Industry in South Africa: The Employees' Perspective. *African Journal of Business & Economic Research*, *14*(1), 113-134.

Mone, E., & London, M. (2010). *Employee Engagement through effective performance management: A practical guide for managers.* New York: Routledge.

Monney, I., Dramani, J. B., Aruna, A., Tenkorang, A. G., & Osei-Poku, F. (2015). Health and safety in high-risk work environments: A study of fuel service stations in Ghana. *Journal of Environmental and Occupational Health*, *4*(3), 132-140.

Morees Aziz, B. S. (2015). Safety culture of companies in the oil and gas industry. (*Bachelors Dissertation, Universiti Teknologi Petronas*).

Morrison, E. W. (2019). Employee voice behavior: Integration and directions for future research. *Academy of Management Annals*, *5*(1), 373-412.

Mowbray, P. K., Wilkinson, A., & Tse, H. H. (2015). An integrative review of employee voice: Identifying a common conceptualization and research agenda. *International Journal of Management Reviews*, *17*(3), 382-400.

Muthuviknesh, R., & Kumar, K. A. (2014). The effect of occupational health and safety management on work environment: a prospective study. *International Journal of Advance Research in Computer Science and Management Studies*, *2*(6), 63-70.

Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: a meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of Applied Psychology*, *96*(1), 71-94.

Naji, G. M. A., Isha, A. S. N., Alzoraiki, M., Al-Mekhlafi, A. B. A., Sharafaddin, O., & Saleem, M. S. (2020). Impact of safety culture and psychosocial hazard on safety performance among upstream employees in Malaysia at oil and gas industry. *Solid State Technol*, *63*(6), 4120-6.

Naji, G. M. A., Isha, A. S. N., Mohyaldinn, M. E., Leka, S., Saleem, M. S., Rahman, S. M. N. B. S. A., & Alzoraiki, M. (2021). Impact of safety culture on safety performance; mediating role of psychosocial hazard:

an integrated modelling approach. *International Journal of Environmental Research and Public Health*, *18*(16), 8568-8598.

National Petroleum Authority Act, 2005 (691).

Neelankavil, J. P. (2015). Questionnaire Administration. In *International Business Research*. Routledge.

Nesheim, T., & Gressgård, L. J. (2014). Knowledge sharing in a complex organization: Antecedents and safety effects. *Safety Science*, *62*(1), 28-36.

Neuman, W. (2014). *Social research methods: qualitative and quantitative approaches*. Sage.

Newman, A., Mayson, S., Teicher, J., & Barrett, R. (2015). Special issue of international journal of human resource management: Recruiting, managing and rewarding workers in social enterprises. *International Journal of Human Resource*, *26*(14), 1907-1909.

Newman, D. A., & Harrison, D. A. (2008). Been there, bottled that: Are state and behavioral work engagement new and useful construct "wines"? *Industrial and Organizational Psychology*, *1*(1), 31-35.

Nixon, A. E., Mazzola, J. J., Bauer, J., Krueger, J. R., & Spector, P. E. (2011). Can work make you sick? A meta-analysis of the relationships between job stressors and physical symptoms. *Work & Stress*, *25*(1), 1-22.

Nkrumah, E. N. K., Liu, S., Doe Fiergbor, D., & Akoto, L. S. (2020). Improving the safety–performance nexus: a study on the moderating and mediating influence of work motivation in the causal link between occupational health and safety management (OHSM) practices and

work performance in the oil and gas sector. *International Journal of Environmental Research and Public Health*, *18*(10), 5064.

Nwankwo, C. D., Arewa, A. O., Theophilus, S. C., & Esenowo, V. N. (2022). Analysis of accidents caused by human factors in the oil and gas industry using the HFACS-OGI framework. *International Journal of Occupational Safety and Ergonomics*, *28*(3), 1642-1654.

Obrenovic, B., Jianguo, D., Khudaykulov, A., & Khan, M. A. S. (2020). Work-family conflict impact on psychological safety and psychological well-being: A job performance model. *Frontiers in Psychology*, *11*(475), 1-18.

Ofoegbu, O. E., Olawepo, G. T., & Ibojo, B. O. (2013). Effects of Occupational Hazards on Employee's Productivity. *European Journal of Business and Management*, *5*(3), 2-7.

Ofori, D. (2021, April). Personal values and electronic waste disposal behaviours among households in Cape Coast Metropolis. In *Bode, Umuerri (Eds.): Universities, Entrepreneurship and Enterprise Development in Africa–Conference Proceedings 2020*, 44-62.

Ogbette,A. S., Ori, O. E., & Idam, M. O, & Abwage, S. T. (2018). Continuous gas explosions in Nigeria.

Ohiorenoya, J. O., & Uwadiae, O. S. (2016). Contract staffing and employee engagement in oil and gas industry in Nigeria. (A study of Shell Petroleum Development Company), West Nigeria. *International Journal of Business and Social Sciences*, *7*(10), 196-206.

Okeola, O. G. (2009). Occupational health and safety (OHS) assessment in the construction industry. In *1st Annual Civil Engineering Conference Proceeding.*

Okros, N., & Virga, D. (2022). Impact of workplace safety on well-being: the mediating role of thriving at work. *Personnel Review*, (ahead-of-print).

Orsila, R., Luukkaala, T., Manka, M. L., & Nygard, C. H. (2011). A new approach to measuring work-related well-being. *International Journal of Occupational Safety and Ergonomics*, *17*(4), 341-359.

Osborne, S., & Hammond, M. (2017). Effective employment engagement in the workplace. *International Journal of Applied Management & Technology*, *16*(1), 50–67.

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.

Parker, D., Lawrie, M., & Hudson, P. (2015). A framework for understanding the development of organisational safety culture. *Safety Science*, *44*(6), 551-562.

Parker, S. K., Morgeson, F. P., & Johns, G. (2017). One hundred years of work design research: Looking back and looking forward. *Journal of applied psychology*, *102*(3), 403-420.

Petroleum Regulations, 2017 (LI 2258).

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903.

Quaigrain, R. A., Owusu-Manu, D. G., Edwards, D. J., Hammond, M., Hammond, M., & Martek, I. (2022). Occupational health and safety orientation in the oil and gas industry of Ghana: analysis of knowledge and attitudinal influences on compliance. *Journal of Engineering, Design and Technology (In Press)*.

Radda, A. A., Majidadi, M. A., & Akanno, S. N. (2015). Employee engagement in oil and gas sector. *International Journal of Management & Organisational Studies*, *4*(3).106-116.

Radic, A., Arjona-Fuentes, J. M., Ariza-Montes, A., Han, H., & Law, R. (2020). Job demands–job resources (JD-R) model, work engagement, and well-being of cruise ship employees. *International Journal of Hospitality Management*, *88*(1), 10-25.

Rahman, A. V., & Dwiyanti, E. (2020). The Analysis of Worker Safe Behaviour based on the Antencendent Behaviour Consequence (ABC) Behaviour Model. *The Indonesian Journal of Occupational Safety and Health*, *9*(3), 309-317.

Rahmanidoust, M., Zheng, J., Yazdanparast, R., Nematollahi, I., & Akbari, E. (2019). A real-time framework for performance optimization of safety culture in the oil and gas industry under deep uncertainty: A case study. *Journal of Industrial and Systems Engineering*, *12*(2), 255-282.

Rasool, S. F., Wang, M., Tang, M., Saeed, A., & Iqbal, J. (2021). How toxic workplace environment effects the employee engagement: the mediating role of organizational support and employee well-being. *International Journal of Environmental Research and Public Health*, *18*(5), 2294-2311.

Rasool, S. F., Wang, M., Zhang, Y., & Samma, M. (2020). Sustainable work performance: the roles of workplace violence and occupational stress. *International Journal of Environmental Research and Public Health*, *17*(3), 912-924.

Reiman, T., & Rollenhagen, C. (2011). Human and organizational biases affecting the management of safety. *Reliability Engineering & System Safety*, *96*(10), 1263-1274.

Reio Jr, T. G. (2010). The threat of common method variance bias to theory building. *Human Resource Development Review*, *9*(4), 405-411.

Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal*, *53*(3), 617-635.

Rick, J., Briner, R. B., Daniels, K., Perryman, S., & Guppy, A. (2001). A critical review of psychosocial hazard measures. *Journal of Industrial and Systems Engineering*, *12*(2), 255-282.

Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management*, *31*(12), 1617-1643.

Robb, A. E., Due, C., & Venning, A. (2018). Exploring psychological well-being in a sample of Australian actors. *Australian Psychologist*, *53*(1), 77-86.

Robertson, I. T., & Cooper, C. L. (2010). Full engagement: the integration of employee engagement and psychological well-being. *Leadership & Organization Development Journal*, *31*(4), 324-336.

Rubin, H. J., & Rubin, I. S. (2011). *Qualitative interviewing: The art of hearing data*. Sage.

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York: Guilford Publishing.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57*(6), 1069-1081.

Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science*, *4*(4), 99-104.

Ryff, C. D. (2013). Eudaimonic well-being and health: Mapping consequences of self-realization. In A. S. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonia* (pp. 77–98). American Psychological Association. https://doi.org/10.1037/14092-005.

Ryff, C. D. (2018). Eudaimonic well-being. In *Diversity in harmony-Insights from psychology: Proceedings of the 31st International Congress of Psychology* (pp. 375-395).

Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies*, *9*(1), 13-39.

Saad, N. M. (2016). *The influence of safety culture on safety performance in Saudi Arabian construction industry* (Doctoral dissertation, University of Salford).

Saari, T., Melin, H., Balabanova, E., & Efendiev, A. (2018). Better leadership, higher work engagement? Comparative study on Finnish and Russian private sector employees. *International Journal of Sociology and Social Policy*, *38*(11), 922-943.

Saks, A. M., & Gruman, J. A. (2011). Manage employee engagement to manage performance. *Industrial and Organizational Psychology*, *4*(2), 204-207.

Saunders, M. N., & Townsend, K. (2016). Reporting and justifying the number of interview participants in organization and workplace research. *British Journal of Management*, *27*(4), 836-852.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

Savin-Baden, M., & Howell-Major, C. (2013). Qualititative research: The essential guide to theory and practice. *Qualitative Research: The Essential Guide to Theory and Practice. Routledge*.

Schaufeli, W. B. (2013). What is engagement? In *Employee engagement in theory and practice* (pp. 29-49). Routledge.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behaviour: The International Journal of Industrial, Occupational and Organizational Psychology and Behaviour*, *25*(3), 293-315.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, *66*(4), 701-716.

Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behaviour: The International Journal of Industrial, Occupational and Organizational Psychology and Behaviour*, *30*(7), 893-917.

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, *3*(1), 71-92.

Schohat, L. M., & Vigoda-Gadot, E. (2010). Employee engagement: Theoretical framework and suggestions for empirical exploration. *Handbook of employee engagement*, 98-107.

Scott, P. J., & Briggs, J. S. (2009). A pragmatist argument for mixed methodology in medical informatics. *Journal of Mixed Methods Research*, *3*(3), 223-241.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.

Seligman, M. E. (2011). Building resilience. *Harvard Business Review*, *89*(4), 100-106.

Sexton, J. B., Adair, K. C., Profit, J., Bae, J., Rehder, K. J., Gosselin, T. & Frankel, A. (2021). Safety culture and workforce well-being associations with positive leadership walkrounds. *The Joint Commission Journal on Quality and Patient Safety*, *47*(7), 403-411.

Shuck, B., & Reio Jr, T. G. (2014). Employee engagement and well-being: A moderation model and implications for practice. *Journal of Leadership & Organizational Studies*, *21*(1), 43-58.

Siddiqi, M. A. (2015). Work engagement and job crafting of service employees influencing customer outcomes. *Vikalpa*, *40*(3), 277-292.

Sidman, M. (1989). *Coercion and its fallout*. Boston: Authors Cooperative.

Sivapragasam, P., & Raya, R. P. (2018). HRM and employee engagement link: Mediating role of employee well-being. *Global Business Review*, *19*(1), 147-161.

Skinner, B. F. (1971). Operant conditioning. *The Encyclopedia of Education*, *7*(4), 29-33.

Smith, N. W., De Beer, L. T., & Pienaar, J. (2016). Work stressors, job insecurity, union support, job satisfaction and safety outcomes within the iron ore mining environment. *SA Journal of Human Resource Management*, *14*(1), 1-13.

Snyder, L. A., Krauss, A. D., Chen, P. Y., Finlinson, S., & Huang, Y. H. (2008). Occupational safety: Application of the job demand–control-support model. *Accident Analysis & Prevention*, *40*(5), 1713-1723.

Soiferman, L. K. (2010). Compare and Contrast Inductive and Deductive Research Approaches. *Online Submission*.

Sorensen, G., Peters, S., Nielsen, K., Nagler, E., Karapanos, M., Wallace, L., ... & Wagner, G. R. (2019). Improving working conditions to promote worker safety, health, and well-being for low-wage workers: the workplace organizational health study. *International journal of environmental research and public health*, *16*(8), 1449.

Spector, P. E. (2006). Method variance in organizational research: truth or urban legend?. *Organizational Research Methods*, *9*(2), 221-232.

Steptoe, A., Deaton, A., & Stone, A. A. (2015). Subjective well-being, health, and ageing. *The Lancet*, *385*(9968), 640-648.

Strahan, C., Watson, B., & Lennonb, A. (2008). Can organisational safety climate and occupational stress predict work-related driver fatigue?. *Transportation Research Part F:Traffic Psychology and Behaviour*, *11*(6), 418-426.

Straume, L. V., & Vittersø, J. (2012). Happiness, inspiration and the fully functioning person: Separating hedonic and eudaimonic well-being in the workplace. *The Journal of Positive Psychology*, *7*(5), 387-398.

Strauss, K., & Parker, S. K. (2014). Effective and sustained proactivity in the workplace: A self-determination theory perspective. In M. Gagné (Ed.), *The Oxford handbook of work engagement, motivation, and self-determination theory* (pp. 50–71). Oxford University Press.

Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students (2nd ed.)*. New York: Routledge.

Subrahmanian, M. (2014). Drivers of employee engagement in petroleum industry-A transformational framework. *Journal of Human Resource Management*, *24*(14), 2741-2759.

Sudibjo, N., & Sutarji, T. (2020). The roles of job satisfaction, well-being, and emotional intelligence in enhancing the teachers' employee engagements. *Management Science Letters*, *10*(11), 2477-2482.

Sukadarin, E. H., Suhaimi, N. S., & Abdull, N. (2012). Preliminary study of the safety culture in a manufacturing industry. *International Journal of Humanities and Social Science, 2*(4), 176-183.

Taris, T. W., & Schaufeli, W. B. (2015). The job demands-resources model. *The Wiley Blackwell handbook of the psychology of occupational safety and workplace health*, 155-180.

Tashakkori, A., & Creswell, J. W. (2007). The new era of mixed methods. *Journal of Mixed Methods Research, 1*(1), 3-7.

Tengilimoglu, D., Celik, E., & Guzel, A. (2014). The effect of safety culture on safety performance: Intermediary role of job satisfaction. *Methodology*, *15*(3), 1-12.

Thorp, J., Baqai, W., Witters, D., Harter, J., Agrawal, S., Kanitkar, K., & Pappas, J. (2012). Workplace engagement and workers' compensation claims as predictors for patient safety culture. *Journal of Patient Safety*, *8*(4), 194-201.

Tong, R., Wang, L., Cao, L., Zhang, B., & Yang, X. (2021). Psychosocial factors for safety performance of construction workers: taking stock and looking forward. *Engineering, Construction and Architectural Management, 15*(3), 1-12.

Toseafa, H., Bata, R., & Toseafa, E. (2018) Incidence of occupational health hazards and safety culture at Tema Oil Refinery (TOR) in Ghana: exploring the symbiotic relationship. *British Journal of Environmental Sciences, 6*(3), 58–74.

Trochim, W. M. K. (2006). Time in research: Research methods knowledge base. *Web Center for Social Research Methods.*

Van den Broeck, A., Vansteenkiste, M., De Witte, H., Soenens, B., & Lens, W. (2010). Capturing autonomy, competence, and relatedness at work: Construction and initial validation of the Work-related Basic Need Satisfaction scale. *Journal of Occupational and Organizational Psychology*, *83*(4), 981-1002.

Vecchio-Sadus, A. M. (2007). Enhancing safety culture through effective communication. *Safety Science Monitor*, *11*(3), 1-10.

Vella-Brodrick, D. A., & Stanley, J. (2013). The significance of transport mobility in predicting well-being. *Transport Policy*, *29*, 236-242.

Vinnem, J. E., Hestad, J. A., Kvaløy, J. T., & Skogdalen, J. E. (2010). Analysis of root causes of major hazard precursors (hydrocarbon leaks) in the Norwegian offshore petroleum industry. *Reliability Engineering & System Safety*, *95*(11), 1142-1153

Vinodkumar, M. N., & Bhasi, M. (2010). Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. *Accident Analysis & Prevention*, *42*(6), 2082-2093.

Vogus, T. J., Cull, M. J., Hengelbrok, N. E., Modell, S. J., & Epstein, R. A. (2016). Assessing safety culture in child welfare: Evidence from Tennessee. *Children and Youth Services Review*, *65*, 94-103.

Vosburgh, R. M. (2007). The evolution of HR: Developing HR as an internal consulting organization. *People and Strategy*, *30*(3), 11-23.

Wagner, R., & Harter, J. K. (2006). The elements of great managing. *Simon and Schuster*, *978*(12), 1-599.

Wang, Z., Liu, H., Yu, H., Wu, Y., Chang, S., & Wang, L. (2017). Associations between occupational stress, burnout and well-being

among manufacturing workers: mediating roles of psychological capital and self-esteem. *BMC Psychiatry*, *17*(1), 1-10.

Ward, J., Haslam, C., & Haslam, R. (2008). The impact of health and safety management on organisations and their staff. *Journal of Industrial and Systems Engineering*, *12*(2), 255-282.

Warr, P. (2012). How to think about and measure psychological well-being. In *Research methods in occupational health psychology* (pp. 100-114). Routledge.

Warr, P., & Nielsen, K. (2018). Well-being and work performance. *Handbook of well-being. Salt Lake City, UT: DEF Publishers*.

Wegge, J., Shemla, M., Haslam, S. A., Zwingmann, I., Wolf, S., Rudolf, M., ... & van Dick, R. (2014). *German Journal of Research in Human Resource Management*, *28*(1-2), 3-10.

Williamson, A. M., Feyer, A. M., Cairns, D., & Biancotti, D. (1997). The development of a measure of safety climate: The role of safety perceptions and attitudes. *Safety Science*, *25*(1-3), 15-27.

Winter, G. (2000). A comparative discussion of the notion of validity in qualitative and quantitative research. *The Qualitative Report*, *4*(3), 1-14.

Woodside, A. G. (2010). *Case study research: Theory, methods and practice*. Emerald Group Publishing.

Workplace Safety and Health Institute (2017). *A study on Occupational Health and Safety by WSH Institute*.

World Health Organization. (2017). *Global diffusion of eHealth: making universal health coverage achievable: report of the third global survey on eHealth*. World Health Organization.

Wu, T. C., Lin, C. H., & Shiau, S. Y. (2010). Predicting safety culture: The roles of employer, operations manager and safety professional. *Journal of Safety Research*, *41*(5), 423-431.

Yan, C. H., Ni, J. J., Chien, Y. Y., & Lo, C. F. (2021). Does workplace friendship promote or hinder hotel employees' work engagement? The role of role ambiguity. *Journal of Hospitality and Tourism Management*, *46*, 205-214.

Yankson, E. (2012). The effect of health and safety standards on productivity in Ghana rubber estates limited. *Unpublished Master's Thesis, Institute of Distance Learning, Kwame Nkrumah University of Science and Technology, Kumasi*.

Yates, L. (2004). *What does good education research look like?: Situating a field and its practices*. McGraw-Hill Education (UK).

Zhang, A., Boltz, A., Wang, C. W., & Lee, M. K. (2022, April). Algorithmic management reimagined for workers and by workers: Centering worker well-being in gig work. In *CHI Conference on Human Factors in Computing Systems* (pp. 1-20).

Zohar, D. (1980). Safety climate in industrial organizations: theoretical and applied implications. *Journal of Applied Psychology*, *65*(1), 96–102.

Zohar, D. (2000). A group-level model of safety climate: testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology*, *85*(4), 587-596.

Zuschlag, M., Ranney, J. M., & Coplen, M. (2016). Evaluation of a safety culture intervention for Union Pacific shows improved safety and safety culture. *Safety Science*, *83*, 59-73.

APPENDICES

APPENDIX A: DATA COLLECTION INSTRUMENTS

Dear Participant,

I am a Ph.D. student at the Department of Human Resource Management, University of Cape Coast. This study is my doctoral dissertation on safety culture, employee well-being and employee engagement in the Oil Marketing Companies in Ghana. I am asking you to participate in this research project by answering the questionnaire on safety culture, employee well-being and employee engagement. Please fill the questionnaire in the best way you can. There are no right or wrong answers. Your participation in this research is voluntary. Your confidentiality will be maintained throughout the research project and individual responses will not be released to the company. If you decide not to participate in the questionnaire, you may withdraw your consent and stop participation at any time with no consequences.

SECTION A: SAFETY CULTURE

Instruction: On a scale of 1 to 5 (1= SD; 5=SA), circle the appropriate number that best describes the safety culture at your workplace.

(SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree)

SITUATIONAL CHARACTERISTICS/STRUCTURE						
Statements		**SD**	**D**	**N**	**A**	**SA**
1.	Management provides incentives for employees who excel in health and safety	1	2	3	4	5
2.	There is a unit where employees report their health and safety concerns	1	2	3	4	5
3.	There is a specialized investigation team who focus mainly on analyzing workplace safety	1	2	3	4	5
4.	Sufficient amount of health and safety detectors to ensure adequate evacuation time for employees	1	2	3	4	5
5.	There are clear rules and regulations to achieve workplace safety	1	2	3	4	5
6.	Management prioritizes workplace safety over production even if it means making losses	1	2	3	4	5
7.	Employees are regularly informed about recurring causes and factors leading to accidents	1	2	3	4	5

8.	Sufficient health and safety personal protective equipment (PPE) are made available to employees	1	2	3	4	5
9.	There is an emergency team at the workplace	1	2	3	4	5
10.	Senior management show support and commitment to safety through leadership by example	1	2	3	4	5
PSYCHOLOGICAL						
11.	Employees encourage each other to report any safety concerns they have	1	2	3	4	5
12.	Employees are responsible for each other's safety	1	2	3	4	5
13.	I advise other employees to stop work which I believe is performed in an unsafe manner	1	2	3	4	5
14.	Violating safety rules are unacceptable even if it does not result in accidents	1	2	3	4	5
15.	Employees are encouraged to raise safety concerns that they may have	1	2	3	4	5
16.	Employees abide by the "safety before production" rule even if it means halting operations	1	2	3	4	5
17.	Employees are encouraged to come up with new ideas to improve safety	1	2	3	4	5
18.	Response to questions on safety and health concerns are given in an open and honest manner	1	2	3	4	5
19.	There is good collaboration among employees to promote safety	1	2	3	4	5
20.	The organisation uses incident reports to revise goals to achieve safety standards	1	2	3	4	5
BEHAVIOURAL						
21.	I do not skip any safety step even to increase my work efficiency	1	2	3	4	5
22.	I believe the most important part of completing a task is being safe	1	2	3	4	5
23.	I report mistakes that have significant consequences even if nobody notices it.	1	2	3	4	5
24.	I get involve in safety activities because I am required to do so	1	2	3	4	5
25.	My supervisor shows me the safe way to perform my duties when I act in an unsafe manner	1	2	3	4	5

26.	Management acts quickly to correct safety problems	1	2	3	4	5
27.	My supervisor expresses concern when safety procedures are not followed	1	2	3	4	5
28.	Management does not turn a blind eye to safety issues	1	2	3	4	5
29.	Employees are well experienced and highly capable of running equipment and fulfilling the jobs required	1	2	3	4	5
30.	Employees stay committed to health and safety in the workplace even when there is moderate supervision	1	2	3	4	5

SECTION B: EMPLOYEE WELL-BEING

AUTONOMY		**SD**	**D**	**N**	**A**	**SA**
1	Management allows employees to make decisions that relate to their work most of the time.	1	2	3	4	5
2	Management trusts people to take work-related decisions without getting permission first.	1	2	3	4	5
3	Management does not control the work of employees	1	2	3	4	5
4	Management allows employees to engage in activities that express their skills.	1	2	3	4	5
5	Management allows employees to work the way they prefer to work	1	2	3	4	5
COMPETENCE						
6	On the whole, I am satisfied with my accomplishments at work	1	2	3	4	5
7	I feel I am good at what I do	1	2	3	4	5
8	I feel that I have a number of good qualities.	1	2	3	4	5
9	I am able to do things as well as most other people.	1	2	3	4	5
10	I am respected for what I do	1	2	3	4	5
11	I am able to demonstrate my skill verbally and non-verbally	1	2	3	4	5
RELATEDNESS						
12	There is effective collaboration among colleagues	1	2	3	4	5
13	There is very little conflict between my colleagues and I	1	2	3	4	5
14	People are prepared to share information with each other	1	2	3	4	5
15	I feel happy working with my colleagues	1	2	3	4	5

16	My colleagues are always ready to assist me with my work	1	2	3	4	5
17	My colleagues are friendly and easy to approach	1	2	3	4	5
18	My colleagues can be trusted to give good guidance when needed	1	2	3	4	5
PHYSICAL WELL-BEING						
Statements		**SD**	**D**	**N**	**A**	**SA**
19.	I feel safe whiles working at this station	1	2	3	4	5
20.	I am able to do my daily work at the station	1	2	3	4	5
21.	My work makes me feel happy	1	2	3	4	5
22.	My work makes me feel satisfied	1	2	3	4	5
23.	My work makes me feel calm	1	2	3	4	5

SECTION C: EMPLOYEE ENGAGEMENT

ABSORPTION		**SD**	**D**	**FD**	**N**	**SA**
1.	I do not care about time when I am working	1	2	3	4	5
2.	When I am working, I forget everything else around me	1	2	3	4	5
3.	I feel happy when I am working intensely	1	2	3	4	5
4.	I am immersed in my work	1	2	3	4	5
5.	It is difficult to detach myself from my job	1	2	3	4	5
DEDICATION						
6.	I find the work that I do meaningful and purposeful	1	2	3	4	5
7.	I am enthusiastic about my job	1	2	3	4	5
8.	My job inspires me	1	2	3	4	5
9.	I am proud of the work that I do	1	2	3	4	5
10.	My job makes me innovative	1	2	3	4	5
VIGOR						
11.	I feel very energetic at work	1	2	3	4	5
12.	I feel strong at work	1	2	3	4	5
13.	When I get up in the morning, I feel like going to work	1	2	3	4	5
14.	I can continue working for very long periods at a time	1	2	3	4	5
15.	At my job, I am very resilient, mentally	1	2	3	4	5
16.	At my work I always persevere, even when things do not go well	1	2	3	4	5

SECTION D: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

COMPANY/JOB INFORMATION

Please mark [√] the box corresponding to your choice concerning each statement below.

1. Gender: a. Male [ ] b. Female [ ]
2. How old are you?
   a. Less than 26years[ ] b. 26-30 years[ ] c. 31-35 years [ ] d. 36-40 years [ ]
   e. 41-45 years [ ] f. 46 and above years[ ]
3. What is your highest educational level
   a. No Formal Education [ ] b. Basic Education [ ] c.Vocational Training [ ]
   d. Secondary Education [ ] e. Tertiary Education [ ]
4. Marital status
   a. Single [ ] b. Married[ ] c. Divorced [ ] d. Widowed[ ]
5. Which of these companies do you work for?
   a. Total Oil [ ] b. Shell Ghana [ ] c. GOIL [ ]
6. How long have you been working in the filling stations?
   a. Less than 1 year[ ] b. 1-5 years [ ] c. 6-10years [ ] d. 11-15 years[ ]
   e. 16-20 years[ ] f. 21years or more[ ]
7. What is your current position?
   a. manager [ ] b. supervisor [ ] c. sales person [ ] d. pump attendant [ ]
   e. mechanic [ ]
8. Time in current position
   a. Less than 1 year [ ] b. 1-5 years [ ] c. 6-10 years [ ] d. 11-15 years[ ]
   e. 16-20 years[ ] f. 21 years or more [ ]
9. Please indicate the location of this fuel filling station.
   a. Accra Metropolitan Assembly [ ] b. Tema Metropolitan Assembly [ ] c.Ga West Municipal Assembly [ ] d.Ga East Municipal Assembly[ ] e. Ga South Municipal Assembly [ ] f. Adentan Municipal Assembly [ ] g.Ashaiman Municipal Assembly [ ] h. Ledzokuku-Krowoh Municipal Assembly[ ] i. Dangme East district Assembly[ ] j.Dangme West district Assembly[ ]
10. Which section of the station do you work?
    a. Forecourt [ ] b. Shop [ ] c. Lubebay [ ]

THANK YOU

APPENDIX B: INTERVIEW GUIDE

1. Kindly introduce yourself and your position?
2. Please what is your role and what is your experience in years?
3. How do you understand safety culture?
4. How are safety policies formulated in this organisation?
5. Is there a safety culture in your organization?
6. Based on your experience, how does leadership behaviour influence the perception of employees about safety culture in the organisation?
7. How do both organisational culture and safety policies affect the safety culture in this organization?
8. How can the safety culture be improved in the oil marketing industry in Ghana?
9. What are the potential barriers associated with the implementation of safety culture in the oil marketing industry?
10. What is your understanding of employee well-being within the industry?
11. How is safety culture related to the well-being of employees?
12. What is your understanding of employee engagement in the context of this industry?
13. How can you relate safety culture to employee engagement in your organization?
14. Please is there any other thing you would want to share?

APPENDIX C: COMMON METHOD VARIANCE

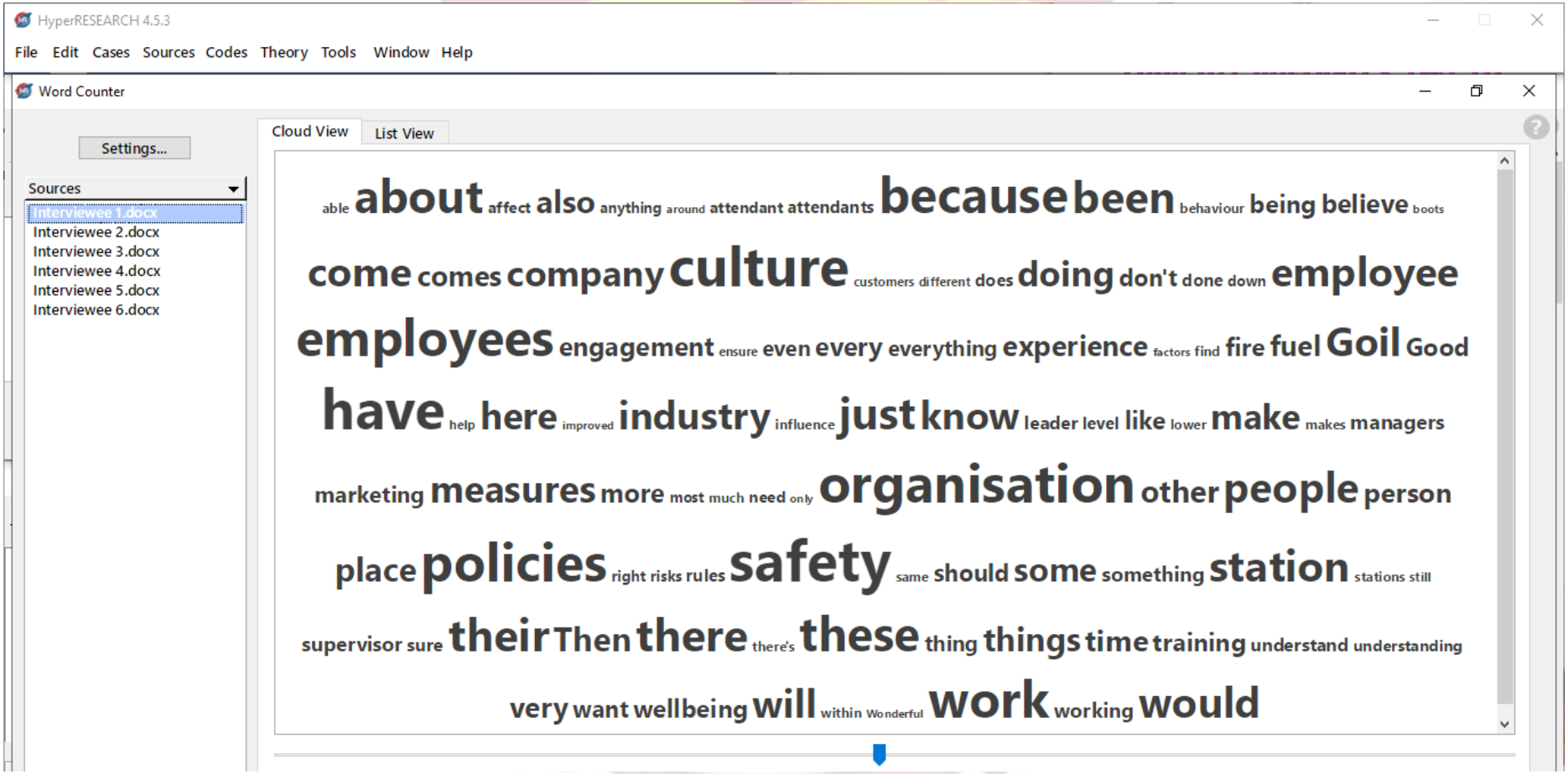
Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.624	22.644	22.644	14.899	21.593	21.593
2	5.644	8.180	30.823			
3	4.318	6.257	37.081			
4	2.817	4.083	41.163			
5	2.530	3.666	44.830			
6	2.241	3.248	48.078			
7	2.014	2.918	50.996			
8	1.936	2.806	53.803			
9	1.554	2.252	56.054			
10	1.486	2.153	58.207			
11	1.473	2.135	60.343			
12	1.330	1.928	62.271			
13	1.183	1.714	63.985			
14	1.101	1.596	65.581			
15	1.052	1.524	67.105			
16	.957	1.387	68.492			
17	.939	1.361	69.853			
18	.935	1.356	71.208			
19	.833	1.208	72.416			
20	.823	1.193	73.609			
21	.792	1.148	74.757			
22	.760	1.101	75.858			
23	.753	1.092	76.950			
24	.702	1.018	77.967			
25	.701	1.016	78.983			
26	.665	.964	79.947			
27	.633	.918	80.865			
28	.610	.884	81.749			
29	.599	.868	82.617			
30	.571	.827	83.444			
31	.556	.807	84.251			
32	.529	.767	85.017			
33	.517	.749	85.766			
34	.501	.726	86.492			
35	.492	.713	87.205			
36	.474	.687	87.891			

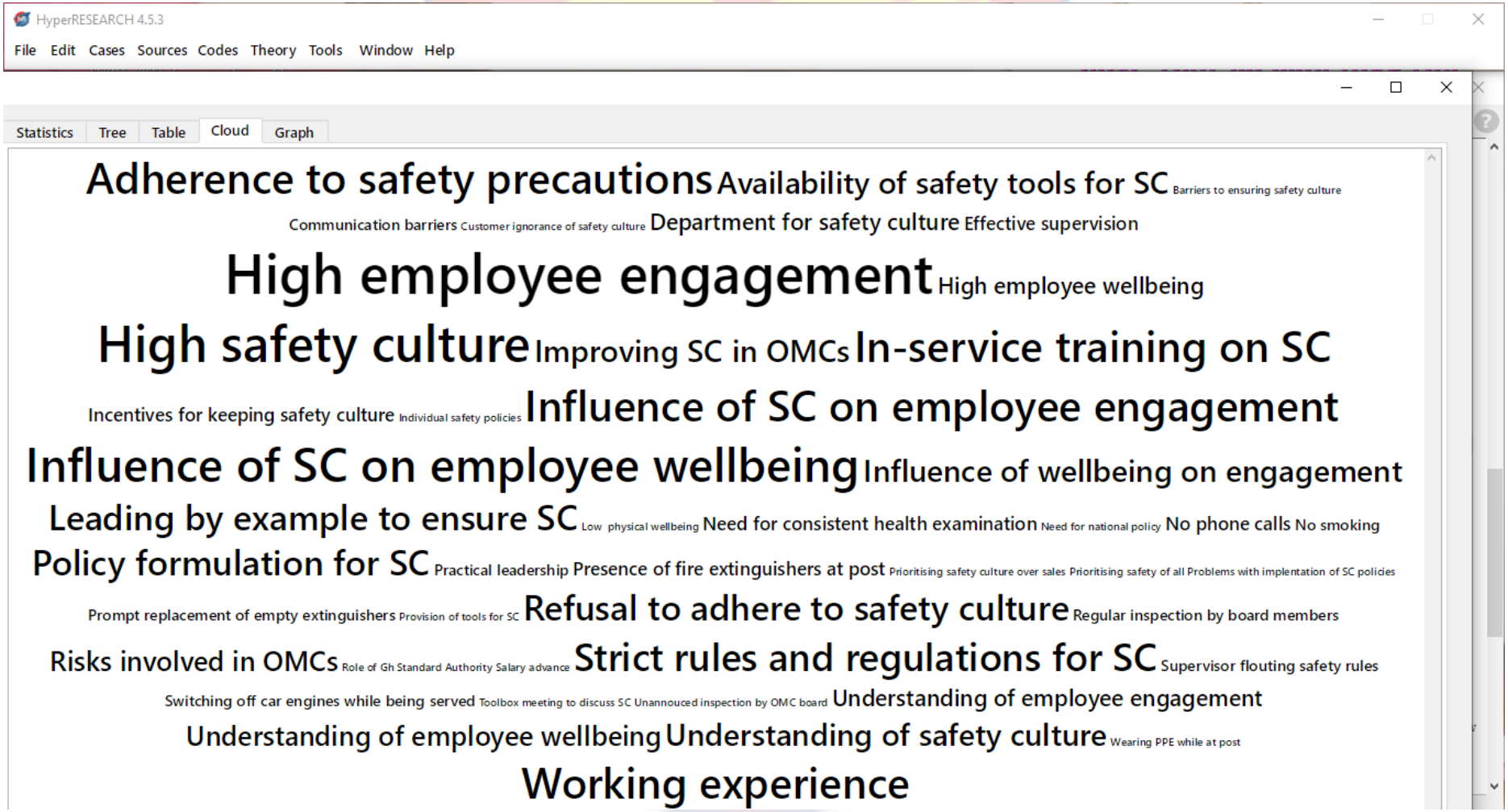
37	.451	.653	88.544
38	.439	.636	89.181
39	.413	.598	89.779
40	.397	.576	90.354
41	.374	.541	90.896
42	.368	.534	91.429
43	.354	.513	91.943
44	.347	.504	92.446
45	.331	.480	92.926
46	.310	.450	93.376
47	.301	.437	93.812
48	.295	.428	94.240
49	.288	.418	94.658
50	.282	.409	95.067
51	.273	.395	95.462
52	.258	.374	95.836
53	.246	.357	96.193
54	.231	.334	96.527
55	.226	.328	96.855
56	.214	.310	97.165
57	.196	.284	97.449
58	.191	.277	97.726
59	.184	.267	97.993
60	.179	.260	98.252
61	.177	.256	98.509
62	.166	.241	98.750
63	.150	.217	98.967
64	.144	.209	99.176
65	.127	.184	99.360
66	.122	.177	99.537
67	.117	.169	99.706
68	.105	.152	99.858
69	.098	.142	100.000

Extraction Method: Principal Axis Factoring.

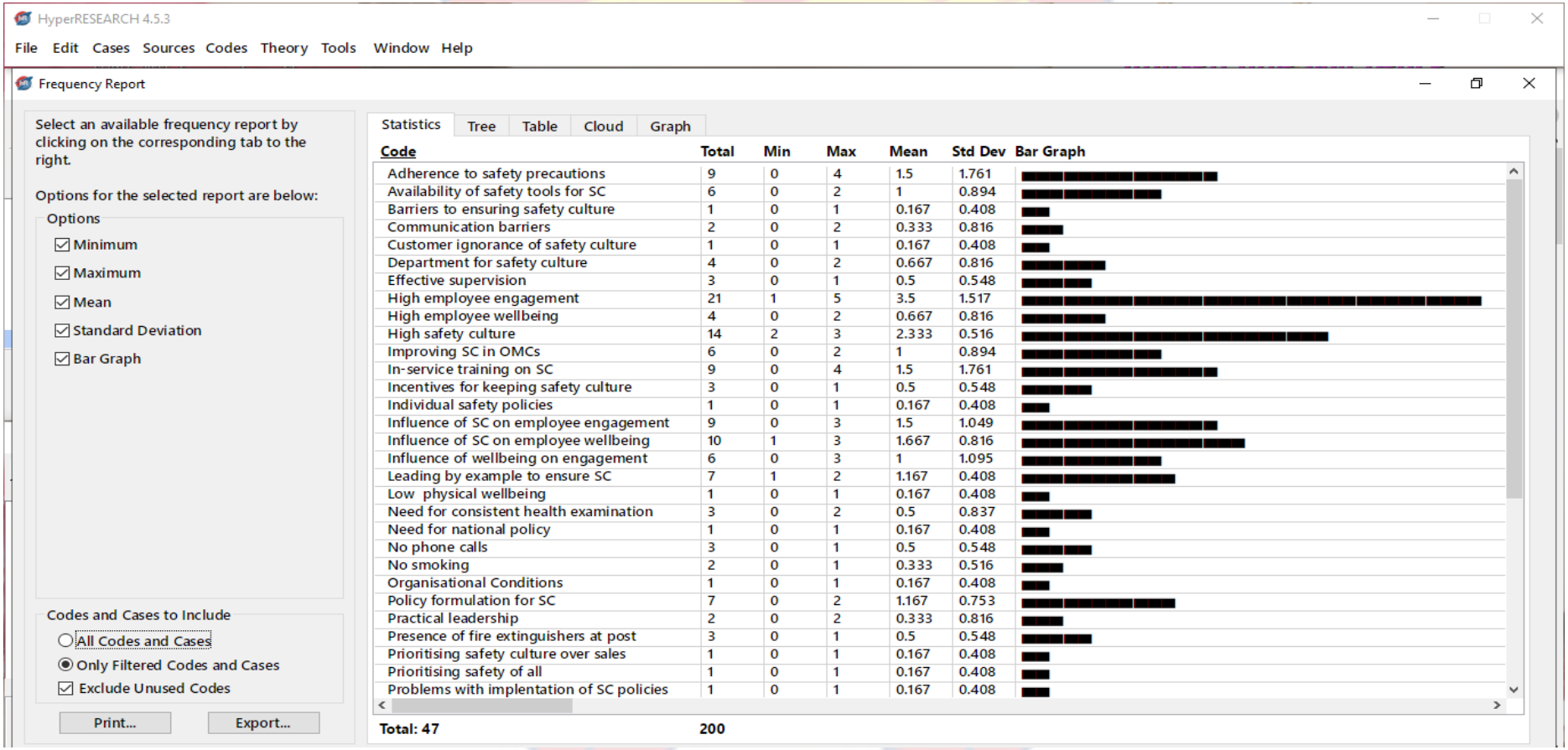
APPENDIX D: CLOUD FEATURES OF WORDS IN INTERVIEW DATA



APPENDIX E: CLOUD FEATURES OF CODES IN INTERVIEW DATA



APPENDIX F: FREQUENCY REPORTS OF CODES



Code	Total	Min	Max	Mean	Std Dev	Bar Graph
Adherence to safety precautions	9	0	4	1.5	1.761	
Availability of safety tools for SC	6	0	2	1	0.894	
Barriers to ensuring safety culture	1	0	1	0.167	0.408	
Communication barriers	2	0	2	0.333	0.816	
Customer ignorance of safety culture	1	0	1	0.167	0.408	
Department for safety culture	4	0	2	0.667	0.816	
Effective supervision	3	0	1	0.5	0.548	
High employee engagement	21	1	5	3.5	1.517	
High employee wellbeing	4	0	2	0.667	0.816	
High safety culture	14	2	3	2.333	0.516	
Improving SC in OMCs	6	0	2	1	0.894	
In-service training on SC	9	0	4	1.5	1.761	
Incentives for keeping safety culture	3	0	1	0.5	0.548	
Individual safety policies	1	0	1	0.167	0.408	
Influence of SC on employee engagement	9	0	3	1.5	1.049	
Influence of SC on employee wellbeing	10	1	3	1.667	0.816	
Influence of wellbeing on engagement	6	0	3	1	1.095	
Leading by example to ensure SC	7	1	2	1.167	0.408	
Low physical wellbeing	1	0	1	0.167	0.408	
Need for consistent health examination	3	0	2	0.5	0.837	
Need for national policy	1	0	1	0.167	0.408	
No phone calls	3	0	1	0.5	0.548	
No smoking	2	0	1	0.333	0.516	
Organisational Conditions	1	0	1	0.167	0.408	
Policy formulation for SC	7	0	2	1.167	0.753	
Practical leadership	2	0	2	0.333	0.816	
Presence of fire extinguishers at post	3	0	1	0.5	0.548	
Prioritising safety culture over sales	1	0	1	0.167	0.408	
Prioritising safety of all	1	0	1	0.167	0.408	
Problems with implentation of SC policies	1	0	1	0.167	0.408	
Total: 47	**200**					

APPENDIX G: ETHICAL CLEARANCE LETTER

UNIVERSITY OF CAPE COAST
INSTITUTIONAL REVIEW BOARD SECRETARIAT
TEL: 0558093143 / 0508878309
E-MAIL: irb@ucc.edu.gh
OUR REF: UCC/IRB/A/2016/1468
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0009096

5TH OCTOBER, 2022

Ms. Dorothy Amfo-Antiri
Department of Human Resource Management
University of Cape Coast

Dear Ms. Amfo-Antiri,

ETHICAL CLEARANCE – ID (UCCIRB/CHLS/2022/33)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research **Safety Culture, Employee Wellbeing and Employee Engagement among Oil Marketing Companies in Ghana.** This approval is valid from from 5th October, 2022 to 4th October, 2023. You may apply for a renewal subject to submission of all the required documents that will be prescribed by the UCCIRB.

Please note that any modification to the project must be submitted to the UCCIRB for review and approval before its implementation. You are required to submit periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

Kofi Fosu Amuquandoh
Ag. UCCIRB Administrator

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST