

UNIVERSITI TEKNOLOGI MARA

**PSYCHOSOCIAL FACTORS AS
PREDICTORS OF MENTAL
HEALTH STATE: THE MEDIATING
ROLE OF JOB SATISFACTION
AMONG OFFSHORE OIL AND GAS
EMPLOYEES IN MALAYSIA**

NUR DALILAH MOHD RANI

PhD

June 2026

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NUR DALILAH MOHD RANI

Thesis submitted in fulfilment
of the requirements for the degree of
Doctor of Philosophy
(Administrative Science)

Faculty of Administrative Science and Policy Studies

June 2026

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ABSTRACT

Mental health has become an increasing concern in high-risk work environments, particularly within the offshore oil and gas (O&G) industry, where employees are exposed to prolonged isolation, demanding work conditions, and operational hazards. Despite this, empirical evidence on how psychosocial factors influence mental health in the Malaysian offshore context remains limited. This study addresses this gap by examining the relationship between psychosocial factors and mental health among offshore O&G employees, with job satisfaction considered as a mediating variable. Guided by the Job Demands–Resources (JD-R) model, a concurrent mixed-method approach was employed. Quantitative data were collected through a survey involving 364 offshore employees across several operational regions in Malaysia, while qualitative insights were obtained from 17 informants in managerial roles. Statistical analysis was conducted using SPSS and SmartPLS, while qualitative data were analysed using ATLAS.ti to provide contextual understanding of organisational practices. The findings indicate that psychosocial factors, namely job demands, job security, social support, and work environment, are significantly associated with mental health, although the relationships are generally modest. Among these factors, the work environment emerges as the most influential determinant, highlighting the importance of organisational structure, safety conditions, and support systems in shaping psychological well-being. Job satisfaction is found to have a direct positive relationship with mental health and also functions as a partial mediator between workplace factors and mental health outcomes. This suggests that while job satisfaction enhances employees' ability to cope with work-related stress, it does not fully offset the impact of structural workplace conditions. The study further reveals that mental health provision within the offshore O&G industry remains uneven, with practices varying across organisations and often relying on awareness-based initiatives rather than structured and sustained systems. These findings extend the application of the Job Demands–Resources model by demonstrating the simultaneous influence of both environmental and psychological factors in high-risk work settings. Overall, this study provides a context-specific understanding of mental health in offshore environments and offers practical insights for organisations and policymakers to strengthen mental health management. It highlights the need for integrated approaches that combine improvements in workplace conditions with strategies that support employee well-being, contributing to more consistent and sustainable outcomes in the offshore O&G sector.

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LIST OF ABBREVIATIONS

Abbreviations

AVE	Average Variance Extracted
CAQDAS	Computer-assisted qualitative data analysis
CDC	Centre for Disease Control
CMV	Command Method Variance
CNBC	Consumer News and Business Channel
CR	Composite Reliability
COPAS	Council of Petroleum Accountants Societies
COPSOQ	The Copenhagen Psychosocial Questionnaire
COR	Conservation of Resources
COVID-19	Coronavirus Diseases19
CUEPACS	Congress of Union of Employees in the Public and Civil Services Malaysia
DEI	Diversity, Equity, and Inclusion
DOSH	Department of Safety and Health
DV	Dependent Variable
EA	Employment Act
EP	Employee Performance
EPF	Employee Provident Fund
E&P	Exploration and Production

EU-OSHA	European Union for Occupational Safety and Health Act
FIFO	Fly-in Fly-out
GDP	Gross Domestic Product
GoF	Goodness of Fit
HSE	Health, Safety and Environment
HR	Human Resource
HRM	Human Resource Management
HTMT	Heterotrait-to-Monotrait
ICOP	Industry Code of Practice on Occupational Stress
IDCs	Industrial Developing Countries
ILO	International Labour Organization
IV	Independent Variables
JCM	Job Characteristics Model
JD-R	Job-Demands Resources
JDCS	Job-Demands Control Support
JDI	Job Description Index
LTSA	Long-Term Sickness Absence
LPG	Liquefied Petroleum Gas
MEF	Malaysia Employee Federation
MHA	Mental Health Act
MHPSS	Mental Health and Psychosocial Support
MIHRM	Malaysian Institute of Human Resource Management

MoH	Ministry of Health
MOSHPA	Malaysian Psychological Association
MSOSH	Malaysia Occupational Safety and Health Practitioner's Association
NAMI	Malaysian Society for Occupational Safety and Health
NHMS	National Alliance on Mental Illness
NHS	National Health Service
NIOSH	National Institute of Occupational Safety and Health
NOPSEMA	National Offshore Petroleum Safety and Environmental Agency
O&G	Oil and Gas
OGSE	Oil & Gas, Services, and Equipment
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Act
PERKESO	Social Security Organization
PRISMA	Malaysian Psychosocial Association (<i>Persatuan Psikologi Malaysia</i>)
PTSD	Post-Traumatic Stressed Disorder
PwD	Persons with Disabilities
SCOs	Safety Critical Organizations
SDGs	Sustainable Development Goals
SSOM	Standardized Root Mean Residual
UKM	Social Security Organization of Malaysia
UM	Universiti Kebangsaan Malaysia

UN	United Nation
UNICEF	United Children’s Fund
UWSS	Unhelpful Workplace Social Support
WFH	Working from Home
WHO	World Health Organization
WI	Work intensification

CHAPTER 1

INTRODUCTION

1.1 Preamble

This chapter provides the foundation of the study by outlining the background and addressing the issues related to work arrangements in the O&G sector. It proceeds to articulate the research questions and objectives, followed by a description of the scope and significance of the investigation. The chapter concludes by clarifying key terms relevant to the analysis. The discussion opens with an elaboration of the study's background.

1.2 Background Of The Study

The O&G, also known as the petroleum industry, is significant worldwide. It is regarded as a valuable commodity, and some countries depend on its ability to generate income. Besides, O&G employees are rewarded with handsome pay checks and other benefits-in-kind; however, the field also offers tense working conditions. The O&G industry has an undeniable degree of occupational safety and health hazards (Ramdan et al., 2021).

The evidence indicates the following incidents: in 2007, two Pemex platforms collided in the Gulf of Mexico, resulting in the death of 21 employees; an explosion in northeastern Tamaulipas caused the death of 30 individuals; a gas buildup at the company's Mexico City headquarters led to a blast that killed 37 people; a fiery blast on a Mexico oil rig resulted in the death of at least four employees and injured 16, leading to the evacuation of over 300 individuals; the Troll Solution platform caused the death of two employees and injured 10; and there were two accidental deaths in Pengerang, Johor (Marguerita & Bernard, 2015; Reuters, 2019). Although these cases are detrimental physically and financially, they implicitly impacted deeply on employees' mental health, especially those working on the oil rig.

Being the front liner in the O&G industry is no mean feat. They are rarely in the spotlight, yet they shoulder a significant burden in ensuring uninterrupted supplies of energy and fossil fuels so that life can go on as usual despite the COVID-19 pandemic

(Bernama, 2021). They work round-the-clock so factories are fuelled, homes are lit, medical care and emergency facilities can run, and organizations stay open (Bernama, 2021). Exposed to harsh climate conditions, elevated temperatures, and hazardous materials, they regularly put themselves in risky conditions and climb so the country and societies continue flourishing (Bernama, 2021). Given the difficulties presented by the pandemic since 2020, there have been growing dangers of working in what is now known as one of the world's most hostile environments (Bernama, 2021). Therefore, employees in the O&G industry face severe working conditions and several physical stressors. These include bad climate conditions, long working hours, shift work, night duty, noise, vibration, and inadequate ventilation, which affect their mental health (Chen & Tian, 2012). These working arrangements and challenges might trigger poor mental health in the O&G employees (Asare et al., 2021)

Besides, reports produced by James Lind Institution (2019) show that O&G's leading occupational health and safety goals are to safeguard the physical health of the employees rather than incorporating mental health into the industry's concern. Meanwhile, meta-data showed that the work environment had a significant effect on offshore O&G employees' mental health and needed immediate attention. At the same time, past studies have highlighted that job satisfaction has not been given much attention in many unusual work environments such as O&G, particularly in Malaysia (Al-Ali et al., 2019). According to Initiative 8, Sustainable Development Goals, and Wawasan Kemakmuran Bersama 2030, mental health is not correctly spotlighted in the O&G setting (Dybdahl & Lien, 2017). Mental health is a fundamental determinant of individuals' capacity to engage in work, sustain productivity, and contribute to economic development. At the same time, the nature of work itself significantly influences mental well-being.

1.3 Problem Statement

Malaysia's long-term development framework has evolved through initiatives such as Vision 2020, the Eleventh Malaysia Plan (2016 to 2020), and then the Twelfth Malaysia Plan (2021 to 2025). These plans emphasize inclusivity, sustainability, and resilience (My Government, 2022a). Moving forward, the Thirteenth Malaysia Plan (2026 to 2030), anchored in Ekonomi MADANI, gives explicit attention to employee well-being, including workplace mental health and psychosocial risks. This is consistent

with global goals like SDG 3 (Good Health and Well-being) and SDG 8 (Decent Work and Economic Growth). Meanwhile, mental health issues have become more visible in Malaysia: in 2015, 29.2 % of Malaysian adults were found to meet criteria for a mental health disorder (National Health and Morbidity Survey) (Raaj et al., 2021) and recent local studies report depression prevalence in some populations as high as 27.7 % (Munusamy et al., 2024). In community and urban low-income settings, depression ranges from 12.3 to 24.2 % and anxiety from 18 to 36.3 % (Min Fui et al., 2022). Despite such prevalence, recognition of psychosocial hazards in Malaysia's industrial sectors lags (Javaid et al., 2018).

Globally, mental health conditions impose major costs on organizations through reduced productivity, absenteeism, and disengagement (Dimoff & Kelloway, 2019; Jansson & Gunnarsson, 2018). Psychological distress, manifested in both mental and physical symptoms is becoming a public health and economic concern in Malaysia (American Psychological Association, 2020; Tiong et al., 2018). In the offshore O&G industry, employees face unique stressors including isolation, high job demands, and exposure to traumatic events. Research indicates that 19% of O&G employees exhibit anxiety or phobic disorders (Valadez et al., 2022). A 2023 report by the International SOS Foundation revealed that among remote rotational employees, 40 % had suicidal thoughts, 37% reported loneliness, 23% experienced emotional exhaustion, 56% saw increased anxiety, and 65% perceived greater job demands.

The COVID-19 pandemic exacerbated these vulnerabilities: increased job insecurity, wage cuts, and restructuring reduced control and social support, leading to persistent psychological strain (Hamouche, 2023; Yasami et al., 2024; Hafeez et al., 2024). The psychosocial work environment, encompassing social and mental facets of one's work setting, has been linked to higher injury rates and worse safety outcomes (Awolusi et al., 2017; Gómez-Salgado et al., 2023). Offshore employees also contend with extended periods away from family, unpredictable rosters, and unstable employment conditions (Baghdadi, 2024; D'Antoine et al., 2023). Yet, most existing studies in offshore settings focus heavily on traditional safety, environment, and physical risks (Mathisen et al., 2022; Benson et al., 2024), neglecting psychological and satisfaction dimensions.

Given the high national prevalence of mental health conditions and the stress environment offshore, there is a pressing gap in understanding how job satisfaction mediates the relationship between psychosocial risk factors and mental health outcomes

in Malaysia's O&G industry. Theories such as the Job Demand–Control–Support and Job Demands–Resources (JD-R) models highlight how demands, control, and support shape health outcomes (Johnson & Hall, 1988; Demerouti et al., 2001; Lukan et al., 2022). However, empirical studies in Malaysia rarely treat job satisfaction as a mediator in this context, and many rely exclusively on quantitative designs. A ROSES review showed that between 2007 and 2022, only 11 studies globally used job satisfaction as a mediating variable. In Malaysia specifically, underreporting of psychosocial disorders is a known issue: in 2015, government data listed only 4 industrial cases of psychosocial diseases and 344 mental health cases overall (Javaid et al., 2018). The Occupational Safety and Health (Amendment) Act 2022 mandates health and safety coordinators in larger workplaces, but mental health integration into safety practices remains weak. The Malaysian Psychological Association and EMIR Research have pushed for explicit mental health provisions in the law, yet stigma and low awareness continue to hinder reporting and intervention (Ramli et al., 2021; Dexter, 2022).

Hence, this study aims to fill multiple gaps. First, it will examine how psychosocial factors (job demands, job security, social support, work environment) relate to mental health in offshore O&G employees, with job satisfaction as a mediator. Second, it will employ a mixed method design combining statistical modeling and qualitative insights to deepen understanding. Third, it contributes to Malaysia's policy discourse by offering evidence to support integration of mental health within occupational safety frameworks aligned with the OSHA Amendment 2022 and the SDG agenda. The central question is: how do psychosocial risk factors in the offshore O&G environment influence employees' mental health, and what role does job satisfaction play as a mediator in that relationship, in the Malaysian policy context?

1.4 Research Objectives

The primary objective of the study is to obtain valuable insights about the relationship between psychosocial factors and mental health state among offshore O&G employees. This research also examines the effects of job satisfaction in mediating the relationship between psychosocial factors and mental health state among offshore O&G employees in Malaysia. Therefore, the specific objectives of this research include:

- a) To explore the organizational mental health provisions implemented for

offshore O&G employees and their influence on employees' mental health state and job satisfaction.

- b) To examine the relationship between psychosocial factors and the mental health state of offshore O&G employees.
- c) To determine the most significant psychosocial factors influencing the mental health state of offshore O&G employees
- d) To ascertain the mediating role of job satisfaction in the relationship between psychosocial factors and the mental health state of offshore O&G employees.
- e) To understand the impact of job satisfaction on the mental health state of offshore O&G employees

1.5 Research Question

This research generates several critical questions based on those established research objectives to be answered during the study. These research questions are guided by the perception held by O&G offshore employees in Malaysia. Five research questions have been identified as follows:

- i) What mental health provisions are implemented within the offshore O&G industry, and how do these provisions influence employees' mental health state and job satisfaction?
- ii) Is there any relationship between psychosocial factors and the mental health state of offshore oil and gas employees?
- iii) Which psychosocial factors are the most significant in influencing the mental health state of offshore oil and gas employees?
- iv) To what extent does job satisfaction mediate the relationship between psychosocial factors and the mental health state of offshore oil and gas employees?
- v) How does job satisfaction influence the mental health state of offshore oil and gas employees?

1.6 Scope Of Study

This study focuses on examining psychosocial factors and mental health among employees working in offshore O&G environments in Malaysia, where work conditions

are characterised by prolonged isolation, rotational shifts, and high operational risks. The scope is limited to offshore personnel, including both executive and non-executive employees, to capture a comprehensive range of workplace experiences. For the quantitative component, respondents are required to be aged 18 years and above and to have a minimum of one year of offshore working experience, ensuring sufficient exposure to offshore conditions. For the qualitative component, the study focuses on managerial personnel, particularly those from Safety, Health and Environment (SHE) and Human Resource (HR) functions, as these roles are directly involved in organisational policies and employee well-being management.

Geographically, the study is confined to offshore O&G operations within Malaysia, particularly in key production regions such as Sabah, Sarawak, Terengganu, and Kelantan, which share similar operational structures and working conditions. This focus ensures contextual consistency while maintaining relevance to the Malaysian offshore industry. The findings are therefore specific to this context and are not intended to be generalised to other industries or countries with different regulatory and operational frameworks.

In terms of methodological boundary, the study adopts a cross-sectional design, with data collected between April 2021 and December 2025. As such, the study captures a snapshot of employees' experiences within a defined period and does not examine changes in mental health over time. In addition, the scope is limited to selected psychosocial variables, namely job demands, job security, social support, and work environment, with job satisfaction examined as a mediating variable and mental health as the outcome. Other factors, such as personality traits, leadership styles, and organisational culture, are not included in order to maintain a focused analytical model aligned with the study objectives.

1.7 Significance Of Study

This study contributes to the advancement of knowledge on psychosocial factors and mental health within high-risk offshore oil and gas (O&G) environments by offering both theoretical and practical insights grounded in empirical evidence. From a theoretical perspective, the study extends the Job Demands–Resources (JD-R) model by examining how multiple psychosocial factors jointly influence employees' mental health in offshore settings. While the JD-R model traditionally explains the interaction

between job demands and job resources, the findings of this study demonstrate that these factors operate simultaneously and cumulatively in shaping psychological outcomes, particularly in environments characterised by isolation and operational risk.

A key contribution of this study lies in positioning job satisfaction as a mediating mechanism that explains how workplace conditions translate into mental health outcomes. The findings indicate that job satisfaction enhances employees' capacity to manage workplace pressures; however, it does not fully offset the impact of structural stressors. This highlights the presence of both direct and indirect pathways, offering a more refined and context-sensitive interpretation of the JD-R model. In addition, the study provides empirical evidence on the relative influence of specific psychosocial factors, namely job demands, job security, social support, and work environment, with the work environment identified as the most influential factor. This contributes to a clearer understanding of how structural workplace conditions shape employee well-being in offshore contexts, particularly within the Malaysian setting where empirical evidence remains limited.

From a practical perspective, the study offers targeted insights for improving mental health management within the offshore O&G industry. The findings suggest that organisational interventions should prioritise improvements in the work environment, including safety conditions, organisational support systems, and overall work structure, as these have the strongest influence on employees' mental health. At the same time, job satisfaction plays a supporting role in strengthening employees' ability to cope with workplace demands. However, the findings also indicate that psychological support alone is insufficient without corresponding improvements in structural conditions, highlighting the need for an integrated approach.

The study further reveals that current mental health practices within the industry remain uneven and are often limited to awareness-based initiatives rather than embedded within formal systems. This underscores the need for organisations to move towards more structured and sustainable mental health strategies that are aligned with occupational safety practices. Overall, the study provides practical direction for organisational leaders, human resource practitioners, and safety management teams to adopt more systematic and proactive approaches in addressing psychosocial risks and improving employee well-being in offshore environments.

From a methodological perspective, this study contributes by adopting a concurrent mixed-method approach to examine psychosocial factors and mental health

within offshore O&G settings. By integrating quantitative analysis with qualitative insights, the study provides a more comprehensive understanding of the relationships between workplace conditions and employee well-being, moving beyond single-method limitations commonly observed in prior research. The quantitative component allows for the examination of relationships and mediating effects through statistical modelling, while the qualitative findings offer contextual explanations of how these psychosocial factors are experienced and interpreted within offshore environments. This integration enhances the depth and credibility of the findings.

In addition, the study operationalises multiple psychosocial constructs, including job demands, job security, social support, and work environment, within a single analytical framework, allowing for a more holistic assessment compared to studies that examine these factors in isolation. The use of mediation analysis further strengthens the methodological approach by identifying both direct and indirect relationships, particularly the role of job satisfaction as an explanatory mechanism. Overall, this study provides a structured methodological approach that can be applied in future research examining complex workplace environments, especially in high-risk and remote industrial settings.

1.8 Delimitation Of The Study

This study focuses on offshore oil and gas (O&G) employees in Malaysia, particularly those working in offshore operational settings. It does not cover onshore personnel or employees from other industries, as offshore work involves distinct conditions such as isolation and rotational schedules. In terms of variables, the study concentrates on selected psychosocial factors, namely job demands, job security, social support, and work environment, guided by the Job Demands–Resources model. Other factors, such as individual personality traits or coping strategies, are not included. The study also centres on job satisfaction as a mediating variable and does not examine additional mediators or moderating effects. From a methodological standpoint, the research adopts a cross-sectional design using a concurrent mixed-method approach, capturing data at a single point in time rather than across different periods. These boundaries were set to keep the study focused while allowing a detailed examination of psychosocial factors and mental health within the offshore O&G context in Malaysia.

1.9 Definition Of Terms

This section discussed the terms used in this study. The terms are: 1) psychosocial factors, job demands, job security, social support, and work environment; 2) job satisfaction; 3) mental health; and 4) offshore O&G employees.

1.9.1 Psychosocial Factors

"Psychosocial" refers to the dynamic interdependence of social and psychological issues (Williamson et al., 2006). The concept of psychosocial is used to emphasize the link between people's firsthand experiences and broader social experiences such as culture, traditions, and social relationships. Psychosocial factors refer to the probability of encountering work-related psychosocial hazards and the potential severity of injury or health issues resulting from these hazards (ISO 4500:2021). Therefore, in this study, psychosocial factors refer to the factors that lead to the mental health of offshore O&G employees. There are several factors used in this study, which are 1) Job Stresses, 2) Job Demands, 3) Job Security, 4) Job Resources, 5) Social Support, and 6) Work Environment.

1.9.1.1 Job Stresses

Job stress is defined as a physiological and psychological condition in which an individual's mental and physical health is affected by excessive work-related demands (Monish, 2019). In the offshore O&G context, employees are exposed to prolonged working hours, hazardous environments, and operational pressures, which collectively intensify stress levels due to isolation and safety-critical responsibilities (Sinagabariang et al., 2024). Therefore, in this study, job stresses refer to the combined psychosocial pressures arising from job demands and job security that may affect the mental health of offshore O&G employees.

1.9.1.2 Job Demands

Job demands refer to aspects of a job that require sustained physical or psychological effort and are associated with certain physiological or psychological costs

(Bakker et al., 2023). In offshore O&G settings, these demands include extended shifts, high cognitive workload, and responsibilities linked to safety-critical operations under strict regulatory conditions (Gadalla et al., 2023). Therefore, in this study, job demands represent the physical and psychological pressures experienced by offshore employees, including quantitative, cognitive, and responsibility-related demands.

1.9.1.3 Job Security

Job security is defined as the perceived likelihood of maintaining continued employment or stability in one's current job (Gupta et al., 2024). In the offshore O&G industry, job security is often influenced by project-based contracts, fluctuating oil prices, and organisational restructuring, which may create uncertainty among employees (Sinagabariang et al., 2024). Therefore, in this study, job security refers to the extent to which offshore employees perceive stability and continuity in their employment.

1.9.1.4 Job Resources

Job resources refer to aspects of the job that help reduce job demands, support goal achievement, and stimulate personal growth and development (Bakker et al., 2014). In offshore O&G environments, resources such as supportive supervision and a positive work environment play a key role in helping employees cope with high job demands and isolation (Sinagabariang et al., 2024). Therefore, in this study, job resources refer to psychosocial supports, specifically social support and work environment, that mitigate stress and enhance employee well-being.

1.9.1.5 Social Support

Social support is defined as the perception that individuals are part of a network that provides emotional, informational, and practical assistance (Lee et al., 2024). In offshore O&G settings, social support is particularly significant due to the isolated work environment, where employees rely heavily on colleagues and supervisors for emotional and operational support (Chomać-Pierzecka, 2024). Therefore, in this study,

social support refers to the perceived assistance and care received by offshore employees from their workplace network.

1.9.1.6 Work Environment

The psychosocial work environment refers to the social interactions, organisational culture, and working conditions that influence employee behaviour and development (Saharso & Fadilah, 2024). In offshore O&G operations, the work environment is shaped by confined living conditions, hierarchical structures, and continuous operational demands (Chomać-Pierzecka, 2024). Therefore, in this study, the work environment refers to offshore working conditions influencing mental health, measured through degree of freedom, sense of community, and meaning of work.

1.9.1.7 Degree Of Freedom

Degree of freedom refers to the level of autonomy an individual has in making decisions and performing tasks without excessive constraints (Pankowski, 2023). In offshore O&G settings, autonomy is often limited by strict safety protocols and organisational procedures, although some flexibility exists in problem-solving and task execution (Gadalla et al., 2023). Therefore, in this study, degree of freedom refers to the level of autonomy offshore employees experience in managing tasks, prioritising work, and coordinating activities.

1.9.1.8 Sense Of Community

Sense of community is defined as the feeling of belonging, mutual support, and shared commitment among members of a group (McMillan & Chavis, 1986). In offshore O&G environments, employees often live and work together in isolated conditions, making interpersonal relationships and group cohesion essential for psychological well-being (Gadalla et al., 2023). Therefore, in this study, sense of community refers to the extent of belonging and mutual support experienced among offshore employees.

1.9.1.9 Meaning Of Work

Meaning of work refers to the extent to which individuals perceive their work as significant, purposeful, and aligned with their personal values (Chen, 2024). In offshore O&G settings, meaningful work is often associated with contributing to high-stakes operations, maintaining safety, and supporting national energy demands. Therefore, in this study, meaning of work refers to the perceived significance of offshore tasks in fostering commitment and psychological resilience.

1.9.1.10 Quantitative Demands

Quantitative demands refer to the amount and pace of work required within a given time frame (van Veldhoven et al., 2014). In offshore O&G environments, employees often work long shifts, typically up to 12 hours daily over extended rotations, with pressure to meet production and safety targets (D'Antoine et al., 2023). Therefore, in this study, quantitative demands refer to workload intensity and time pressure experienced by offshore employees.

1.9.1.11 Cognitive Demands

Cognitive demands refer to the mental effort required to process information, make decisions, and maintain attention during work tasks (Meyer & Hünefeldt, 2018). In offshore O&G operations, cognitive demands are high due to complex technical tasks, risk assessment requirements, and the need for constant vigilance in hazardous conditions (D'Antoine et al., 2023). Therefore, in this study, cognitive demands refer to the level of mental effort required from offshore employees during their work activities.

1.9.1.12 Demands For Responsibility

Demands for responsibility refer to the level of accountability associated with job roles and the consequences of task performance (Forbes, 2020). In offshore O&G settings, employees often hold critical responsibilities related to safety, equipment integrity, and operational continuity. Therefore, in this study, demands for

responsibility refer to the degree of accountability borne by offshore employees in executing their roles.

1.9.1.13 Social Relations

Social relations refer to the interactions and relationships among individuals within an organisation (Cash, 2024). In offshore O&G environments, close and continuous interaction among employees is common due to shared living and working spaces (Chomać-Pierzecka, 2024). Therefore, in this study, social relations refer to the quality of interpersonal interactions among offshore employees.

1.9.2 Job Satisfaction

Job satisfaction is defined as an individual's emotional response or overall evaluation of their job and its various aspects (Vlachos et al., 2024). In offshore O&G settings, job satisfaction is influenced by demanding work conditions, level of support, and perceived work environment quality (Duffy, 2026). Therefore, in this study, job satisfaction refers to the level of positive emotional evaluation offshore employees have towards their job, influenced by psychosocial factors.

1.9.3 Mental Health

Mental health is defined as a state of well-being in which individuals are able to cope with normal stresses, work productively, and contribute to society (WHO, 2014). In the offshore O&G industry, mental health is influenced by high-risk work environments, isolation, long working hours, and operational pressures (Alroomi & Mohamed, 2021). Therefore, in this study, mental health refers to the psychological well-being of offshore employees in managing work-related stress and maintaining functional performance.

1.9.4 Offshore O&G Employees

Offshore O&G employees are individuals involved in the exploration and extraction of oil and gas resources from offshore facilities (Brunel, 2020). In this

context, employees operate in remote and high-risk environments, often facing harsh weather, long rotations, and physically demanding tasks. Therefore, in this study, offshore O&G employees refer to workers engaged in offshore operations whose roles expose them to unique psychosocial and environmental challenges.

1.10 Organization Of Chapters

This chapter has delivered the background of the research topic, research problem, research objectives, research questions, the significance of the research, and research scope. Chapter 2 will discuss previous studies on psychosocial factors, mental health, and mediating variables: job satisfaction. Chapter 3 will describe the research framework and methodology. Chapter 4 will describe the findings of the study. Chapter 5 will be the discussion on the study area and the conclusion.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The O&G industry is one of the largest, most complex, and most influential sectors in the global economy (Saranji & Akindipe, 2024). For instance, the O&G industry remains a major source of national revenue in the United States, which continued to rank as the world's leading oil producer in 2021 despite the economic disruptions caused by the COVID-19 pandemic (Robert, 2022). The industry employs a vast and diverse workforce across multiple fields, many of which involve high-risk operations in terms of health, safety, and environmental exposure. Among the various occupational health concerns, psychosocial risks have emerged as a recurring and critical issue affecting employees in this sector (Schulte et al., 2024).

Considering these challenges, this chapter reviews relevant literature concerning the key variables examined in this study. The review aims to enhance understanding of the psychosocial factors influencing mental health among offshore O&G employees. It focuses on four major psychosocial dimensions: job demands, job security, social support, and work environment, and their collective and individual influence on employees' mental health and job satisfaction.

The chapter also presents the conceptual framework and hypotheses developed based on prior research. It begins with an overview of employees' mental health, followed by a discussion of workplace mental health policies and the psychosocial factors contributing to psychological strain. The mediating role of job satisfaction is then explored, leading to the presentation of the underpinning theoretical perspectives. The chapter concludes by summarizing the relationships among the variables and establishing the foundation for the subsequent empirical analysis.

2.2 Overview Of Employees' Mental Health

The O&G industry is a significant sector in Malaysia and worldwide. Therefore, there will be a discussion on the global scenario and Malaysia's scenario on the employees' mental health for better understanding.

2.2.1 Global Scenario

Employment enhances an individual's health and outlook on life in various ways. However, many people experience such excessive stress at work that surpasses potential advantages and even jeopardizes their health (Corporate Wellness Magazine, 2023). Workplace stress can lead to poor health as well as even injury. Employees have the right to work in a safe, healthy environment where physical and mental health and wellbeing are safeguarded and fostered. Workplace mental health has a significant influence on society and the workplace, with 12 billion working days lost each year as a result of depression and anxiety (WHO, 2022a). One in every four individuals is estimated to have significant mental problems (National Institute of Mental Health, 2022; WHO, 2022b). Poor mental health may lead to a negative impact on physical health and elevate the likelihood of workplace accidents.

The level of employees' mental well-being and absence of psychological pain in their daily activities is crucial for HRM (Maluegha et al., 2024; Zawadzki & Wojdylo, 2024). Mental health is expressed in various ways, including the pleasure of daily activities, positive energy, or overall well-being (Christiansen & Baum, 2024; Kumar et al., 2024). It also circulates into the workplace, where it helps employees thrive and feel present with their work (Rengganis et al., 2024; Ajayi et al., 2024). Such positive results can be crucial to organizational efficiency; thus, HR managers should strive to boost employees' overall mental health while ensuring that the organization does not create negative consequences. Workaholic behaviour and workplace violence, as well as stress caused by organisational consolidation, negatively impact employees' mental health (Balducci et al., 2022; Kamto et al., 2022).

In the workplace, risks to mental health, also known as psychosocial risks, can be related to job content and working hours, specific characteristics of the workplace, or career opportunities, among others (WHO, 2022c). The detrimental effects of negative psychosocial work environments on employees' mental well-being are well recognized, with implications for people, organizations, and society (Van Veen et al., 2023). During the last few years, workplace mental health has become a significant personal and professional concern (Total Safety, 2022). Mental health should be treated as seriously as physical health in the workplace. Employees are undoubtedly the most valuable asset to an organization. Organizations should take steps to reduce stress, burnout, and other mental health issues. WHO estimated that almost 50 % of the total

population is impacted by mental illness that affects their self-esteem, relationships with others, and capacity to work in regular daily existence (WHO, 2022b).

Employee burnout emerges, yet it is not a personal issue but a workplace one. The workforce is experiencing fatigue due to the constant connectivity of the work environment, the prevalence of remote work, and the blurring of boundaries between work and home (Brooks et al., 2022). According to Cigna Healthcare 360 Global Wellbeing Survey (2022), the top five factors contribute to mental health issues is the workplace which represents 84% of employees are experiencing stress, and burnout. The work environment can also influence employees' mental wellbeing. If employees are working in an office environment, superiors have direct control over this matter. Mental health issues, if not managed effectively, can lead to absenteeism, presenteeism (when the employees are physically present but not productive), and staff turnover. They can also lead to lower productivity, more errors and accidents, and morale.

Mental health is more than the absence of mental disorders. The concept occurs on a multifaceted spectrum, seen differently by individuals, with variable levels of challenge and discomfort, and possibly diverse social and therapeutic outcomes (WHO, 2022a). Presently, there is a significant global need for mental health assistance. Both local and global efforts are beginning to have a positive impact (Schwartz, 2024; Schwaller, 2022). It has been steadily increasing over the years. A new report recently warned that the COVID-19 pandemic has exacerbated the mental health burden faced by offshore employees (Behr, 2021). In their report, the International SOS Foundation and Affinity Health at Work stated the pandemic's effects on the remote rotational workforce across several industries, including offshore O&G, maritime, and mining (Nitari et al., 2024; Behr, 2021).

Throughout our lifetime, multiple personal, social, and structural determinants can act in concert to protect or undermine our mental health and alter our position on the mental health continuum (WHO, 2022b). There is a nature. Individual psychological and biological factors such as emotional capacity, substance use, and genetics can make people more vulnerable to mental health problems. Exposure to social, economic, geopolitical, and environmental disadvantages, such as poverty, violence, inequality, and environmental deprivation, also increases the risk of employees developing mental health (Kirkbride et al., 2024). Poor mental health can substantially impair an individual's capacity to cope with day-to-day life, affecting their relationships, employment, and general quality of life (Gombalova, 2023). Employers must recognize

the significance of employee mental health while providing employees with many services to encourage happier, healthier, and more productive workforces.

Poor employee mental health is one of the most significant challenges facing the working environment today, causing more than 70 million working days to be lost every year (Duckworth et al., 2024; Cooke & Wu, 2024). Data reveal that this is not only a moral issue but a huge business issue. The data clearly illustrates the issue of employee exhaustion; more than 80 % of professionals report fatigue at work, and 71 % evaluate their sleep quality as ‘average’ or lower (The Workplace Health Report, 2023). The impact of anxiety is also clear: 71 % of professionals struggle to relax, and more than 60 % struggle to sleep. These are typical anxiety symptoms as addressed by the National Health Service (NHS) in the UK.

Before COVID-19, remote rotational work had an impact on employees’ mental health. The COVID-19 pandemic has undoubtedly heightened these concerns (Kelloway et al., 2023). The pandemic highlighted a global shift already taking place, recognizing that mental health is something people experience in all aspects of their lives – both at home and at work (Conforti, 2023). The work’s dangerous, physical, and high-pressure nature is impacted by frequent twelve-hour shifts, night work, and extended periods away from home (Behr, 2021). For instance, employers in Singapore are being advised to continue supporting their employees as the government begins to relax workplace regulations on March 15, 2022 (Dexter, 2022). Despite the greater emphasis on mental health during the epidemic, as well as the new technology and solutions available to advance mental health solutions, we still need to work on the fundamentals.

According to the Ministry of Manpower (Singapore) (2022), employees’ mental wellbeing should be prioritized whether they work from home or on-site. This is because excellent mental wellbeing can also enhance the productivity (Kangasniemi et al., 2019). On the other hand, an unpleasant working environment might give rise to physical and mental health difficulties.

Laymen equate mental health problems with “madness” and regularly ignore that the issue is an ailment (Ruzita et al., 2021). An individual experiencing mental health issues is a common occurrence that impacts their cognitive processes, emotional state, and behavioural patterns, leading to a decline in their ability to perform effectively (Jokela, 2022). In this study, the researcher focused on mental health problems rather than mental illness because mental health problems are the root cause of mental illness.

Employees with severe mental health problems such as depression and anxiety usually are isolated and deviated from the labour market and thus require assistance in finding long-term employment (De Miquel et al., 2022). Most employees living with mental health problems are employed; however, many are at a higher risk of job loss and extremely permanent labour market prohibition than colleagues without these problems (Bjørnshagen, 2021). The economic situation has worsened, impacting unemployment and everyday living expenditures (Jokela, 2022).

Brouwers (2020) found that the gap in unemployment rates for employees in Europe with and without mental health problems outstandingly increased after the beginning of the financial downturn. However, employees who experience mental health issues have substantial repercussions not just for themselves and their families, but also for employers, coemployees, and the national economy (Wu et al., 2021). As well as having a massive impact on individual employees, poor mental health has profound consequences for employers, which include an expanded employee turnover rate, sickness absence due to incapacitating depression, burnout, exhaustion, diminished motivation, and lost productivity (Mental Health Foundation, 2021).

One of every five working-age United States (U.S) grown-ups lives with mental illness (National Institute of Mental Health, 2021). CNBC (2021) reported that almost 50 % of US employees have been experiencing mental health problems since the COVID-19 pandemic began, at a significant expense to their well-being and potentially to their employer's bottom line. In addition, there has been a critical leap in full-time US employees managing mental health problems in the last 12 months (The Standard, 2021). CNBC (2021) also stated that about 46 % of more than 1,400 employees surveyed at the end of last year reported that they are battling mental health problems, compared to 39 % a year earlier. More than half of the employees (55 %) said at least one mental health problem has impacted them since the pandemic began. However, many do not know where to turn for aid (CNBC, 2021).

Moreover, data from YouGov in December 2020 revealed that the probability of encountering mental health issues, such as anxiety and depression, differs depending on the nation of residency (Knutson et al., 2023). Organizations with staff stationed overseas must consider this. Australians are probably going to say they experience mental health problems, with 35 % expressing this. Individuals living in the US and Indonesia are more likely than not to report having a mental health problem, 34 % and 33 %, respectively. Individuals in Hong Kong, Denmark, and Singapore are the least

likely to report that they have mental health problems, each surveyed at 17 %.

The outcomes of mental health for organizations and the general economy are significant (Tubadji et al., 2023). Recent estimations proposed that the monetary effect of mental health is more than any other non-communicable disease (Tham et al., 2023). The employees' mental and emotional well-being significantly impacts the organization's finances due to decreased productivity, increased insurance costs, disability claims, absenteeism, presenteeism, and employee turnover (Centre for Disease Control (CDC), 2018). The expenses associated with hiring employees contribute to a fraction of the total economic burden linked to severe depressive illness (Greenberg et al., 2021). According to the The Lancet Global Health (2020a) depression and anxiety disorders cost the worldwide economy USD 1 trillion in loss of efficiency every year.

A comprehensive analysis determined that the economic impact of diagnosed anxiety disorder ranges from 0.25% to 0.78% of a nation's Gross Domestic Product (GDP) (Chodavadia et al., 2023). Although these data are concerning, they were collected before the onset of the COVID-19 epidemic, which is still significantly impacting mental health globally (Robinson et al., 2022). The epidemic has had both direct and indirect impacts on mental health. Consistently, meta-analyses of the effects of COVID-19 demonstrate an increase in the prevalence of mental health issues and the risk factors associated with them (Patel et al., 2022; Prati & Mancini, 2021; Sanomauro et al., 2021). The World Health Organisation (WHO) has estimated that COVID-19 has directly or indirectly contributed to an additional 53.2 million cases of depression and 76.2 million cases of anxiety, a 28% and 26% increase in prevalence, respectively, since the onset of the pandemic. Depression and anxiety may not appear to be issues that employers should be concerned about, but mental health can have a significant impact on an organization (Haar et al., 2024; McChesney & Foster, 2024).

Furthermore, it is not only severe or analyzed mental health; hundreds of billions of dollars in lost productivity every year are ascribed to untreated mental health (Chodavadia et al., 2023). Mental health stigma and prejudice are complex and widespread issues that affect people worldwide. An enduring challenge for our community is the persistent presence of stigma and shame surrounding mental health (Ramírez-Vielma et al., 2023). The situation leads to a reluctance to engage in conversations and, at times, a sense of apprehension when it comes to seeking assistance for mental health issues. It is crucial to recognize that mental health issues do not

discriminate and affect anyone regardless of their gender, culture, color, religion, or financial status (Dobson et al., 2021). The reality is, globally, depression is the primary source of disability, with WHO estimating that 300 million individuals globally live with depression, with many also showing side effects of anxiety (Fox et al., 2018).

Bulińska-Stangrecka and Bagieńska (2021) assert that as employee mental health benefits both employers and employees, it is smart for organisations to give it top priority. Providing adequate treatment for mental illness among employees leads to a drop in total medical expenditures, an enhancement in productivity, a reduction in absenteeism, and a decline in disability expenses (Hamouche, 2023). A recent survey emphasises that bosses are lack of comprehensive understanding of their employees' wellbeing (Tong, 2023). The result of the survey revealed that 25% of non-executive employees experience chronic stress, while a staggering 49% of employers face the same issue.

Employees without mental illnesses are more inclined to collaborate with their coemployees (Hennekam et al., 2021). Managers and supervisors often have difficulties in effectively expressing and comprehending the financial, legal, and social consequences related to the emotional well-being of their employees (Hogg et al., 2023). The current managerial approaches impose constraints on productivity, including insufficient knowledge, challenging managerial attitudes, disagreements among managers, employees, and the working environment, undisclosed mental health issues, and limited access to support (Centre for Disease Control, 2018).

Understanding the current situation of mental health in the working environment is fundamental for making a difference in addressing mental health problems and reducing the stigma (Ajayi et al., 2024). Though businesses of all kinds are beginning to understand the value of mental health, the majority of them find it uncomfortable to discuss and handle these matters at work (Mental Health Foundation, 2021). According to The People Space survey in 2021, 47 % of the employees agree that their organization's culture is open about mental health issues, and 63 % feel comfortable discussing them with their colleagues. Additionally, 66% of employees would not feel at ease discussing a problem related to their mental or emotional health with their employer (Cholteeva, 2022).

Workplace risks to mental health can be related to the nature of the work, the physical, social, or cultural characteristics of the workplace, or career advancement opportunities, among other factors (World Health Organization, 2022a). High job

demands, low job control, job insecurity, low relational and procedural justice, bullying, and low social support at work are all associated with an increased risk of developing mental health problems (World Health Organization, 2022b). The O&G industry is renowned for its unwavering dedication to safety, primarily on process safety, physical safety and behaviour, but neglecting mental issues. The prevalence of mental health issues is increasing (Feringga & Wentzel, 2019). It influences the process of making decisions, boosts the probability of human mistake, which in turn can lead to the loss of life and environmental devastation. If left unattended, it can lead to more severe of stress, anxiety, depression, trauma, or even suicide. The O&G industry is currently facing significant threats related to mental health (Essex et al., 2022).

2.2.2 Malaysian Scenario

“You cannot pour from an empty cup,” we have all heard. To be able to care for others, one must first take care of oneself. However, the global demand for care feels overwhelming right now. Given the challenges posed by COVID-19, the war in Ukraine, the intensifying climate problem, and the outbreak of monkeypox, it might be challenging to determine where to allocate the assistance (Human Resources Spring Magazine, 2022). In some cases, the effort may seem futile. The challenges can result in anxiety, burnout, and depression. Unsurprisingly, one of the United Nations (UN) SDGs, SDG 3, is dedicated to health and wellbeing. Mental health and the environment are integral, so it makes sense that taking care of the sphere would improve mental health. The UN SDGs serve as a blueprint for global action to create a decent, equitable, and sustainable world (Staglin, 2022). Mental health is a vital pillar of this because, as recognized by the WHO, “without mental health, there can be no health or sustainable development.” Mental health is an essential issue for public health nationwide. It contributes significantly to the majority of health problems in most countries. Malaysians are projected to face significant mental health challenges (Shanmugam et al., 2020).

An online survey of 13,000 people from China, Hong Kong, India, Indonesia, Japan, South Korea, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam were used to collect data for the report in November 2022 (Sofiah, 2023). At the same time, 82 % of Asian employees are at moderate to high risk of developing mental health problems. South Korea (44 %), Malaysia (42 %), and Japan (41 %) were

identified as having the highest proportion of employees with a high mental health risk profile. Malaysia's Mental Health Index Score is 59.6, indicating that employees' mental health is strained. The result illustrated that 45 % feel anxious, 44 % feel depressed, and 40 % feel isolated.

In the context of post-pandemic recovery, human resource practitioners regard mental health stability as an essential concern for Malaysia's workforce (New Straits Times, 2022a). According to WHO, the COVID-19 pandemic has increased the prevalence of anxiety and depression by 25 % worldwide, serving as a wake-up call for all countries to improve mental health services and support. The COVID-19 pandemic has created unprecedented health and social challenges (Wadoo, et al., 2020). Maintaining satisfactory employee performance (EP) levels during uncertain situations, such as the COVID-19 partial lockdown, is a significant concern for many organizations (Saleem et al., 2021). Psychosocial stressors, such as pandemics, can have severe repercussions for an individual's mental health and psychological functioning. These mental and psychological issues include stress, anxiety, mental confusion, social deprivation, and depression (Arslan et al., 2020).

On the other hand, Brooks and Greenberg (2022) agreed that quarantined experiences due to COVID-19 induce stress, fear, and frustration in individuals. Likewise, uncertainty prompted by COVID-19 is correlated with significant changes in daily routines, which can lead to an increase in stress, depression, and anxiety (Senbursa et al., 2024; Carrera-Arce et al., 2023; Arslan et al., 2020). WHO has been promoting the incorporation of mental health and psychosocial support into the COVID-19 response effort (Yirdraw et al., 2024). Mental health problems are outstanding medical problems that can adversely influence an individual's relationships with others, productivity, and physical health (Kropman et al., 2023). These incorporate a broad scope of problems, including anxiety disorders, depressive disorders, bipolar disorders, substance use disorders, and impulse control disorders. However, the majority of Malaysians do not perceive mental health issues as real health concerns (Raaj et al., 2021). They fail to recognize that enduring emotions of melancholy or continuous, unrelenting stress over several instances are indicative of mental health disorders.

As per National Health and Morbidity Survey (2019), 1 in every 3 Malaysians suffers from mental health problems. Despite the predominance, just 20 % of individuals with mental health problems seek the expert assistance they need, in part due to a lack of resources and stigma around mental health problems (Javed et al., 2021).

The greatest barrier to treatment, despite the lack of resources, is still the stigma associated with mental health issues (Ramírez-Vielma et al., 2023). Mental health problems are significantly more typical than recently thought, with more than 80 % of the populace encountering at least one diagnosable mental health problem in their lifetime (Schaefer et al., 2017).

There is a prevalent misconception that mental health issues are "undetectable ailments." However, the costs to an individual's health, loved ones, and society are far from undetectable (Amin et al., 2024). These costs can be narrowed down to direct costs (cost of care), indirect costs (loss of productivity), and non-monetary expenses (cost of emotional and social health). Within organizations, it is estimated that, on average, 29 % of employees between the ages of 15 and 65 will have suboptimal mental well-being, as reported by the National Health and Morbidity Survey in 2015. According to Chua (2020), in a medium-sized firm with 200 employees and an annual gross production of RM5 million, about 60 people may experience symptoms of melancholy, anxiety, or stress.

The subsequent organization cost estimated by employee absenteeism, presenteeism, and turnover approximated at RM 189,068 per annum (RM946 per employee) is parallel to 3.78 % of the organization's yearly gross result (Chua, 2020). Despite the high monetary expenses, less than 1 % of Malaysia's yearly health financial plan is distributed to mental health problems (Esa et al., 2024)). WHO (2020) gauges that effective treatment at a general cost of RM 4 for every individual per annum will expand fruitful workdays by 10 % by lessening both presenteeism and truancy. The financial advantages of early accessible and effective treatment are significant.

Referring to the above statement by NHMS (2015), it is evident that the expenses are tangible and essential to each organization. A national investigation announced that 53 % of working Malaysians experience high work-related stress, with one in five employees revealing indicators of anxiety and depression (Teo, 2019; The Edge, 2018). In addition, 68 % of managers acknowledge the impact of their employee's health and well-being on their organizations, and just 13 % are cognizant of any actions to promote well-being (Paterson et al., 2024).

Additionally, it also indicates that although many businesses may acknowledge the importance of physical and mental well-being, they have not taken the necessary steps to incorporate this mindset into official organizational strategies, policies, or procedures that address employees' mental health. The stigma and mental health

illiteracy prevalent in Malaysian workplaces, where employers frequently equate mental health-related issues with fraudulent activity and laziness, may contribute to this lack of organisational action (Roche et al., 2024). Regrettably, the assumption that employees are feigning illness and do not have a genuine health concern only serves to exacerbate the stigma associated with an already intricate situation.

In the same vein, studies have shown that employees in Malaysia are at substantial risk for developing medical conditions, including mental health issues, as a result of a rising sense of anxiety at work (Manaf et al., 2021). The prevalence of depression was reported to be 26.4% in South Asian countries, while anxiety was present in 25.8% of the total population (Naveed et al., 2020). From 10.7% in 1996 to 29.2% in 2015, Malaysia had a three-fold rise in the prevalence of mental health consequences among persons 16 years of age and older (Institute of Public Health, 2015). Stress, anxiety, and depression were the most frequently reported mental health conditions. These problems are crucial indications for mental health that, if not addressed, might have a detrimental impact on employees (Blomqvist et al., 2023, An et al., 2023).

Previously, the Department of Health and Human Services of the United States (2020) specifies that mental health incorporates our emotional, psychological, and social well-being, influencing how individuals think, feel, and act. Additionally, Mat et al. (2021) have pointed out that the Ministry of Health in Malaysia has defined mental health as "the ability of the individual, the group, and the environment to interact with one another to foster subjective prosperity and optimal functioning, and the utilisation of intellectual, affective, and social capabilities to achieve individual and collective objectives in a fair and equitable manner." Countries like Malaysia were recommended to facilitate extensive mental healthcare to oblige various groups of individuals with various degrees of psychological well-being requirements from the inside and outside the health organization (Midin et al., 2018). For Malaysia, the country's workforce covers both employees in the public and private sectors. According to the Labour Force Survey, the workforce increased 2.0 % to nearly 15.6 million people in 2019, compared to 15.3 million in 2018 (Department of Statistics, 2019).

Regardless of whether working in the private or public sector, a study showed that the workforce in Malaysia is in danger of health problems, including mental health problems that originated from rising stress levels at work (Nordin et al., 2022). Several elements that contributed to increased pressure in the work environment included

accountability, unwanted duties, and competing work and home obligations (Pezzella et al., 2022). Undoubtedly, job stress is a direct cause of mental health disorders such as depression or anxiety. Employees are a crucial component of an organization's growth, helping to boost production inside it. In 2022, as reported by Malaysia Today, almost 50% of employees perceive that the significance of their professions has diminished due to the impact of COVID-19. In the past two years, the COVID-19 pandemic has resulted in a significant amount of uncertainty for both organisations and their employees, prompting them to modify their work policies (Popa et al., 2022).

The pandemic indicates that more employees will actively pursue employment in an alternative industry or transition to a distinct work mode. The data was gathered from a sample of 1,016 Malaysian individuals aged 18 to 65 or older, representing a range of sectors. The majority of participants (80 %) were employed on a full-time basis (Malaysia Today, 2022). The COVID-19 pandemic had a greater impact on employees due to the numerous alterations in the workplace. This pandemic has unprecedentedly impacted (Duran et al., 2021; Carnevale et al., 2020; Bottan et al., 2020). In this respect, Tušl et al. (2021) posit that the pandemic has resulted in a decline in working conditions and an increased likelihood of mental health issues, including anxiety, tension, and depression, among employees. In crises such as this pandemic, the success of emergency measures to prevent the spread of coronavirus infection is significantly influenced by employees' comprehension. It is crucial to take into account the mental and physical well-being of employees (Fatma, 2022).

Policies on working environment and occupational stress should be reoriented to mitigate stress and its associated costs (Pasca, 2024). Simultaneously, an effective occupational stress policy should encourage employers to provide a healthy and safe working environment. In addition, the enactment ought to ensure the employees by establishing a protected and healthy work environment. The O&G industry is not aliened to risks involving health, safety, and environmental hazards, as evidenced by the Vessel's tank accident at Kota Belud in 2024, the Piper Alpha incident, the Deepwater Horizon oil spill in the Gulf of Mexico in April 2010, and the oil spill within Malacca Straits in 1992. All these incidents indicate that accidents occurring within the industry can have catastrophic effects on people, the environment, assets, and reputation (Stefana et al., 2022).

Mental health conditions in the work environment are assessed to cost the Malaysian economy RM144.46 billion in 2018. Despite endeavours by the Malaysian

government to address the ascend of mental health conditions, for example, expanding the number of lay advocates, mental health burnt through RM344.82 million or 1 % of the health budget (The Lancet, 2020b). Still, spending on mental health remains below the average in upper-middle-income countries (Vigo et al., 2019). For example, PETRONAS has partnered with the Malaysia Psychiatric Association (MPA) to launch the MIND-A-CARE First Aid for Mental Health Training Program through a Memorandum of Understanding signed by both parties in November 2021 (Petronas, 2022). The MPA will work with PETRONAS to provide mental health first aid training as part of the partnership. PETRONAS Head of Group Health, Safety and Environment, Yong Sai Chung, said: “The last two years have been particularly tough for many of the employees. Empowering employees to recognize the signs and symptoms of mental health distress and be first responders who can help those in need is more important than ever. Our employees are our greatest asset, and we are responsible for ensuring they are physically and mentally safe and healthy.” MIND-A-CARE supplements PETRONAS’ ongoing Generative HSSE Culture efforts, the Malaysian Government’s Mental Health Strategic Plan 2019-2025, and the United Nations Global Sustainable Development Goal 3 – Good Health and Wellbeing.

Apart from Petronas, in 2023, Shell signed the Global Business Collaboration for Better Workplace Mental Health pledge to facilitate progress in workplace mental health by collaborating with a community of committed multinational organizations, according to the CEO of Shell, Wael Sawan. “By signing, it demonstrated that we have committed to making mental health a visible priority in every region where we operate. The pledge is consistent with our current programs, tools, and commitments. Shell has taken proactive initiatives to improve our mental health by providing tools and resources such as ‘I am not OK’ and ‘Care for Self,’ which promote awareness and empower our employees to prioritize their mental health”, he added. Recently, Shell has also launched a new global campaign aimed at creating a culture that promotes excellent mental health, which allows the management to assess the effectiveness of a set of actions aimed at promoting and protecting employee’s mental health and providing access to mental health support services (Shell Global, 2023).

In addition to working environments, job insecurity, and the pandemic, they have also affected employees’ mental health (Canadian Occupational Safety, 2022). It is said that loneliness and isolation among O&G employees are the primary concerns. Lonely employees in the O&G industry face a plethora of challenges. Employees in

remote or offshore locations are at risk of various accidents, including slips, falls, chemical exposure, and even explosions (Alroomi et al., 2021). Teleworking, or remote work, has rapidly expanded and has become a common work paradigm as a result of the advancements in communication technology (Countouris & De Stefano, 2023). It is anticipated that 48% of knowledge employees worldwide will operate in either an entirely remote or hybrid environment (i.e., work in the office at least one day per week). Additionally, virtual workspaces will improve the ability to recruit and unite employees, regardless of their geographical location.

Furthermore, the O&G employment landscape has been volatile for several years due to a market downturn, a push toward more sustainable energy, and, most recently, COVID-19 (Chuang et al., 2024). Moreover, the timing of COVID-19 has not helped, exacerbating feelings of isolation and job insecurity. There are additional barriers to helping people acknowledge signs that individuals are struggling in the O&G sector, as well as other male-dominated industries where mental health may be less discussed (Urbanaviciute et al., 2024). Being able to identify symptoms such as irritability and anger, withdrawal, or difficulty performing a task can help by shifting the conversations away from emotional awareness and toward tangible signs (Wibawa & Novani, 2024).

The COVID-19 pandemic has caused multiple psychological problems. In particular, isolation and loneliness due to multiple lockdowns and quarantines have become problematic (Sivaraman et al., 2024). The O&G industry employee's probability of melancholy and universal loneliness is a neglected problem. O&G employees are required to spend prolonged periods on remote oil rigs, sometimes with minimal or no communication with their families, due to the intrinsic nature of their employment (Borovnik, 2024). This phenomenon experienced significant growth during the pandemic, as implementing lockdown measures resulted in O&G employees being stuck on offshore rigs indefinitely or limited to returning only to hotels and land-based accommodations. They could not return to their home state because of stringent interstate testing and quarantine regulations. Merely one aspect alone has substantial weight and has the potential to result in heightened psychopathology. Therefore, depression and anxiety will become major occupational health problems as they result in decreased productivity, increased absenteeism, and the opposite phenomenon of presenteeism (Shoesmith & Pang, 2016).

Previous literature on the pre-pandemic of O&G employees is also sparse, and few high-quality epidemiological data are available. One landmark study by Berthelsen et al. (2015) involved 1471 subjects, including offshore and onshore employees. Among offshore employees, the prevalence of potential anxiety was 10.2 % and 1.2 %, whereas, for onshore employees, the prevalence of potential anxiety and anxiety was 11.55 % and 2.4 % (Berthelsen et al., 2015). However, there was no evidence beyond prevalence among the O&G employee population, but that also looks at how non-psychological and psychological variables correlate with fear of COVID-19.

Malaysia has tried tackling mental health issues (MoH, 2021). Since the establishment of facilities for mentally ill individuals in the 1950s, the country has moved away from custodial treatment in mental institutions and towards treatment in regular hospitals. Later, progress was made in implementing mental health services in primary care as part of the Community Mental Health program. The Mental Health Policy was developed in 1998, and the Mental Health Act was passed in 2001. In 2011, the MoH established a multi-agency Mental Health Promotion Advisory Council. The mental health burden was discussed at a high-level inter-ministerial meeting hosted by the Prime Minister's Department and led by the Prime Minister's Deputy. Addressing issues associated with mental health is beyond the purview of the MoH, necessitating vital networking as well as multisectoral collaborations and strategies.

An imperative requirement is developing a comprehensive national policy, strategy, and action plan covering all sectors and government levels. In order to achieve a complete and ongoing mental health care system, it is necessary to effectively implement the provisions of several instruments such as laws, policies, frameworks, and councils by developing coherent and practical plans. Thus, the National Mental Health Strategic Plan was formulated for this purpose (Azuar, 2021). This Strategic Plan will guide all stakeholders in providing mental health care and services over the next five years, from 2020 to 2025. The contents of this plan have been organized in an easy-to-read format. They will serve as a blueprint document to guide government agencies in promoting and sustaining good mental health in collaboration with community partners.

In conclusion, strategies aimed at improving mental health in Malaysian organizations should consider both the economic and cultural contexts that contribute to poor mental health among Malaysian employees (Tee, 2020). Unless Malaysian organizations and their leaders recognize and actively work to destigmatize work-

related mental health issues, the stigma against work-related mental health issues will persist. NIOSH President Tan Sri Lee Lam Thye believes that efforts to address mental health issues among Malaysians should have been clearly outlined in the 2023 Budget announcement (New Straits Times, 2023a).

2.3 O&G Industry

Malaysia is an essential O&G hub, significantly expanding its market since Royal Dutch Shell (Shell) discovered and drilled the country's first oil well on Canada Hill in Miri, Sarawak, in 1910. The petroleum and petrochemicals industry is one of the leading industries in Malaysia. Thus, in this section, there will be a deliberation on the overview of the O&G industry in Malaysia and the mental health issues in the O&G industry.

2.3.1 Overview Of The O&G Industry in Malaysia

Since the 1980s, Malaysia's Oil and Gas, Services, and Equipment (OGSE) industry has played an essential role in the country's O&G sector. In the past few years, the O&G sector has shifted its focus to providing a more significant %age of sustainable energy while simultaneously balancing cost, access, and job growth (Economic Planning Unit, 2021). Malaysia has made significant progress in this respect. Malaysia plans to continue incorporating more renewables into the energy environment in compliance with the worldwide Paris Agreement, as well as Malaysia's Shared Prosperity Vision 2030 and the 12th Malaysia Plan.

The origins of the O&G industry as a critical component of politics, society, and innovation can be traced back to the early twentieth century (Grasso, 2019). The O&G industry incorporates the worldwide processes of exploration, extraction, refining, transporting (regularly by oil giant haulers and pipelines), and showcasing O&G products. The most extensive volume products of the industry are fuel oil and gasoline (petroleum). Oil is also the raw material for many chemical products, including pharmaceuticals, solvents, pesticides, fertilizers, and plastics. Through the efforts of the government and the state-owned oil company (PETRONAS), Malaysia has invested in investors and significant organizations such as Shell, ExxonMobil, Dow Chemical, ConocoPhillips, Kaneka, Polyplastics, Toray, Mitsui & Co., BASF, Idemitsu and Titan.

The industry is usually divided into three significant chains: upstream, midstream, and downstream (Al-Janabi, 2020).

The upstream oil industry is the exploration and production (E&P) sector. In addition, the upstream industry incorporates exploring potential underground or submerged unrefined petroleum and flammable gas fields, drilling exploratory wells, and subsequently drilling and operating the wells that recuperate and bring the raw petroleum or potentially crude gaseous petrol to the surface (Shqairat & Sundarakani, 2018). The midstream industry includes the transportation (by pipeline, rail, barge, oil big hauler or truck), stockpiling, and wholesale marketing of crude or refined petroleum-based commodities. The downstream industry touches end users through commodities such as gas or petroleum, lamp oil, stream oil, diesel oil, heating oil, fuel oils, lubricants, waxes, asphalt, natural gas, and liquefied petroleum gas (LPG), as well as many other petrochemicals. Midstream operations are frequently included in the downstream classification and considered part of the downstream industry (Inkpen & Ramaswamy, 2017). O&G is essential to many countries, including Malaysia, as it stabilizes the economy (Al-Janabi, 2020).

As of 2020, Malaysia is Southeast Asia's second-largest O&G producer, whereas Indonesia remains at the top and the world's fifth-largest exporter of liquefied natural gas (LNG) (BP Statistical Review, 2020). It is ideally placed on key seaborne energy trade routes (Rehman & Ali, 2021). Malaysia's energy industry is a significant source of economic growth. Malaysia's primary energy supply is expected to grow at 1.7 % per year, reaching 103 Mtoe in 2035 (Asian Pacific Economic Corporation Energy Demand and Supply Report, 2019). The demand for gas in the electricity generation sector and oil in the transportation sector drives the growth. Malaysia's flourishing O&G industry provides a definite advantage and robust market opportunities for businesses, as it is strategically located at the intersection of east-west shipping lanes and has established economic relations with regional neighbours (Malaysian Investment Development Authority, 2021). It remains a significant sector of Malaysia's economy, accounting for 20 % of the annual GDP. The O&G sectors have long been essential contributors to Malaysia's GDP and energy security, but this is likely to change as domestic demand rises and reserves mature.

Malaysia will meet this challenge by revitalizing existing fields and intensifying exploration activities while enhancing downstream growth and capitalizing on its strategic location to become a regional hub for oilfield services. As a driver of economic

growth, the government has concentrated on boosting hydrocarbon output through upstream investment and exploration. However, implementing this approach has been difficult due to diminishing production due to mature fields and a lack of developed new fields (Rehman & Ali, 2021). According to the O&G Journal (2020), Malaysia had proved oil reserves of 3.6 billion barrels as of January 2020, the fourth-largest reserves in the Asia Pacific after China, India, and Vietnam. Malaysia gets almost all of its oil from offshore fields. The O&G services subsector, including upstream, midstream, and downstream, has approved nine projects totalling RM 312.4 million, resulting in 264 job openings (Malaysia Industrial Development Authority, 2021).

This study focuses on the upstream business sector, where most employees reside at offshore facilities. The offshore operations are depicted in Figure 2.1 regarding the site management structure.

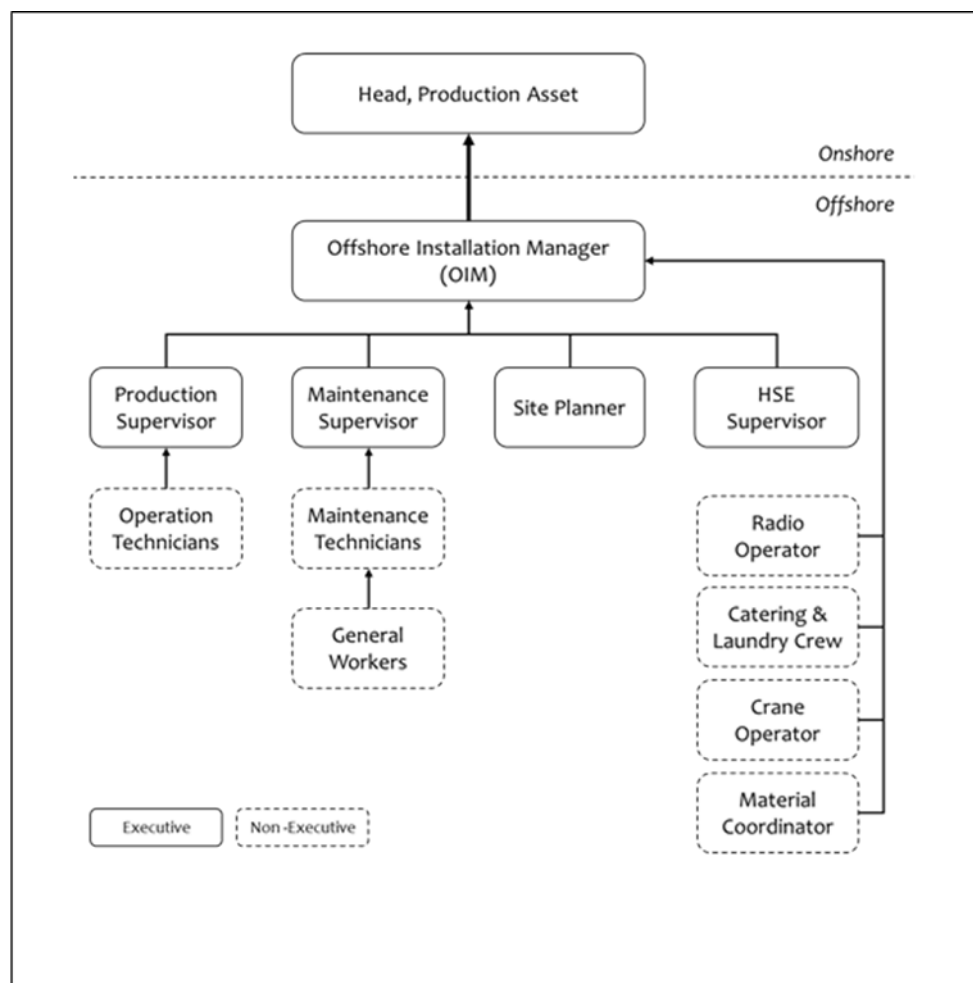


Figure 2. 1 Offshore Site Management Structure

2.3.2 O&G Industry And Mental Health Issues

A remote rotational employee's career and lifestyle have unique characteristics, whether onshore or offshore (International SOS Foundation, 2021). Hence, an offshore platform's work environment is unique regardless of whether they are first-class degree engineers or school dropout cleaners who live and work in the same restricted, confined area surrounded by nothing but the unpredictable ocean (Gadalla et al., 2024). The O&G industry is a demanding one, with essential ecological and psychological challenges that contribute to employees' mental health at risk. Furthermore, different approaches to emotional triggers in the work environment may increase the risk to mental health (Society of Petroleum Engineers, 2023).

Employees in safety-critical organizations (SCOs) such as the O&G industry work in dangerous environments that provide numerous technological, environmental, and human problems (Verbitskaya & Alashoor, 2022). These work environments have a significant risk of stress, accidents, injuries, and other adverse health outcomes. Given these hazards and risks, SCOs have invested heavily in improving and reducing accidents. For example, mental health issues. It is a global challenge, affecting an estimated 46.6 million people in the U.S. and recognized as the leading cause of disability worldwide (National Institute of Mental Health, 2022). Overall, common mental health issues affect more than 300 million people, the majority (70 %) of whom are employed (Ritchie & Roser, 2018). Epidemiological studies on mental health issues have been collected from various developed countries, and on their prevalence in society, 1 in 5 people in employment suffer from mental health problems (Law et al., 2022). It has been shown to increase to one to three individuals during their lifetime (Attridge, 2019).

According to O.C. Tanner's 2023 Global Culture Report, 50 % of O&G employees find their jobs demanding, with 39 % feeling emotionally upset. Following the survey, there are several reasons why O&G employees suffer both physically and emotionally, with a poor balance between their working and personal lives more likely to result in fatigue and possible burnout (Andreas, 2023). Employees who fail to achieve the proper balance are 89 % more likely to experience burnout. An organizational culture that does not prioritize employee appreciation may increase the likelihood of poor mental health since employees who feel appreciated for their efforts and results are 80 % less likely to suffer burnout (Global Culture Report, 2023). According to the

most recent O.C. Tanner survey, 56 % of O&G employees said their immediate superiors appear worried, and one-fifth (19 %) feel like outsiders at work. Nearly a third (29 %) do not perceive their workplace as a community, although most O&G employees (72 %) desire a strong sense of belonging at work.

A healthy workforce is essential for organizational productivity and long-term viability (Kanwal et al., 2022). When considering employee health, both physical and mental well-being must be considered (D'Antoine et al., 2023). Many jobs have an understated concern about mental health, particularly in high-risk and demanding work environments like offshore rigs (An, 2022). Physical injury and illness should always take precedence; however, employers cannot afford to ignore their employees' psychological well-being. All offshore site operators should consider the care and professional resources available to their employees to maintain their overall mental health. In response to the increasing psychosocial factors for O&G offshore employees, the NOPSEMA issued a guidance notice in 2021 (D'Antoine et al., 2023).

Mental health is the cornerstone of individual physical health and well-being. It teaches how to deal with ordinary stressors, manage life changes, and recover from failures (Gombalova, 2023). Every employee is now somewhere along the mental health spectrum, from surviving to thriving. It is natural for an employee's position on this continuum to shift. Thus, the psychological strain of offshore work is well known. However, it is rarely acknowledged. Talking about mental and emotional stress is still taboo for many in the industry (UTM Consultant, 2021). The offshore industry's mental health challenges are a systemic issue that stems from the way offshore jobs are structured. The vast majority of offshore employees are hired on a contract basis. Market fluctuations and boom and bust cycles have instilled in many employees, punishing a mindset in which having and being at work takes precedence over wellbeing (UTM Consultant, 2021).

COVID-19 has caused widespread destruction in recent years, affecting practically all industries and working groups directly and indirectly (Baldwin et al., 2020; Hite & McDonald, 2020). Fear of viral infection, economic and financial difficulties, and lifestyle changes are among the few repercussions of the pandemic, each of which acts as a possible stressor influencing the population's mental health (Baldwin et al., 2020; Hite et al., 2020; Zandifar et al., 2020a). The effects of the COVID-19 virus on an individual's physical health have been noticeable. However, the pandemic effects on an individual's mental health are significant as well. Amidst the

efforts of millions of Malaysians to reduce the daily count of COVID-19 cases by enduring a month-long lockdown, there exists a separate group of individuals who are also isolated from social interaction, situated far out at sea (Zulkifli, 2021). Offshore employees are no exception (Whitfield, 2022). The psychological strain on the offshore employees was a grave concern, mainly due to their prolonged separation from their families (Zulkifli, 2021).

The O&G industry is essential to the economy and one of the most important sources of employment in oil-producing countries (Hashim & Mohammad, 2024). However, the offshore O&G industry is impacted by pressures both inside and outside the workplace), and it places a heavy burden on the employees' shoulders and negatively impacts their mental and physical health (Pusala, 2022). Previous research has found that offshore employees have significant work-related stress (Gadalla et al., 2024; Mette et al., 2018). In the global O&G industry, the rate of work-related accidents is increasing, with a substantial contribution by human error. This error is predominantly caused by unsafe behaviour in a hazardous and isolated work environment that involves a unique combination of psychological and social risks (Gadalla et al., 2024).

The O&G industry experienced a downturn as the COVID-19 pandemics began, owing mainly to the global economic recession and a decrease in global demand for oil (Razavi et al., 2022). The COVID-19 pandemic has had a significant impact on global psychological health. However, very little is known about the relationship between fear of COVID-19 and psychological health and various coping styles, particularly among O&G employees (Kulip et al., 2022). Due to multiple lockdowns and quarantines, the COVID-19 pandemics has caused a diverse range of psychological issues, notably isolation and loneliness (Muhamad et al., 2021). Loneliness and potential depression in O&G employees have been one of the unseen epidemics.

Due to the nature of their jobs, O&G employees should spend extended periods on isolated oil rigs without contact with their families. During the pandemic, lockdowns meant that O&G employees were either marooned on their rigs indefinitely or were only allowed to return to hotels or quarters on shore (Kulip et al., 2022). Consequently, depression and anxiety would constitute a substantial occupational health issue, as they would result in diminished productivity. Additionally, it will result in increased rates of absenteeism and the opposite phenomena known as presenteeism. Therefore, there is a potential danger of concentration and attention issues among employees who operate

complex and challenging apparatus (Gunnarsson et al., 2023). Increased awareness of issues with occupational performance is therefore crucial, as involvement and engagement in daily activities are relevant to employee's mental health and quality of life.

For the O&G business to flourish, providing comprehensive care for employees internally and outside is imperative. It is important to understand that if staff members struggle with mental health issues, the entire company might fail, even though talks on staying hydrated and adjusting to hot temperatures could be prolonged (Pollock et al., 2020). Everyone, from field employees to offshore to the CEOs, has a demanding workload. According to an Oxford Academy survey (2021), offshore employees in the O&G industry appear to experience more depression and anxiety than the general population. This occupation includes a diverse range of psychosocial stressors, such as isolation, high responsibility, intense pressure due to their extensive workload, and the fatigue and lack of sleep that come with working long hours (Aria et al., 2024). Employees' mental health is influenced not only by their working conditions but also by the relationships that surround them.

In addition, the Mental Health Lead at AXA, Eugene Farrell, says, "The O&G industry may have failed to address mental health issues among the employees in the past partially because it is a very male-dominated industry, and men tend to find it more difficult to speak about their feelings and emotions." Women comprise approximately one-fifth of the total O&G workforce (BW People, 2024). Employees of all genders and identities in the O&G industry are battling stress to avoid mistakes that can result in death or dangerous environmental consequences. According to Deloitte (2021), stress has returned to pre-pandemic levels, with more than 41 % of millennials and 46 % of Gen Z reporting feeling stressed all the time.

Carolyn, a Senior Account Manager in the U.S. O&G company, says, "There is a growing recognition among employers that treating mental health issues makes good business sense, but the O&G sector may have to catch up." She added that the safety of employees has been a top priority from day one, but there is still not enough in the O&G industry to address mental health. The topic of mental health is often seen as taboo, kept confidential, and even considered a sign of vulnerability according to certain viewpoints (BW People, 2024). Research shows that employees want more attention to their mental health at work (Bartram et al., 2024; Packlen et al., 2024). In a 2022 survey by American Psychological Association, 86 % said they would appreciate and seek mental

health support from the organization (American Psychological Association, 2024). Although over 200 million workdays are lost due to mental health conditions yearly, mental health remains taboo. About 60 % of employees have never spoken to anyone (Greenwood, 2021).

Optimal mental health is a vital element of holistic well-being and bodily health. Offshore employees, in particular, must preserve their physical and mental well-being to fulfil their occupation's rigorous and often perilous requirements (UTM Consultant, 2021). Psychological wellness is far less supported compared to physical safety. Nevertheless, improvement is on the horizon, as a few firms have already initiated the dialogue around mental health. For these initiatives to get traction and achieve widespread transformation across the sector, more organizations must cultivate a conducive climate that fosters open communication among employees.

Many common mental health issues are influenced by a variety of social, physical, and economic environments that people encounter at various stages of their lives (Kirkbride et al., 2024). Common mental health issues among the employed population are increasing business costs, prompting a significant public health debate. Policymakers and health professionals increasingly request a better understanding of the relationship between modern work and mental health (Harvey et al., 2017).

Multiple investigations have been carried out to examine the psychological impacts of the COVID-19 pandemic on different groups, such as the general public, healthcare employees, and seafarers (Baygi et al., 2021; Khonsari et al., 2021; Zandifar et al., 2020b). Nevertheless, offshore O&G industry personnel have not received much focus or consideration. Moreover, extensive research has demonstrated that the recent COVID-19 outbreak has profoundly affected the mental well-being of the public and individuals in many professions (Zandifar et al., 2020a).

Consequently, those working in the O&G industry, who are already subjected to a range of stress-inducing factors, may be especially susceptible to the adverse effects of the COVID-19 epidemic. Nevertheless, there is a lack of published research investigating these personnel's mental well-being during the COVID-19 pandemic (Baygi et al., 2022).

2.4 An Overview of Malaysian Labour Laws and Policies in Safeguarding Employees' Mental Health

Recognising occupational stress as an actionable claim of negligence, the common law has kept pace with the hazards of mental health in the workplace. Regrettably, this argument has not yet gained recognition in Malaysia (Ramalingam, 2024). An excellent working environment should prioritize the well-being and physical health of employees. An ideal working environment enables all employees to complete their tasks and obligations with maximum effectiveness and efficiency. Irrespective of whether one is an employer or an employee, individuals need to strive for professionalism and enhance productivity in their jobs. Subsequently, the individual can demonstrate themselves as beneficial to the organization.

In addition, except during the pandemic of COVID-19 where telecommuting is the new norm, more working hours are spent in a working environment than at home, and communication with colleagues is more than communication with relatives, the work environment ought to promote mental and conduct behavioural health and prevent illness. Indeed, law and policy play a vital role in battling the issues concerning mental health and well-being in the workplace (Mallow, 2016).

According to Tan Sri Lee Lam Thye, the Alliance for Safe Communities chairman, mental health guidelines are vital for employees and employers to know their rights (New Straits Times, 2022b). The guidelines recently announced by the Human Resource Ministry will help employees understand their rights when dealing with mental health issues. At the same time, these guidelines will help employers understand their obligations and what they should do in the workplace. Indeed, employment rights should be spelled out as explicit guidance, a reminder to employers, and assurance to employees (New Straits Times, 2021).

In this section, the researcher reviewed five policies for safeguarding employees' mental health: the Employees Provident Fund (EPF), Occupational Safety and Health (OSHA) 1974, the Employment Act 1955, the Mental Health Act 2001, and the National Mental Health Policy. Based on the abovementioned policies, they all state only on the surface that they cover mental health conditions. For example, in EPF provision, only certain mental health conditions will be covered, such as bipolar mood, major depression, and schizophrenia. Meanwhile, in the OSHA 1974, a specific provision should be included in the amendments to the OSHA 1974 to address mental

health issues, which should provide support for employees with mental health problems. In conclusion, workplace mental health issues should no longer be ignored because they can cost employers and the country billions of ringgits if not appropriately addressed.

2.4.1 Employees Provident Fund (EPF)

The Employees Provident Fund (EPF) is Malaysia's main pension institution, operating under the Employees Provident Fund Act 1991 (Act 452) to safeguard members' retirement savings and support long-term financial security. In recent years, EPF has begun to incorporate sustainability considerations into its investment approach, including greater attention to labour practices and employee well-being. Within this context, employee well-being is viewed as a factor that can influence organisational performance, business reputation, and long-term returns (EPF, 2021).

This perspective is consistent with broader global developments, where institutional investors are placing more emphasis on Environmental, Social, and Governance (ESG) considerations. Reports from organisations such as the International Labour Organization (ILO) and the United Nations Children's Fund have similarly highlighted the importance of employee well-being in shaping fair and sustainable labour systems. However, while this framing strengthens the economic case for employee well-being, it remains largely driven by investment considerations. As a result, employee well-being may be approached more as a performance-related indicator rather than as a core occupational safety and health (OSH) responsibility at the workplace level.

The ILO defines employee well-being as covering all aspects of working life, including the safety of the physical environment, employees' experiences at work, and the overall organisational climate (ILO, 2022). This definition clearly recognises both physical and psychosocial elements. Despite this, there are still challenges in translating such a broad definition into practical workplace measures. In Malaysia, the Occupational Safety and Health Act 1994 remain the main legal framework governing workplace safety. While it outlines general responsibilities for employers to protect workers' safety and health, its focus is still largely on physical hazards. Psychosocial risks and mental health are not addressed in a detailed or systematic manner, which creates a gap between how well-being is defined and how it is managed in practice.

To operationalise its position, EPF outlines six sub-issues under employee well-being: diversity and inclusion, employee health and safety, training and education, forced and child labour, fair wages and benefits, and freedom of association. These categories are broad and generally consistent with international labour standards. However, they are presented at a conceptual level and do not provide clear guidance on how organisations should implement them within existing OSH systems. This limitation becomes more evident in industries with higher risk exposure, such as offshore oil and gas, where working conditions are more complex and demanding.

Among these sub-issues, employee health and safety is most closely linked to OSH. EPF acknowledges the importance of maintaining conditions that support employees' physical, mental, and emotional well-being. The inclusion of mental health is a positive development. However, the way mental health is framed tends to focus on clinically diagnosed conditions, such as bipolar disorder, major depression, and schizophrenia. This approach does not fully reflect the spectrum of mental illness and range of psychosocial risks that workers face in everyday work situations, including ongoing stress, fatigue, isolation, high workload, and concerns about job security that could worsen to become a mental diagnosis. These issues are particularly relevant in offshore environments, where employees often work long shifts in isolated settings and are separated from their usual support systems.

From an OSH perspective, managing mental health should not be limited to clinical conditions. It should also include preventive measures that address work-related stressors at the organisational level. International standards such as ISO 45003 emphasise identifying and managing psychosocial risks as part of a broader safety management system. In this respect, EPF's framework does not clearly show how such risk-based approaches can be applied in practice. Without this, its usefulness as a guide for organisations remains limited.

Overall, EPF's approach to employee well-being reflects current global attention to ESG and labour-related issues. However, its connection to established OSH practices is still not well developed. The framework provides useful direction at a general level, but it does not fully address how organisations should manage psychosocial risks in complex work settings. This gap is particularly important in the offshore oil and gas industry, where work conditions are closely linked to employees' mental health.

In this context, there is a need to move beyond general policy descriptions and examine how specific workplace factors influence mental health outcomes. This supports the use of structured frameworks, such as the Job Demands–Resources (JD-R) model, which enables a more detailed analysis of how job demands and job resources interact to affect employee well-being. By focusing on these mechanisms, the present study addresses the gap between high-level well-being frameworks and actual workplace conditions.

2.4.2 Occupational Safety and Health (OSHA) 1994

In Malaysia, the Occupational Safety and Health Act 1994 (OSHA 1994) serve as the main legal framework governing workplace safety and health. The Act was influenced by the Robens Report and the Health and Safety at Work Act 1974, which promotes a self-regulatory approach rather than a highly prescriptive system. This approach places responsibility on both employers and employees to manage workplace risks. As such, OSHA 1994 emphasises shared accountability, where employers are required to provide a safe working environment, while employees are expected to cooperate in maintaining safety standards (Leman & Radzaz, 2020; DOSH, 2013).

The principle of self-regulation is central to OSHA 1994. Organisations are expected to comply not only with the Act itself, but also with supporting regulations, codes of practice, and industry guidelines. In theory, this allows flexibility and encourages organisations to adopt safety practices suited to their operational context. However, in practice, such flexibility may also result in inconsistent implementation, particularly in areas that are less clearly defined, such as psychosocial risks and mental health. The reliance on organisational discretion raises concerns about whether employers will prioritise mental health to the same extent as physical safety, especially in high-risk and productivity-driven industries.

OSHA 1994 was enacted to ensure the safety, health, and welfare of employees across a wide range of sectors, including manufacturing, construction, and offshore-related industries. Its objectives include preventing workplace hazards, promoting safe working environments, and addressing employees' overall well-being, which extends beyond the absence of injury to include physical, mental, and social aspects. While this appears comprehensive at the conceptual level, the operational focus of OSHA 1994 remains largely centred on physical safety. For instance, provisions commonly

emphasise hazard control, provision of safety equipment, and compliance with technical standards.

Although psychological well-being is implicitly acknowledged, it is not explicitly operationalised within the Act. There are no clear provisions requiring employers to assess or manage work-related stress, anxiety, or other psychosocial risks. This limitation becomes more apparent when compared with emerging international standards such as ISO 45003, which explicitly require organisations to identify, assess, and control psychosocial hazards as part of their safety management systems. The absence of such explicit requirements in OSHA 1994 suggests that mental health is still treated as a secondary concern within the regulatory framework.

The Act outlines several key responsibilities, particularly under Sections 15, 16, and 19, which establish the general duty of employers to ensure, so far as is practicable, the safety, health, and welfare of employees. The concept of “practicable” introduces a degree of flexibility, as it requires consideration of factors such as the severity of hazards, existing knowledge, available control measures, and associated costs. While this allows organisations to make context-specific decisions, it may also lead to uneven standards of protection. In particular, cost considerations may influence the extent to which employers invest in preventive measures for psychosocial risks, which are often less visible and harder to quantify compared to physical hazards.

Further, OSHA 1994 encourages the development of work environments that meet employees’ physiological and psychological needs, including aspects such as autonomy, relatedness, and competence. These elements are consistent with established psychological theories of motivation and well-being. However, within the Act, they are presented more as guiding principles rather than enforceable requirements. As a result, their implementation depends heavily on organisational commitment, which may vary across industries and companies. In sectors such as offshore oil and gas, where operational demands are high and working conditions are challenging, such discretionary approaches may not be sufficient to address underlying psychosocial risks.

The limitations of OSHA 1994 in addressing mental health are further highlighted by the absence of explicit provisions related to work stress, depression, or anxiety arising from job conditions. While employers are required to ensure workplaces are free from hazards, this obligation is generally interpreted in terms of physical risks. Mental health issues are often managed indirectly, for example through leave provisions

or general welfare policies, rather than through structured risk management approaches. This raises questions about whether existing mechanisms are adequate for addressing the increasing prevalence of work-related mental health concerns.

The introduction of the Occupational Safety and Health (Amendment) Act 2022, which came into force in June 2024, represents an effort to strengthen workplace safety governance. The amendments expand employer responsibilities, including the need to conduct risk assessments, establish emergency procedures, and appoint safety and health coordinators. While these developments improve the overall structure of safety management, there is still limited explicit attention given to psychosocial risks and mental health. The amendments remain largely aligned with traditional safety concerns, reinforcing the view that mental health has yet to be fully integrated into Malaysia's OSH regulatory framework.

Overall, OSHA 1994 provides a strong foundation for managing physical safety and health in the workplace, but its approach to mental health remains limited and indirect. The reliance on self-regulation, combined with the absence of clear guidelines on psychosocial risk management, creates a gap between policy intentions and actual workplace practices. This gap is particularly relevant in high-risk industries such as offshore O&G, where employees are exposed to demanding work conditions that can significantly affect their mental health.

In this context, there is a clear need to move beyond general regulatory provisions and examine how specific workplace factors contribute to mental health outcomes. This supports the use of structured analytical frameworks, such as the Job Demands–Resources (JD-R) model, which allows for a more detailed examination of how job demands and job resources influence employee well-being. By focusing on these underlying mechanisms, the present study addresses the limitations of existing OSH approaches and provides a more context-specific understanding of mental health in the offshore industry.

2.4.3 Guidelines On Psychosocial Risk Assessment and Management at the Workplace (PRisMA) 2024

The Guidelines on Psychosocial Risk Assessment and Management at the Workplace (PRisMA) 2024 provide a more structured approach to managing psychosocial risks within the Malaysian context. Compared to earlier regulatory

frameworks, these guidelines explicitly recognise psychosocial hazards as organisational risks that require systematic assessment and control, rather than relying on individual coping strategies alone (Department of Occupational Safety and Health, 2024; International Labour Organization, 2022). This shift is particularly relevant to high-risk sectors such as offshore oil and gas (O&G), where working conditions are inherently demanding.

In offshore operations, employees are commonly exposed to long working hours, extended rotations, isolation from family, and highly controlled work environments (Bakker et al., 2023; ILO, 2022). These conditions are not isolated issues but reflect broader organisational factors, including job design, workload allocation, role clarity, leadership practices, and communication structures (Demerouti & Bakker, 2023). The PRisMA guidelines acknowledge these dimensions and position them as core areas for risk identification and management (Department of Occupational Safety and Health, 2024). In this sense, the guidelines move beyond the traditional focus on physical safety and begin to address the organisational sources of mental health strain.

A key strength of the PRisMA framework lies in its emphasis on a structured risk management process. It outlines a sequence that begins with leadership commitment and employee participation, followed by hazard identification, risk assessment, implementation of control measures, and continuous monitoring. This aligns with standard OSH risk management principles and provides a clearer operational pathway compared to earlier approaches that relied heavily on general duty clauses. However, while the framework is conceptually sound, its effectiveness remains dependent on how consistently organisations apply it in practice, particularly in industries where operational priorities may outweigh psychosocial considerations (Leka et al., 2023).

The guidelines also introduce a multi-level intervention approach, covering primary, secondary, and tertiary prevention (Department of Occupational Safety and Health, 2024). Primary interventions focus on modifying workplace conditions to reduce exposure to psychosocial hazards, such as improving work design or workload distribution. Secondary interventions aim to strengthen employees' ability to cope with stress through training and support mechanisms. Tertiary interventions address existing mental health issues through rehabilitation and recovery support. This layered approach is suitable for offshore environments, where employees face both ongoing exposure to stressors and limited access to external support systems (Harvey et al., 2022).

Despite these strengths, several limitations can be observed. First, PRisMA functions as a guideline rather than a legally binding instrument. Unlike the Occupational Safety and Health Act 1994, it does not impose enforceable obligations on employers. As a result, its implementation may vary significantly across organisations (Department of Occupational Safety and Health, 2024). Second, while the guidelines provide a broad framework, they offer limited industry-specific direction. In complex settings such as offshore O&G operations, psychosocial risks are often shaped by unique factors, including rotational work patterns, safety-critical tasks, and hierarchical decision-making structures (Bakker et al., 2023). Without more tailored guidance, organisations may struggle to translate general recommendations into effective interventions.

In addition, although PRisMA promotes a preventive approach, it does not fully address how organisations should balance productivity demands with psychosocial risk management. In practice, high workloads and operational pressures are often treated as unavoidable aspects of offshore work (International Labour Organization, 2022). This creates a tension between organisational performance and employee well-being, which is not sufficiently explored within the guidelines.

Nevertheless, PRisMA represents an important development in Malaysia's approach to workplace mental health. It signals a shift towards recognising psychosocial risks as part of mainstream OSH management and provides a reference point for organisations seeking to improve their practices (Department of Occupational Safety and Health, 2024). Within the context of this study, the guidelines offer a useful policy backdrop that supports the examination of psychosocial factors in relation to mental health outcomes.

More importantly, PRisMA reinforces the relevance of examining workplace conditions at the organisational level. By highlighting factors such as workload, leadership, and work design, it supports the application of frameworks like the Job Demands–Resources (JD-R) model (Bakker & Demerouti, 2023). In this study, job satisfaction is positioned as a mediating factor that reflects how employees respond to these conditions. The guidelines indirectly support this view by recognising that organisational practices can either reduce or intensify psychosocial risks, which in turn affects employee well-being (Harvey et al., 2022).

Overall, while PRisMA provides a clearer structure for managing psychosocial risks compared to earlier frameworks, its impact will depend on the extent to which

organisations adopt and operationalise its recommendations. The gap between guideline and practice remains a key issue, particularly in high-risk industries. This reinforces the need for empirical studies that examine how psychosocial factors operate in real work settings, such as the offshore O&G sector addressed in this research.

2.4.4 ISO 45003:2021 Occupational Health And Safety Management

The ISO 45003 standard represents a key development in occupational health and safety (OH&S), as it is the first international guideline that specifically addresses psychosocial risk management. It builds on ISO 45001:2018 by incorporating psychological health into the broader safety management system, shifting the focus from individual responsibility to organisational accountability. In this sense, psychosocial risks are no longer treated as personal issues but as workplace hazards that require structured management.

The standard is grounded in the view that psychological well-being is closely linked to physical safety. It recognises that work-related factors such as job design, workload, role clarity, leadership behaviour, and social interactions can significantly affect employees' mental health. Common psychosocial hazards identified include high job demands, unclear roles, workplace bullying, lack of support, and emotionally demanding tasks. When these risks are not properly managed, they can lead to outcomes such as stress, anxiety, burnout, and reduced job satisfaction, which may also affect organisational performance.

A central feature of ISO 45003 is its use of the Plan–Do–Check–Act (PDCA) cycle, which positions psychosocial risk management as part of an organisation's existing occupational health and safety management system rather than as a separate or one-off wellbeing initiative. This approach enables organisations to identify psychosocial hazards, implement appropriate controls, monitor their effectiveness, and make continuous improvements over time (Saik et al., 2024; American National Standards Institute, 2025). Organisations are expected to consider both external factors, such as economic conditions, contractual arrangements, and regulatory expectations, and internal factors, including management practices, organisational culture, work design, communication patterns, and workforce characteristics (Department of Safety and Health, 2024; Kiwa, 2025).

Leadership also plays a central role in this process, as senior management is expected to provide direction, allocate sufficient resources, support employee participation, and promote consultation in identifying and addressing psychosocial risks (American National Standards Institute, 2025). Therefore, ISO 45003 provides a structured and continuous framework for embedding psychological health and safety into organisational decision-making and workplace practices.

The standard also outlines practical areas of implementation, including planning, communication, training, and performance evaluation. Organisations are encouraged to set clear objectives, integrate risk controls into daily operations, and monitor outcomes through audits and reviews. It also addresses areas such as change management, procurement practices, and return-to-work processes, reflecting a more comprehensive view of how workplace systems influence employee well-being. Compared to earlier frameworks, this provides a clearer structure for embedding psychosocial considerations into organisational practice.

Despite these strengths, several limitations should be noted. First, ISO 45003 is a voluntary standard rather than a legal requirement. Its adoption depends on organisational willingness, which may vary depending on resources, industry pressures, and leadership priorities. In contexts where regulatory enforcement of psychosocial risk management is limited, such as under the Occupational Safety and Health Act 1994, reliance on voluntary standards may result in uneven implementation.

Second, while the standard provides a structured framework, it remains relatively broad and does not offer detailed guidance tailored to specific industries. In offshore oil and gas operations, psychosocial risks are closely tied to factors such as rotational work schedules, isolation, and safety-critical tasks. These context-specific challenges require more targeted strategies than those outlined at a general level in ISO 45003. As a result, organisations may face difficulties translating the standard into practical interventions suited to their operational environment.

In addition, although ISO 45003 provides a structured framework for managing psychosocial risks, its emphasis on organisational systems and processes may not fully address the tension between operational demands and employee well-being. In high-risk industries such as offshore O&G, productivity targets, operational continuity, and safety compliance often take priority in daily decision-making. As a result, psychosocial risk management may receive less attention, particularly when mental health is viewed as secondary to physical safety or production requirements. This reflects a broader

challenge in managing psychosocial hazards, as such risks are often embedded in work design, organisational culture, leadership practices, and employment arrangements (ISO, 2022; DOSH, 2024).

Without strong internal commitment, ISO: 45003 may be implemented mainly as a procedural or compliance-based exercise rather than as a mechanism for improving actual working conditions. This is especially relevant in organisations where policies exist formally, but are not consistently translated into workplace practice. Recent discussions on ISO 45003 implementation also highlight the importance of leadership commitment, worker participation, and practical implementation strategies in ensuring that psychosocial risk management leads to meaningful organisational change (Saik, 2024; Nebbs et al., 2025). Therefore, while ISO: 45003 offers an important reference point, its effectiveness depends largely on how seriously organisations embed psychosocial risk management into everyday operations, resource allocation, and leadership accountability.

From an academic perspective, ISO: 45003 offers a useful structure for linking psychosocial risk management with organisational outcomes. It frames psychosocial hazards not only as health concerns but also as factors affecting performance, engagement, and sustainability. This aligns with theoretical approaches such as the Job Demands–Resources (JD-R) model, which examines how job demands and resources interact to influence employee well-being (Bakkers et al., 2023). In this study, job satisfaction is considered a mediating factor within this relationship, reflecting how employees respond to their work environment.

Overall, ISO:45003 provides a clearer and more systematic approach to psychosocial risk management compared to earlier frameworks. However, its impact depends largely on how organisations interpret and apply its principles in practice. The gap between formal adoption and actual implementation remains a key concern, particularly in industries with demanding working conditions such as offshore oil and gas. This highlights the need for empirical research that examines how psychosocial risks are experienced and managed in real workplace settings, which is the focus of the present study.

2.4.5 Employment Act 1955

Employment Act 1955 (EA 1955) is one of the principles relating to employment enforced in West Malaysia. Nonetheless, it is also claimed that the arrangements of EA 1955 do not address issues related to work stress. This Act stipulates, among other things, payment of wages, deduction of wages under certain circumstances, maternity protection, certain restrictions on night work, underground work and in certain places of work for female employees, rest days in each week for employees, annual and sick leave, maximum hours of work in a day, public holidays, and overtime payment for extra hours of work (Ruzita et al., 2021). The consideration given by EA 1955 is only on financial benefits (Department of Safety and Health, 2013).

The EA 1955 contributes little to job security. The Act mandated that employees be informed of their termination conditions (New Straits Times, 2021). Nonetheless, the provisions of Sections 12 and 13 of the EA 1955 regarding termination of employment relate to employees' mental health. An employer may terminate an employee's employment with or without prior notice upon contract termination. However, if the employee fails to meet the expectations outlined in the contract agreement, the employer has the right to dismiss the employee without notice. In addition, if an employee decides not to come to work for two consecutive days due to illness (both physical and mental) and fails to communicate such absence, the employer has the right to dismiss the employee under *jus naturale*. An employer should pay the employee the reimbursement of an aggregate equivalent to the value of wages that would have accumulated to the employee during the period of such notice or any period during which notice has not expired. Such amounts are usually contained in the contract of employment, and in cases where the employer decides not to make such payment, the employee has the right to seek jurisdiction in a court of law.

The EA 1955 does not provide explicit criteria and rules for the termination of employment contracts for employees with mental or physical illnesses. Completing a medical examination is necessary for employment since it is a precondition. Employers should comprehensively assess the physical and mental health of people seeking employment. However, in cases where the employee misrepresents such information, then termination policies apply. However, there are instances where there may be provisions that provide exemptions for disease, mainly where the ailments are

psychological. Consequently, certain employment agreements may include provisions to which the candidate must consent before hiring.

It seems that the previously mentioned arrangements are harmonized with the arrangement under section 27 of OSHA 1994 that provides discrimination against employees (Ruzita et al., 2021). As per section 27 (1) of OSHA 1994, no employer shall dismiss the employees, injure them in their employment, or modify their position to their detriment only because the employees submit a complaint about a matter they consider not protected or a health hazard. It is not overemphasized to say a ground for dismissal that terminates the employees' employment may not be based on their mental health problems.

2.4.6 Mental Health Act 2001

The Malaysian Mental Health Act 2001 did not take effect until the Mental Health Regulation 2010. The Ministry of Health (MoH) introduced the Mental Health Act 2001 (MHA 2001) (together with the Mental Health Regulations 2010), which was viewed as a historic turning point in mental healthcare since it included precise policy guidelines for service delivery. The Act simplifies the law concerning mental health conditions. It establishes procedures for admission, detention, housing, care, treatment, rehabilitation, control, and protection of mentally ill individuals and other relevant subjects (Khan & Ho, 2015). Malaysia's provision of mental healthcare has improved significantly, as evidenced by the introduction of home treatment teams in 200, the opening of new psychiatric units within general hospitals, primary care centers offering mental health services, and the establishment and maintenance of family support groups.

According to the Act, a mental illness is defined as "any mental disease, interrupted or incomplete development of mind, psychiatric problem, or any other disorder or disability of the mind, regardless of how it was acquired." The statement clarifies that a person cannot be diagnosed with a mental disorder based solely on engaging in promiscuous or immoral behaviour, exhibiting sexual deviancy, consuming alcohol or drugs, expressing or withholding specific political or religious opinions or beliefs, or having an antisocial personality. It clarifies that the specified exception does not hinder the recognition of significant physiological, biochemical, or psychological

consequences resulting from drug or alcohol use, whether they are temporary or permanent, as an indicator of mental illness in an individual.

A Mental Health Tribunal establishes a legal framework to protect individuals subject to compulsory treatment under national and international human rights guidelines. The Malaysian Mental Health Act operates outside the United Nations universal right to exercise legal capacity, as defined in Article 12 of the UN Convention on the Rights of Persons with Disabilities (Raaj, Navanathan, Tharmaselan, & Lally, 2021). However, a Bill to modify the MHA2001 was introduced in the Dewan Rakyat for the first time. The Mental Health (Amendment) Bill 2023, introduced by Datuk Seri Azalina Othman Said, Minister in the Prime Minister's Department (Law and Institutional Reform), among others, empowers crisis intervention personnel to apprehend anyone who attempts suicide. The Bill also allows crisis intervention personnel to seize anyone they believe has a mental illness and poses a threat to themselves, other people, or property (Malay Mail, 2023).

2.4.7 National Mental Health Policy

Currently, Malaysia has no specific policy on employees' mental health. Notwithstanding, the general policy of Mental Health was reinforced in 1998 by the Ministry of Health (MoH), known as the National Mental Health Policy (Midin et al., 2018). The policy was then amended in 2012. Generally, this mental health policy provides an inclusive master plan and regulation to address issues in mental health. All programs and activities related to mental health are subsumed under the promotion of mental health, anticipation of mental health problems, treatment of individuals with mental health problems, and psychosocial rehabilitation (Ruzita et al., 2021). Some mental health problems such as availability and justice in services, comprehensiveness, interrelatedness, coordination, multiple sectorial collaboration, community engagement, human resources and training, standards and observing research, and legislation audits have been canvassed in this new policy.

There are three objectives of this new policy which are:

- 1) to issue a foundation for creating a master plan and directions to those involved in any planning and execution towards improving mental health and wellbeing,
- 2) to further develop mental health services for populations in danger of creating psychosocial issues, and

- 3) to work on psychiatric services for individuals with mental health problems in the arrangement of care and protection by family, community, and relevant agencies.

This policy promotes the provision of mental health treatment within the Malaysian community (Ministry of Health Malaysia, 2021). However, it is suggested that Malaysia's mental health policy should undergo a reassessment (Ruzita et al., 2021). According to a survey conducted by the Ministry of Health in 2019, there is a growing trend of mental health issues. The study found that out of 273,203 persons who underwent health screenings, 18,336 were currently experiencing various stages of depression (Aris & Othman, 2022).

2.4.8 Persons With Disabilities Act 2008 (PDA 2008)

The act was created to protect the interests of persons with disabilities (PwD) and help them integrate into society as genuine members deserving of specific accommodations. The Act defines PwD as people with enduring physical, mental, intellectual, or sensory impairments that, combined with other difficulties, may obstruct their complete and efficient involvement in society (Persons with Disabilities Act, 2008). The government does not exclude those with disabilities but provides resources to support them. There are seven categories of PwD under which they can be registered. Among them are hearing impairment, visual impairment, speech impairment, physical disability, learning impairment, mental disability, and multiple disabilities (MyGovernment, 2022a).

Mental health concerns do not always result in disabilities because most of these disorders do not lead to any persistent impairment in individuals affected by them. It is crucial to recognize the possibility of an employee being disabled while working. The PDA 2008 guarantees that the employee's rights are safeguarded, even in extreme circumstances. The Act ensures that PwD has the right to access employment, receive equal opportunities as those without disabilities, receive fair compensation based on their performance, and have a safe working environment free from harassment and discrimination (Persons with Disabilities Act, 2008).

2.5 Factors Causing Employees Poor Mental Health

Organizations are boosting their effort to promote employee mental health and well-being. Employers frequently assess employee mental health needs by considering how stressors in their personal lives may affect their ability to be present and productive at work (Ministry of Human Resources, 2022). However, understanding and addressing the impact of psychosocial risks at work is equally essential. Thus, the risks can be categorized into general and psychosocial factors.

2.5.1 General Factors

Psychosocial risk is a legitimate worry in any job. The manifestation of this phenomenon can take several forms, encompassing stress, mental health challenges, as well as instances of bullying and discrimination (Tannenbaum et al., 2023). Mental health disorders are a leading contributor to global impairment (Kieling et al., 2024). According to the Mental Health in the Workplace Report (2021) by Benenden Health, over 40% of employees experience stress. According to Benenden Health's survey, a significant majority of employees (almost four in ten) identified excessive workload as the primary factor contributing to mental health problems in the workplace. The excessive workload frequently results in burnout, as several employees strive to perform at their highest level and feel compelled to complete all the tasks allotted to them. An emotionally sound work environment offers the essential components for a position customized to an individual's requirements and character. Bennett (2021) asserts that workplaces can give rise to psychological issues or intensify preexisting illnesses when not adequately addressed. A significant number of employees face challenges related to substance misuse, mental health issues, and the influence of both colleagues and superiors. While employees may appear aesthetically pleasing, there is frequently a deeper layer of complexity underlying their outward appearance.

Employees' mental health and performance can suffer as a result of a lack of work-life balance, diversity, employee autonomy, and adequate staffing (Bartram et al., 2024). The greater the pressure in the workplace, the greater the likelihood of workplace stress. As a result, employees face mental health issues as well as safety risks. Employees with more control over work procedures and deadlines, among other things, report higher levels of job satisfaction and motivation (Korzynski & Protsiuk, 2024).

Some organizations rotate employees through various tasks. While rotational work adds value to their experience, it also adds unpredictability and stressors to their lives. Employees' attentiveness, motivation, and routine tasks are affected due to rotational positions and lower overall productivity (Albaiti et al., 2024).

The first factors that affect mental health in the workplace are job control and autonomy. A challenge stimulates the mind and forces people to step outside their comfort zones. Good leadership constantly recognizes and challenges their employees. Employees' self-esteem rises when they can deal with problems at work and begin to take more initiative and do more work (Adel & Almanshur, 2024). Employees who are not challenged do not reach their full potential. Although it may not appear to be a problem, a lack of challenges at work harms mental health. As a result, they develop self-doubt and may consider looking for a job where they are more frequently challenged or given opportunities (Dettmers & Bredehoeft, 2020). That is why it is critical to regularly test employees' knowledge and skills.

Next, economic insecurity also contributes to the employee's mental health. It is common for employees to be concerned that the company will be unable to generate a profit and thus will be unable to pay them their average salary (Alcover et al., 2020). Employees' anxiety about future layoffs is a significant source of uncertainty, especially if their co-employees are facing layoffs. It is critical to hold regular town halls or team meetings where management communicates the organization's progress and shares its future goals by notifying employees about potential issues and hazards to the company's future (Antino et al., 2022). The result is done to mitigate the accumulation of workplace stress and anxiety.

In conclusion, one of the most severe issues concerning employer-employee relationships is workplace mental health risk factors. It is the most severe source of concern for organizations and civilized governments. Many employees suffer from occupational stress, anxiety disorders, or depression as a result of work pressures and unsatisfactory working conditions (Canadian Centre for Occupational Health and Safety, 2021). It can have a pathological effect on an individual's mental state, interfere with their ability to work, and reduce their productivity.

2.5.2 Psychosocial Factors

Psychosocial factors are the most severe threat to employee health and well-being worldwide. Both physical and mental health do not operate in a vacuum; instead, they are influenced by internal and external stressors that appear unrelated on the surface (Bergefurt et al., 2022). Regarding psychosocial issues, it is essential to understand the difference between risks and hazards. Risks are factors that have the potential to cause harm, whereas hazards are known causes of harm (Tannenbaum et al., 2023). According to an Alternative International Assignments (AIA) survey in 2019, more than half of Malaysian employees are stressed at work. Several psychosocial factors that lead to poor employees' mental health were identified, and they are grouped into two categories, namely: 1) Job Stress (job demands, & and job security) and 2) Job Resources (social support, & work environment).

2.5.3 Dimensions Of Job Stress

Job stress refers to the adverse emotional and physiological responses that arise when job demands exceed or conflict with an employee's abilities, resources, or expectations (Centers for Disease Control and Prevention, 2021). In this study, job stress is conceptualized through two key dimensions, namely job demands and job security, which serve as independent variables. These dimensions are examined to reflect the complex nature of occupational stress experienced within the O&G industry. The following sections provide a detailed discussion of each dimension, including their theoretical foundations, empirical evidence, and relevance to employees' mental health and job satisfaction.

2.5.3.1 Job Demands

Malaysia's O&G industry, which accounts for roughly 20 % of GDP, can and should set an example. Female participation in O&G workforces is low around the globe, with estimates indicating that as few as one in every five employees is a woman, one of the lowest levels of any significant industry (Malay Mail, 2019). As the O&G industry advances technologically, new opportunities to address women's institutional

lack of representation emerge. The industry in Malaysia and around the world must grasp them.

New, broader, and more powerful sources of work-related stress can now increase an individual's vulnerability to more serious mental health problems. Anxiety symptoms are severe and significant issues in the workplace, and they can be attributed to stress (Monterrosa-Castro et al., 2023). Stress is an element that affects an individual's psychosocial life and disrupts the current balance (Karadas & Duran, 2022). In addition, stress is one of the most common and severe mental health problems people face, both mentally and physically. Many individuals are affected by stress in difficult circumstances, and pandemics such as COVID-19 can harm an individual's mental health (Amin et al., 2024).

According to Odor (2019), stress is an adverse response when an individual faces excessive pressures or expectations from their internal or external surroundings. Stress is typically classified as either a good mood or a challenge. However, excessive stress can harm mental and physical well-being (Simpson et al., 2024). Stress is an inherent phenomenon that can have either advantageous or detrimental effects on an individual, dependent upon its intensity. The phenomenon is pervasive in all organizational and organizational hierarchies, affecting individuals, managers, and directors (Pacheco-Cubillos et al., 2024). According to the survey performed by the International SOS Foundation in 2021, 65 % of employees in the Australian O&G industry reported a rise in job expectations.

According to studies, employees who work in stressful and demanding jobs, low-wage and temporary jobs, or uncivil work environments have poor mental health in terms of physical and psychological well-being (Osberg, 2024; Simpson et al., 2024). The O&G industry constitutes one of the world's most hazardous and stressful occupations (Quaigrain et al., 2024). Employees in this industry encounter higher stress levels due to constant workloads, shift work, hazardous conditions, repetitive tasks, and isolation, such as in remote refineries and offshore facilities (Amin et al., 2024). As a result, employees in this industry are constantly under pressure from the ongoing demand for fuel products, leading to high levels of job overload.

Studies have indicated that job stresses hinder the achievement of personal goals, thereby making persons more susceptible to anxiety (Pauli & Lang, 2024). Job demands, as a type of work-related stressor, can elicit apprehension over the inability to fulfil organizational objectives, resulting in anxiety (Humayun et al., 2024). A work-

related stressor is the necessity to exert additional effort to sustain the required level of performance (Pacheco-Cubillos et al., 2024). Job demands refer to a work's physical, social, or organizational characteristics that need ongoing mental and physical effort, resulting in particular physiological and psychological consequences (Clarke et al., 2024). Excessive job expectations can result in physical and mental exhaustion for employees, as well as a lack of control over their work tasks, as evidenced by studies conducted by Mihelič et al. (2024), Asaloei et al. (2024) and Junça et al. (2024). Anxiety ultimately stems from employees' feelings of insecurity and uncertainty over their competence in doing jobs and achieving objectives.

High job demands necessitate a lot of physical, mental, or emotional effort to complete the task (Safe Work Australia, 2023). It requires more than simply 'being a little busy' sometimes. When job demands are severe, extended, or frequent, they become a hazard. High job demands are believed to indicate uncivil behaviour in the workplace, but the mechanism underlying this relationship is unidentified (Bhattarai et al., 2024). Employees in high-risk professions, such as O&G upstream employees, have long been under pressure, and the "three violations" behaviours and risky incidents occur one after the other (Manikumar et al., 2024). However, most accidents are caused by human factors. Thus, unsafe behaviour and human errors are essential in hazardous incidents and workplace fatalities (Halim et al., 2024).

Ghosh et al. (2024) found that around 88 % of workplace events in the construction sector result from risky actions, whereas unsafe physical circumstances cause 10 %. The remaining 2 % are attributed to unexpected variables or 'Acts of God.' Encouraging safe behaviour is essential for enhancing safety performance (Xiang et al., 2024). Most behaviour-based safety researchers primarily concentrate on worker behaviours that have a direct impact on preventing workplace accidents and enhancing worker safety (Toma et al., 2024; Zhang et al., 2024). However, a narrow emphasis on human behaviour is inadequate as organizational variables significantly promote risky behaviour and mistakes and, in certain instances, directly lead to injuries (Roszkowska & Mele, 2021). Furthermore, reducing safety incidents by aligning people in high-risk occupations with their environment requires immediate attention and resolution (Krasnopevtseva et al., 2024).

Organizational issues such as lengthy working hours and high expectations have been extensively studied. Research consistently shows that extended working hours are linked to increased workplace injury rates and decreased employee productivity and

well-being (Alfiansyah, 2024; Chireh et al., 2023). Studies have found a correlation between higher job expectations and a higher occurrence of risky actions, which can lead to injuries (Das et al., 2024; Kumar & Burns, 2024). This relationship is believed to be due to the depletion of employees' mental and physical resources caused by the increased demands (Karanikas et al., 2017; Li et al., 2013).

The workload is a crucial factor in ensuring optimum employees' mental health (Akang, 2024). Individuals are perpetually confronted with tension resulting from their occupation or work environment. Nevertheless, work is a fundamental component of an individual's conduct and life, and job stress cannot be resolved by merely eradicating the source of stress, as it can subsequently result in other hazards (Jermisittiparsert et al., 2021). It can be categorized into physical demands (such as uncomfortable working posture, excessive physical effort, and repeated motions) and psychological demands (such as fast-paced work, time pressure, competing demands, and task interruptions) (Akang, 2024; Ahmadi et al., 2022). Hence, job demands refer to the physical, psychological, social, or organizational elements of a job that require continuous physical or psychological (cognitive and emotional) exertion and are consequently linked to specific physiological or psychological expenses (Bakker et al., 2023).

In addition, high job demands have led to occupational stress among employees (Luceño-Moreno et al., 2020). Occupational stress is widely recognized as a worldwide phenomenon with severe health and economic consequences in both developed and developing countries (International Labor Organization, 2016). By definition, occupational stress is a continual process in which individual cognitive assessments of occupational stressors generate adverse health with severe behavioural consequences (Lukan et al., 2022). Moreover, occupational stress is caused by a toxic work environment, which includes poor control, high work demands, a lack of information, extreme pressure, and limited decision-making latitude (Saxena et al., 2020; Rameskumar, 2020).

Furthermore, the significance of job demands in specific occupations is determined by job characteristics (Bakker et al., 2023). While job demands vary by occupation, many job settings have significant physical, mental, and emotional components in common (Romsbotn et al., 2022). Job demands are stressful tasks that require a significant amount of effort or workload in a relatively brief period. They can be psychologically distressing to employees and are the leading cause of mental strain at work (Dutheil et al., 2022). Long shifts, repetitiveness, physical exertion, work

pressure, time pressure, and frequent waiting times are examples of physical demands, as are cognitive demands, such as the need to memorize a lot and make complex decisions (Korneeva & Simonova, 2022; Brooks & Greenberg, 2022). Furthermore, employees in the O&G industry encountered emotional challenges such as work-family conflict and job insecurity (Fox et al., 2023). Due to these demands, employees are easily prone to burnout and stress.

The profound influence of employment on mental health issues has emerged as a prominent global public health issue (Cooke & Wu, 2024; Holmes et al., 2020). It is frequently seen that employees in the O&G industry experience mental health concerns. The reason for this is that the occupation in this industry is inherently hazardous, resulting in a significant death rate (Narayanan et al., 2023). The O&G industry, particularly offshore operations, is notoriously competitive due to its substantial compensation (Zimmerman et al., 2023). High job demand encompasses the excessive workload, work pressure, and time limits employees face, requiring them to do a substantial amount of work within limited timeframes. Excessive workload in the work environment can lead to job demand-induced stress (Sivarajan et al., 2023). Various contributing variables might precipitate anxiety, despair, and post-traumatic stress disorder (PTSD) among these personnel.

Furthermore, the negative experiences produced by frequent prominent levels of demands are more likely to outweigh the positive experiences and deplete emotional resources, resulting in "burnout syndrome" and stress (Bazazan et al., 2023; Sadeghi et al., 2020). This "loss spiral" has been backed by studies by Petitta et al. (2023a) and Freitas et al. (2021) which shows that job demands affect employees to perceive and create even more job demands in a reversed causal relationship). On top of that, job demands can lead to a cynical attitude in which employees emotionally and mentally distance themselves from work as a coping strategy (Zehsan et al., 2024; Petitta & Ghezzi, 2023b).

For example, seafarers in the offshore O&G industry are frequently reported working in a hazardous physical and psychosocial environment (Othman et al., 2023; Dohrmann et al., 2020). These job demands for seafarers have an impact on physical health and psychological issues, such as turnover intention and job dissatisfaction levels, and in some cases cause a variety of mental health problems, including stress, depression, burnout, and, in the worst cases, suicidal ideation (Iversen, 2021). Seafarers' mental health should be emphasized due to its scale of importance and challenging work

environment (Jonglertmontree et al., 2022). In 2020, the COVID-19 pandemic had a profound impact on the lives of seafarers, who were already working under the aforementioned unique circumstances as a result of their profession (Okeleke & Aponjolosun, 2020). They were either unable to return home or were stranded at home without a source of income to support their families

Prior studies have demonstrated that a high level of commitment to job demands might negatively impact the well-being of employees (Emre et al., 2021; Radic et al., 2020). The authors assert that heavy job demands significantly influence an employee's psychological well-being, even professionally. Excessive work expectations in a professional setting can result in burnout if the person cannot manage the stress, resulting in emotional tiredness and a decline in job satisfaction (Wahab et al., 2021). The results were in line with Karasek's Jr (1979) analysis of "Job Demands, Job Decision Latitude, and Mental Strain: Implications for Job Redesign," which demonstrated that excessive job dedication might have adverse effects on an employee's mental well-being. Moreover, as per Hobfoll's (1988) Conservation of Resources (COR) theory, when an employee undertakes a job demand but fails to fulfill it, it transforms into a stressor, leading to emotional weariness and impacting job satisfaction.

In addition, there are two principles underpin the perception of job demands as negative antecedents. First, when conflicts arise between job demands and employees' effort expenditure or control to meet those demands, job demands become more significant (Nair et al., 2020). As a result, a job demand-effort imbalance can have a particularly negative impact on job-related stress, as well as physical and psychological costs (Lee et al., 2023). Second, job stress is caused by an imbalance between job demands and job resources (i.e., high job demands and low job resources), which can lead to burnout if not mitigated by coping strategies (Amin et al., 2023). It is significant to mention, however, that job demands are an unavoidable part of the job, and this can be regarded as usual and not necessarily problematic. Thus, the question is how to balance job demands with employees' abilities to exert control and effort and keep any potentially harmful job demands to a minimum (Gabriel & Aguinis, 2022).

As an outcome, it is essential to describe how job demands are cognitively assessed as negative predictors and conceptualized in the context of occupational health research. According to Lazarus and Folkman (1984), cognitive appraisal determines whether an experience is positive, stressful, or irrelevant to one's well-being. Spector

(2002) incorporated this viewpoint and proposed that job characteristics be perceived as stressors first, which leads to negative emotions later. Employees perceive job demands as intolerable tasks in the absence of job resources (Vranjes et al., 2022). Insufficient job resources can be mitigated by receiving positive feedback from a supervisor. This feedback serves as a protective barrier against job expectations, making extremely demanding jobs more manageable and comprehensible for employees (Keith et al., 2021). In other words, employees will welcome "reasons for the presence of a stressor and their exposure to it" (Van Heese et al., 2022).

Job resources are assumed in the context of the JD-R model to buffer the negative effect of job demands by influencing the negative perception of those demands (Bakker et al., 2023). In this vein, Langseth-Eide (2022) refined the JDR model by including processes of job demand appraisal, and they suggest that hindrance demands are appraised negatively due to their tendency to obstruct the potential fulfilment of personal progression. Furthermore, hindering demands elicit negative emotions (i.e., anger, fear, and anxiety) and passive coping behaviour (i.e., rationalization and withdrawal intention), limiting the ability to deal with those demands adequately.

2.5.3.2 Job Security

Another job-related struggle that is troubling for employees and may disrupt their mental health is job insecurity or a sense that their job is at risk, such that there is no future for them in the organization (Cheung, Gong, & Huang, 2016). Job insecurity is a persistent and pervasive economic factor contributing to Asia's overwork culture (Tee, 2020). Feelings of job insecurity may cause employees to devote more time to work, assuming frequent absences indicate a lack of commitment and productivity, resulting in employment termination. Job insecurity was first defined in the 1980s as the perceived inability to sustain the desired consistency in a threatened job situation (Greenhalgh & Rosenblatt, 1984). Since then, there has been a trend toward abandoning the Keynesian job model, which is characterized by stable jobs and professional careers, in favor of a more flexible labour market, which produces more unstable and precarious working conditions (Nielsen et al., 2015; Kim & Von Dem Knesebeck, 2015; Burchell et al., 2014). Job insecurity is a significant source of work-related stress (Etehad & Karatepe, 2019).

Over the past 25 years, job security has emerged as a compelling concern in the workplace (St. Denis & Hollister, 2024). Despite the global and national impact of the economic crises since the 1970s, job security has been relatively neglected. The scientific study of job security has not been conducted in Malaysia (Daud, 2017). Prior studies have focused on employment satisfaction, organizational commitment, and performance. Implementing various alterations in workplaces worldwide has led to employees expressing doubts regarding the stability of their employment. Job security is the primary factor determining employee well-being (Daud, 2017). Various elements have the potential to impact and shape the physical and psychological well-being of employees (Khalid & Syed, 2024). Multiple studies have demonstrated that stress and unfavorable working conditions harm employees' physical well-being (Schulte et al., 2024; Krishanan et al., 2024). Ensuring job security is crucial for employee retention and facilitating their productivity and comfort in a company (Awawdeh et al., 2024).

Job insecurity is a growing issue in the current economic climate. Employees are increasingly finding themselves at the mercy of their employers, which may harm their mental health (Harmony United Psychiatric Care, 2022). It is confirmed that our jobs are becoming less secure. Many employees face job cuts, layoffs, and downsizing as it becomes easier for employers to outsource their work. As a result, many employees feel uncertain about their job security. Unfortunately, financial insecurity might also harm employee mental health as well. Due to job insecurity, an employee's expected long-term income is reduced over the years. Furthermore, those with few savings to fall back on may be severely harmed by a loss of income due to a job loss. Since income is linked to health, a loss due to insecurity could result in poor mental health (Green, 2020).

Job security is now at an all-time high in the labour force. As a result, based on this scenario, everyone must investigate the causes and consequences of this economic uncertainty, which has resulted in job insecurity, thereby affecting people's well-being. Job insecurity has been a risk factor for mental and physical health problems (Cao et al., 2024). Research shows that natural disasters and public health crises harm the economy (Malešević-Perović & Ćorić, 2024; Tan et al., 2024). The global O&G employees show signs of stress as the industry recovers from the worst oil crash in history. Over three-quarters of the O&G employees surveyed say they feel less confident in their jobs than they did a year ago and would consider changing jobs in the next few years (David, 2021).

Moreover, from 2014 to 2019, the O&G sector saw employment swings of more than 15 %, causing 60 000 people (predominantly in O&G extraction) to lose, regain, and then lose their jobs due to oil market volatility, which are neither tightly controlled nor marginally affected by American producers, but have a devastating effect on the economy and American employees (Conner, 2020). Families cannot anticipate or budget for oil price volatility and continue to be victims of geopolitical conflict. For instance, BHP Billiton, a gigantic mining company, has cut off more jobs to reduce costs as the price of its essential commodities slumped (Lannin, 2014).

In light of the current COVID-19 crisis, global concerns have been related to a potential economic recession (Nicola, Alsafi, Sohbari, Kerwan, Al-Jabir & Iosifidis, 2020). Individuals' levels of anxiety and depression have increased with the COVID-19 pandemic (U.S Census Bureau, 2020). The rise in anxiety has been linked to the pandemic's adverse effects on the economy and workforce (Basyouni & Keshky, 2021). Concerning the transmission of COVID-19, various health organizations have made recommendations regarding social distancing to reduce the spread of the virus, which directly or indirectly impacted businesses. These health organizations advocated for the closure of unnecessary businesses. Negative economic impacts (e.g., disruptions in supply chains, loss of income, layoffs) are already evident in several industries, including primary, secondary, and tertiary sectors. Even before the US pandemic, the O&G industry was going through difficult times (Council of Petroleum Accountants Societies, 2021). An oversupply of oil in the market had caused shale oil prices to drop significantly, and this particular industry was beginning to slip into debt (CPAS, 2021).

In addition, a survey done by The Journal Record demonstrated that O&G employees are concerned about job security, unsafe working conditions, wage declines, and transitioning to other jobs (McNutt, 2023). The survey report stated, "The industry is streamlining, and many of O&G employees have been laid off, and the industry is likely to continue to lay off employees, leaving many employees without the stable employment they have earned." The sharp economic activity and employment decline due to this unusual and unprecedented pandemic highlight the possibility of significant job insecurity and financial anxiety (Basyouni & Keshky, 2021). These factors may have increased anxiety in young, employed people and impacted their efficiency and enjoyment of work tasks or activities.

Malaysia, too, is grappling with the COVID-19 epidemic. In reaction to the epidemic, some Malaysian firms have used crisis-response measures, including

downsizing, laying off employees, retrenching, and merging departments (Abdul Jalil et al., 2023). All of this encompasses a substantial number of people in the O&G industry who have experienced job loss, decreased working hours, or have been informed of the possibility of redundancy (Andreas, 2021). A recent study by D'Antoine et al. (2023) has examined the effects of COVID-19 on offshore O&G employees. The COVID-19 pandemic has reduced job security due to travel restrictions and border closures. The result has led to a substantial correlation between work uncertainty and significant levels of mental distress (James et al., 2018). The epidemic has exerted a substantial influence on the mental well-being of individuals from various backgrounds, and O&G employees have also been affected by the prevailing uncertainty and worry (Andreas, 2021).

Researchers have suggested that job security is a potential stressor experienced during the COVID-19 crisis that may lead to decreased well-being (Holmes, O'Connor, Perry, Tracey, Wessely & Arseneault, 2020; Wilson, Lee, Fitzgerald, Oosterhoff, Sevi & Shook, 2020). A recent study conducted by the University of Connecticut School of Nursing and published in the *Journal of Occupational and Environmental Medicine* revealed that individuals who continue to work during the COVID-19 pandemic experience heightened symptoms of depression and anxiety due to job insecurity and financial concerns (Robinson, 2023). On the other hand, a study by Minnotte et al. (2018) stated that job insecurity has been identified as a significant job stressor that harms employees' mental health outcomes.

Nonetheless, job security is a valuable resource because it is necessary to meet other basic needs and advance in social status (Jahoda, 1981). When job insecurity occurs, income stability may suffer (Hellgren et al., 1999). According to the COR theory, when a resource (for example, employment) is threatened with loss, stress increases as an emotional response to deal with it. Negative emotions can overwhelm an individual's well-being (Ishikawa et al., 2021). According to COR theory, individuals aim to allocate more resources to safeguard against resource depletion, and stress occurs when resources do not increase in value after being invested (Hobfoll, 1989).

The impact of the COVID-19 disease pandemic on oil demand has been severe, with unemployment spiralling across the energy industry (Andreas, 2021). Hundreds of jobs are at risk due to the virus, causing layoffs in upstream and downstream sectors. The sharp decrease in the number of oil rigs has resulted in the bankruptcy of both

operators and service providers (Andreas, 2021). Anticipating the industry losing over a million jobs without a more rapid economic rebound is very plausible. The current situation in the business is unique and presents a significant worry for highly qualified and specialized individuals in the O&G industry. They may struggle to apply their expertise to other job environments (Faeq, 2020). Employees in the O&G industry are accustomed to switching between organizations based on where the work is. However, this is becoming increasingly difficult as the entire energy landscape has been negatively impacted, and workplace recovery may take longer than expected. It will be a difficult transition for an industry once known for high pay and job security (Faeq, 2020).

To add this, Alalawi et al. (2021) surveyed job security in the O&G industry in Oman. The survey result demonstrated that most respondents strongly agreed that the individual might lose his or her job and be demoted within the company due to the COVID-19 pandemic. Meanwhile, an employee within the organization may lose their job and be wholly laid off. However, an employee can prevent unpleasant events from affecting the work environment by supporting the organization enough to keep those events under control. Furthermore, during the COVID-19 pandemic, most respondents agreed that the employee has the opportunity to advance within the company and has easy access to organizational resources such as information, materials, and people in the organization.

According to Holt-Lunstad, Smith, and Layton (2010), employees are always concerned about the state of the economy. Salary and benefits, job security, and their ability to deal with the economy's problems would all play a role. Oil is used in many industries, and rising oil prices will significantly impact employee loyalty. Employees rely on consumer demand or aggregate demand—a drop in demand leads to increased unemployment, which leads to job insecurity. According to Ndlovu and Parumasur (2005), to demonstrate their commitment to the organization's purpose and objectives, many employees would create a job hierarchy and guarantee the security of their personal growth. As a result, job security may benefit employee loyalty and performance if the company focuses appropriately on developing a solid strategy for its employees within an organization. When issues of loyalty arise, job loss is frequently distressing for a large number of people.

Overall, comprehensive studies on job security among employees indicate a connection between heightened adverse effects on physical well-being (Roskies Louis-

Guerin, 1990) and elevated complaints of psychological stress (Probst & Brubaker, 2001). Another significant issue related to the increase in job security is the psychological stress that employees frequently face. Michelle and Helen (2016) studied 18 employees and discovered that job insecurity is more strongly associated with mental and physical health. The issue of job security had existed previously, but it only recently became a novel research topic in industrial and organizational psychology (Daud, 2017).

The workplace is characterized by a prevalent and frequent occurrence of stress and strain, which can be attributed to the demands of the working style. Excessive stress may have detrimental effects on both the health of employees and an individual's overall physical and mental well-being. The economic recession may lead to a potential psychological workplace situation when firms must restructure, reorganize, or reduce their workforce by laying off employees. Additionally, it affects work stability, diminishes career prospects, undermines financial security, and contributes to mounting personal debt (Anon, 2016).

As per Sweet (2006), job security refers to a state in which employees lack assurance regarding the stability of their employment on a daily, weekly, and yearly basis. In contrast, Meltz (1989) defines job security as the state where individuals maintain employment with an organization while preserving their rights to seniority, pay, retirement benefits, and other related aspects. Herzberg (1968) defines job security as the state in which an organization offers employees consistent and steady employment. Within the scope of this study, job security pertains to the guarantee of continued employment, encompassing aspects such as retirement security, job instability that jeopardizes the stability and productivity of employee positions within the organization, and the apprehension of job loss.

The effect of offshoring on perceived job insecurity has rarely been studied. However, the researcher relies on studies investigating the effect of offshoring on observed turnovers, the risk of losing jobs, switching to other industries, or unemployment in this section (Milgram & Budria, 2020). Indeed, previous literature has repeatedly associated job insecurity with reduced well-being (Van Hootegeem, Niesen & De Witte, 2019). Job insecurity negatively impacts well-being through economic insecurity and threats to work's social benefits (e.g., social status, social network) (Fullerton et al., 2020; Jahoda, 1982; Selenko & Batnic, 2013). Job insecurity can also increase job satisfaction and absenteeism (Qin & Jiang, 2011). According to

the Dow Jones Sustainability Index (2012), the O&G industry may be dangerous and environmentally unfriendly, resulting in poor employee loyalty and satisfaction.

Offshoring remains controversial in most high-income countries (El-Sahli et al., 2022). The media frequently report how employees can be harmed by offshoring, such as shifting the location of manufacturing and service activities abroad and leading to job insecurity (El-Shali et al., 2022). Besides, offshoring may result in the substitution of domestic employees by foreign suppliers, resulting in job losses (Budria et al., 2019). On the other hand, domestic firms may gain market share by increasing productivity and demand for local employees. Crinó (2012) undertakes an exhaustive survey of the empirical literature on this offshoring employee and concludes that relocation of production activities (material offshoring) appears to increase employment volatility. In contrast, service offshoring would have a lower impact on total employment but would favor highly skilled white-collar employees. She postulated that these distinctions result from the still-limited scope of service offshoring.

Furthermore, service offshoring helps to create new jobs in the domestic market. Evidence on service offshoring is still insufficient to draw firm conclusions. In the United States, Liu and Trefler (2019) discovered that service offshoring to China and India significantly impacts switching down (switching to an occupation that pays less on average than the current occupation) than switching up. Service offshoring would also have had a minor impact on the average wage of service sector employees but would have elevated the unemployment figure of these white-collar employees.

Similarly, Görg and Görlich (2012) utilize objective unemployment hazards to investigate the impact of trade exposure (as measured by gross trade values) on the likelihood of employees losing their jobs. They contrast export-intensive and non-export-intensive sectors, service and material offshoring, and diverse types of skilled employees. Their findings generally indicate that the effects of trade on unemployment probabilities and wages are minor, except for services industries, where export exposure is significantly correlated with a high likelihood of unemployment. According to Görg and Görlich (2015), offshoring raises the unemployment risk of temporary unskilled labour employees more than permanent unskilled employees.

2.5.4 Dimensions Of Job Resources

According to Demerouti et al. (2001), job resources refer to aspects of the work environment that assist employees in achieving work-related goals, reducing job demands and associated strain, and promoting personal growth and development. In this study, job resources are represented by two dimensions, namely social support and work environment. These dimensions are examined to provide a clearer understanding of how available resources contribute to employees' mental health and job satisfaction. The following sections present a detailed discussion of each dimension and its relevance to the overall research framework.

2.5.4.1 Social Support

Humans are inherently social beings that rely on others for psychological, social, and professional well-being (Hobfoll, 1989; 2002). Social support is recognized as a crucial element of solid relationships and mental well-being, but what does this entail? Social support refers to a network of family and friends who can be relied upon during adversity (Kendra, 2023). Social support arises from the interpersonal dimension of an individual's way of life, particularly regarding their mental well-being (Hosseini et al., 2021). These assets can directly enhance significant outcomes, such as establishing or enhancing social exchange relationships and job attitudes. Alternatively, they can serve as a protective barrier against environmental stressors, influencing an individual's perception of stress or experience of strain (Holland et al., 2017; Kim et al., 2016; Viswesvaran, Sanchez & Fisher, 1999).

Social support techniques enable individuals to connect, receive advice, seek suggestions or encouragement when needed, and interact with others who share similar interests (Munyan, 2021). This assistance is particularly important for those suffering from mental health conditions or coming from socioeconomic backgrounds predisposed to the development of mental health disorders. Social support may encompass many forms, such as emotional, instrumental, informational, and appraisal (Scott, 2020). Emotional support is a type of social support in which an individual provides emotional comfort to someone in distress. Close friends and family members offer encouragement and a listening ear. On the other hand, instrument support is a tangible aid and service, while informational support includes advice, suggestions, or information intentionally

delivered for self-evaluation. Appraisal is similar to informational support; however, it contains valuable information for self-evaluation.

Over the past few decades, a significant amount of research has been conducted on the contribution of social support, social relationships, or social networks to health and wellbeing, particularly to disease and mortality (Holt-Lunstad et al., 2010; Uchino, 2006; Smith & Layton, 2001; Kawachi & Berkman, 2001; Berkman, Glass, Brissette, & Seeman, 2000; Berkman & Syme, 1979). Positive or protective effects on general, physical, and mental health, as well as psychological or emotional and occupational well-being, have been demonstrated for social support of various types (emotional, functional, instrumental, structural) from various networks (personal, professional, community), sources (family or relatives, spouse, friends, supervisors, co-employees, the organization) and domains (work, home, or non-work) (Hammig, 2017).

While receiving social support at work is generally regarded as a net positive for employees, researchers have discovered that certain types of social support, such as unhelpful workplace social support (UWSS), may trigger stress and strain (Hughes et al., 2022). Employee depression may be reduced in the workplace by increasing social support because employees can defend themselves against the harmful effects of life (Dong et al., 2023). Social support is correlated with prosperity and positive well-being results (Johnsen et al., 2018). Nevertheless, positive results of social support might be more subject to the way support is provided than the amount of support received (Johnsen et al., 2018). Differentiate between directive social support, where the provider resumes responsibility, and nondirective social support, where the receiver has control (Johnsen et al., 2018).

Social interaction is a significant part of human existence, and social support is related to well-being and prosperity and is a precursor to health-promoting behaviour (Smith et al., 2010; Gallant, 2003). Being essential for an informal organization, such as a working environment, provides the employees great freedom to arrange social support and may have a significant health-promoting effect (Johnsen et al., 2018). A comprehensive longitudinal analysis found that employees who reported higher levels of social support from peers had significantly reduced risk of death (Shirom et al., 2021) and that lower social support was associated with sick leave (Knapstad et al., 2014).

Organizational psychology has traditionally focused on studying negatively charged behaviours such as absenteeism, turnover, and work stress (Salanova & Schaufeli, 2008). Today, a paradigm shift has enabled the employees to shift from a

negative to a more positive perspective. As a result, positive psychology has grown in popularity. A movement has emerged to support the paradigm shift research effort to interpret organizational projects better and expand and improve psychosocial well-being and quality of life in organizations (Salanova et al., 2016). Organizations can adopt social resources in the working group and provide them as social support. Supervisors (Bruce & Blackburn, 1992; Jago & Vroom, 1982) or peers (Green, 2000; Maynard, 1986) can provide social support to professionals. Social support can be "emotional" in the engaging configuration of active emotions felt with other members inside and outside the organization (Aspinwall & Taylor, 1992; Wanberg & Banas, 2000).

It can, however, have an "instrumental" configuration, owing to the more or less tangible nature of these interactions that facilitate the achievement of results, work execution, financial assistance, and other facilitated aids or assets (Almeida et al., 2020). Facilitated access to information channels (strategic, technical, and practical), support (guidance, monitoring, and feedback), resources (material, human, or financial), and opportunities (to learn and grow in the organization) are organizational structures that enable employees to perform their work activities and tasks freely, independently, and autonomously in the second dimension (Salanova et al., 2014). As a result, managers provide their subordinates with the support tools they need to perform their assigned activities and tasks with complete freedom and success by providing substantiated infrastructures (increased access to information, resources, support, and opportunity) (Lambert et al., 2016). Employees, in turn, must have the skills, abilities, and talents necessary to carry out these activities and tasks as successfully as possible to earn this trust.

Furthermore, social support in the work environment is supposed to be a significant asset in assisting employees with adapting to stress by lessening strains and stressors (Blanch, 2016) and impacting prosperity (Niesel et al., 2010). Nevertheless, being necessary for a social network does not guarantee that individuals will be supported. Social networks and relationships may likewise be portrayed by negative characteristics such as stress, quarrel, or disappointment, and accordingly serve as a model for chronic sickness (Stansfeld et al., 2016). Social support can be classified by type of social support or by roles and relationships between support providers and the support recipients. The most recognizable classification is presumably the distinction in the capacity of support, for example, instrumental or emotional support (Cohen et al.,

1985). However, there are various suppositions regarding the number of categories and their defining characterizing, and thus also various measurements used in existing literature.

In addition, social support is a significant factor influencing mental health (Harandi et al., 2017). In the past decades, much research has been done on the impact of social support on mental health (Harandi et al., 2017; Afrooz & Taghizadeh, 2014; Shakerinia, 2012; Kamran & Ershadi, 2000). Considering that health is a concept that is influenced by a set of complex variables, i.e., biological, psychological, social, cultural, economic, and spiritual, it should be acknowledged that health and mental illness do not simply have biological or psychological aspects but also have concurrent social dimensions and nature. Social factors, which can be assumed to be a significant part of creating, keeping up with, and promoting health, have played a significant role in the disease's incidence, prevalence, and persistence (Cokrin, 2016). In this aspect, it is vital to focus on social factors that impact psychological health, and perceived social support is one of those variables (Harandi et al., 2017). Social support is a peculiarity that includes the cooperation of individuals, so when an individual offers social communication, it plays a significant part in his health (Marmot & Wilkinson, 2016).

Social support alone is not significant, yet what is significant is the confidence in the presence of social support (Cobo-Rendon et al., 2020). Social support provides physical and psychological benefits to individuals confronted with unpleasant physical and psychosocial occasions and is considered a variable reducing psychological distress when confronted with distressing occasions (Goesling et al., 2015). Numerous research studies have been performed on the impact of social support on health, quality of life, and particularly mental health over the recent decades. Nonetheless, each research has been performed on a non-identical population and has used dissimilar instruments, sampling methods, and statistical populations, bringing in various outcomes. For instance, the study by various researchers found that there is a significant relationship between social support and mental health (Afrooz & Taghizadeh, 2014; Shakerinia, 2012; Rajai et al, 2012).

The study by Harun et al. (2014) can be used to illustrate the lack of evidence linking social support turnover intention in the O&G industry. On the other hand, Harun et al. (2014) stated that working on an oil rig for prolonged periods with constant rotational shifts, as well as working in a remote location, affects an individual understanding of job efficiency because working on an oil rig is different from working

in a traditional manufacturing industry. According to Eagle, Hybels, and Proeschold-Bell (2019), contextual variables such as the nature of an individual workplace or how isolating a particular job are likely to express different degrees of alteration in social support.

Furthermore, the assistance provided by the higher-ranking individuals is crucial. Consequently, employees need to have a positive rapport with their bosses. An organization consists of individuals with distinct thoughts, emotions, and preferences. Encounters between these persons are inevitable inside the organization. It has been observed that perceptions of a lack of fairness in management practices and dissatisfaction with supervision lead to a prominent level of employee dissatisfaction (Al-Shami, Al-Hammadi, Rashis, Al-Lamy & Eissa, 2019). Inadequate managerial support is associated with lower job satisfaction and performance. Employees at all levels form impressions about whether they are valued and respected based on essential environmental cues, particularly those from the leaders to whom they report. Employees are happier when they have a good relationship with their leader (Al-Sharmi et al., 2019).

Working in the O&G industry can be related to loneliness due to the working environment, apart from the family and outside world. There is growing interest in the effects of social relationships on health and the implications for service delivery and policy (Ersoy et al., 2023). Loneliness has been a prominent focus in recent physical health research (Mohapatra et al., 2023; Petite et al., 2015). Loneliness and its associated consequences, such as increased stress and vulnerability to stressors, have become significant mental health concerns as a result of the promoted physical isolation (Killgore et al., 2020), not to mention the significant economic, emotional, familial, and health-related stressors as we know of the COVID-19 pandemic (Salari et al., 2020; Saltzman et al., 2020).

For example, two meta-analytic reviews concluded that loneliness and a lack of social support are associated with higher mortality rates and that the effect is comparable to that of well-established risk factors such as obesity, physical inactivity, and smoking (Holt et al., 2015; Holt et al., 2010). In longitudinal studies, they are also predictive of the development of coronary heart disease and stroke (Valtorta et al., 2016), an increase in systolic blood pressure (Yu et al., 2024; Yang, Boen & Harris, 2015), and chronic pain (Jaremka et al., 2014; Hughes et al., 2014). Loneliness may have an impact on physical health through biological, psychological, and behavioural

mechanisms such as physiological functioning, neuroendocrine effects, gene effects, immune functioning, perception of stressful events, health behaviours, and sleep quality (Yu et al., 2024; Cacioppo et al., 2014).

In contrast, even though loneliness and a lack of social support are well-documented problems among mental health service users (Perese & Wolf, 2015), they have received little attention in research, mental health service delivery, and policy. Loneliness has received increased attention because of growing awareness of its high prevalence and wide-ranging effects on physical and mental health (Reininghaus et al., 2014). Despite this growing recognition, no systematic synthesis of the evidence on the relationship between loneliness and the outcomes of mental health problems has been published to date (Wang et al., 2018).

Offshore employees described the struggles of being away from family and feeling lonely, the stress of navigating protocols, and the mental health consequences for themselves, family members, and colleagues. According to their responses in a study conducted by the National Offshore Petroleum Safety and Environmental Agency (NOPSEMA), COVID-19 has had far-reaching effects on offshore employees, both at work and at home, with increased anxiety and uncertainty about travel and job security (Gilbert et al., 2021). A recent study shows that most (64 %) offshore employees surveyed in Australia reported moderate to prominent levels of general psychological distress (Whitfield, 2022).

Employees' stress was explicitly described as the uncertainty of arriving at work on time, returning home, or not knowing if a lockdown would occur while they were away. The COVID-19 pandemic has created an extensive number of large-scale mental health issues (Czeisler et al., 2020; Pollard et al., 2020). During COVID-19, participants described issues with access to social support, specifically a lack of support from their employer and limited access to their network. Participants noted that obtaining support was complex, with a sense that working offshore during the pandemic was a one-way street. Responses reflected employees' perceptions of putting in time, effort, and energy while receiving little in return from their employers. Participants' responses reflected their scepticism and lack of confidence in some of their employers' COVID-19 protocols and decisions.

Baseline mental distress was linked to lower levels of fair leadership among offshore employees (Berthelsen et al., 2017). Fair leadership entails the perception that one's immediate superiors treat employees fairly, distribute work fairly, and are not a

source of "stress." Employees may perceive their boss as less fair as a result of their anxiety or depression. However, it is possible that anxious or depressed people are being mistreated, for example, due to reduced work ability. Depressed or anxious offshore employees may experience deficiencies in education and training demands for the same reason (Berthelsen et al., 2017).

According to a report published by Employment Hero (2022), 50 % of Malaysians agreed that the pandemic has caused them to downgrade their career priorities. In the other report, 58 % of Malaysian employees are burned out, and 51 % have an average or poor work-life balance. Furthermore, 51% of employees said the pandemic has hampered their career advancement, and 67% of Malaysian employees are worried about their finances (Mardhiah, 2022). Surprisingly, Malaysian employers are becoming more aware of the problem and are taking steps to address it. Approximately 50 % of employees agree that their organization incredibly supports employees' mental health in the workplace. In comparison, 49% are concerned that reporting mental health issues will result in repercussions in the workplace, and 32% are more likely to be loyal to their employer (The Malaysian Reserve, 2022).

2.5.4.2 Work Environment

Almost 60 % of the world's population is employed (ILO, 2022). Work remains an essential part of one's daily activities as an adult, accounting for one-third of one's time at work (Ahmed, 2013). Work offers people a sense of social identity and occupies people's thoughts, daily activities, and schedules even when they are not working. As a result, it is reasonable to believe that work events can influence an individual's mental health and well-being (Amponsah-Tawiah et al., 2023). Previously, ILO has estimated that one worker dies in a work-related accident every 15 seconds, and 160 employees suffer from work-related illnesses (Sanders & Wood, 2014; ILO, 2013). Workplace accidents not only cause occupational accidents and illnesses but also lead to economic losses for organizations (Zahiri et al., 2020). All employees have the right to a safe and healthy working environment.

Despite the disruption caused by COVID-19, it is also providing opportunities for governments, institutions, and businesses to explore innovative, effective, and alternative ways of sustaining social structures, economic activities, workforce, support systems, and healthcare to provide hope to employees who are facing of uncertainty

(Ansah et al., 2023). Employees are entitled to decent, healthy, and safe working conditions under COVID-19. Decent work supports good mental health by providing living, confidence, opportunities for positive relationships and community involvement, and a platform of structured routines (WHO, 2022).

Mental wellness is paramount for both employees and organizations. When the work environment negatively affects an employee's mental health, employment can become stressful (de Lange et al., 2005). The working environment can potentially influence employee morale in beneficial and detrimental ways (Mohd Zain, 2021). Increasing evidence in the literature suggests that the favorable mental well-being of employees has a beneficial influence on hierarchical attainment, as well as professional and personal contentment (Vigo et al., 2019). This evidence suggests that the work environment substantially influences employees' performance, morale, and productivity. James et al. (2018) found that creating and maintaining a logically sound employee and stable working environment enhances employee happiness and productivity.

As an employee, evaluating the factors contributing to a satisfactory work environment, the primary determinant of job satisfaction, and the reasons behind people's choice of employment is crucial. Extensive studies have been carried out on these subjects, leading to several researchers developing questionnaires and interview guides. These tools aim to identify the key characteristics that contribute to establishing favorable work environments. Nevertheless, the responses will differ according to the nation (Roelen et al., 2018). Recently, several sectors have gained a growing understanding of the significance of mental health. The management of psychosocial elements in the workplace has a significant impact on mental health.

Thus, what does the term “psychosocial” mean? The expression “psychosocial work environment” covers employee work and working conditions (Moen & Tjalvin, 2022). The term psychosocial and social factors in the working arena have appeared in English literature (Moen et al., 2022). The psychological factors are perceptions and interpretations of work-related issues, whereas the social factors include the impact of the social context and interpersonal factors. These ideas have merged to form the term “psychosocial.” The psychosocial work environment is the working conditions in which employees carry out their organizational tasks (ILO, 1986). The phrase “psychosocial work environment” can be broken down into three parts: organization, social interaction, And individual perception. The components of this environment must be

identified and managed because they impact employees' health and well-being (Madrid et al., 2020).

Many adverse health outcomes have been linked to the psychosocial work environment in various workforces (Useche et al., 2019). There are several features in any work environment that might harm employees' physical and psychological health have been scientifically documented during the last decades (Bazazan et al., 2018; Bliese et al., 2017; Rose et al., 2017; Salvagioni et al., 2017; Choobineh et al., 2009). Furthermore, various occupational policies, particularly those that use evidence-based diagnosis and interventions, show relative success in preventing adverse outcomes that may affect the working population's job quality. However, there are certain occupational groups that the applied evidence labels as "vulnerable," partially due to the high number of adverse conditions under which they perform job-related tasks and their subsequent translation into adverse outcomes such as occupational diseases, poor performance, and workplace accidents (Useche et al., 2019). One of these groups is, undoubtedly, the offshore O&G employees.

In other words, psychosocial factors at work are characteristics of the task design as well as the social, organizational, and management settings of the job that may result in physical or psychological harm to employees, usually accompanied by changes in their feelings, attitudes, behaviour, and physiological functions (Cox & Griffiths, 2005). This statement is supported by Kusumawati et al. (2021), who stated that the O&G industry is considered to be one of the laggards in the management of employees' psychosocial factors and mental health even though mental health is considered to affect employees' health and operational safety. Offshore O&G operations are generally challenging and dangerous, and employees are subjected to situations that can contribute to fatigue (Bazazan et al., 2023). Fatigue is a significant and prominent workplace issue caused by various lifestyle factors (Caldwell et al., 2019; Lock et al., 2018; Lin et al., 2015).

In addition, workplace bullying is now recognized as a psychosocial factor that has decreased employee productivity, ultimately leading to decreased organizational performance (Kamto et al., 2022). Although workplace bullying happens occasionally, it has been documented to be a psychosocial stressor with severe consequences for the health and well-being of those targeted (Verkuil et al., 2015; Nielsen et al., 2014; Bowling & Beehr, 2006). Despite extensive research and knowledge about the negative consequences of workplace bullying, which include long-term negative impacts on

mental health, an increased risk of disability retirement, and personnel turnover, minimal is known about its potential risk factors (Baillien et al., 2009).

Workplace bullying is a phenomenon that can have adverse effects on individual employees, such as mental and physical health and organization. Bullying is an ancient phenomenon that is well-known in every culture. It was initially developed in the 1980s by Heinz Leymann, who used the terms “mobbing,” “ganging up on someone,” “bullying,” or “psychological terror” to describe this phenomenon. The National Board of Occupational Safety and Health in Stockholm, Sweden, published this scientific report in early 1984 (Erwandi et al., 2021). Bullying has recently emerged as a source of concern in the field of OSH and can occur in any workplace, regardless of rank or income level. According to Xu et al. (2019), employees who are bullied have a 1.46 times greater risk of developing type 2 diabetes and mental health disorders. The O&G industry employs a diverse workforce, including permanent and contract employees and outsourced employees from goods and service organizations who interact with one another. With such a diverse background, there are social interactions that could potentially lead to workplace bullying, affecting employees’ psychological factors such as anxiety (Nauman et al., 2019).

The normalization of mental health obstacles at work is one silver lining amid all the disruption and trauma. (Harvard Business Review, 2021). In 2019, employers were only beginning to recognize the prevalence of these obstacles, the need to address stigma, and the emerging link to diversity, equity, and inclusion. In 2020, mental health support progressed from a nice-to-have to a business necessity. Fast forward to 2021, and the stakeholders have been raised even higher as a result of increased awareness of workplace factors that can contribute to poor mental health, as well as increased urgency regarding its intersections with diversity, equity, and inclusion (DEI) (Greenwood & Anas, 2021). Even though employers have responded with initiatives such as mental health days or even weeks, four-day workweeks, and enhanced counseling benefits or apps, these are insufficient. Employees demand and expect mentally healthy and sustainable workplaces, which necessitates tackling the challenging task of culture change (Greenwood et al., 2021).

Psychosocial work environment factors, otherwise called workplace stressors, are one of the main components to consider while deciding the health and safety of the workplace (Burton, 2014). The psychosocial work environment has specific risk factors named psychosocial hazard, psychosocial risks, psychosocial factors, or stressors (often

interchangeable) with a significant deleterious effect as featured in numerous previous studies (Javaid et al., 2018; Berthelsen et al., 2018; Buomprisco et al., 2018). These hazards are a significant area of inquiry in the precondition to establishing a healthy workplace environment by endeavoring towards the maximization of employee health and well-being as underlined by global agencies and organizations such as the International Labour Organization, World Health Organization, European Union of Occupational Safety and Health Agency, Health, Safety, and Environment and others (Isha et al., 2020).

The psychosocial environment at the workplace is commonly characterized as stressful conditions, referred to as psychosocial hazards, which can potentially negatively impact the mental well-being of employees (Gonzalez-Mule & Kim, 2021). These factors, such as role ambiguity, time restrictions, and workload, are authentic and supported by Karasek's 1979 research. Alternative models, such as the case of job autonomy, feedback, skill variety, and task significance, have also been included in the definition of the psychological work environment conditions associated with the experience of motivation (Hackman & Oldham, 1976; Oldham & Fried, 2016). Despite advances in research and practice in the field of organizational and occupational health psychology, the theoretical development of stressful and motivational conditions of the psychological work environment has tended to be separated, with some models focusing on stress and others on motivation (Kristensen et al., 2005; Morgeson & Humphrey, 2006; Tetrick & Winslow, 2015; Bakker & Demerouti, 2016; Parker et al., 2017).

A psychosocial work environment is a comprehensive framework encompassing several dimensions, including the nature of work, the employees, and the surrounding environment (Rahman et al., 2017). The concept encompasses the Structuring of tasks and the company's overall culture, which includes viewpoints, principles, and routines carried out daily in the workplace. These factors impact the employees' psychological and physical well-being (Luciana et al., 2019). The COVID-19 epidemic has significantly affected employment and the overall work environment (Kniffin et al., 2021). The mental well-being of personnel in the O&G industry has decreased, as Giorgi et al. (2020) indicated. In addition to the psychological effects of increased responsibility, concerns about illness, and the negative consequences of lockdowns, there have been other noticeable changes in work arrangements. The prevalence of telecommuting has undeniably surged, possibly encompassing millions of employees worldwide who have engaged in temporary telecommuting (Bouziri et al., 2020).

Recent reviews presumed that this notable change to telecommuting has required transformation from both employers and employees (Kniffin et al., 2021). Work has diminished due to lockdowns in certain areas; however, it has expanded in others, especially the O&G industry (Wong et al., 2022). Most of the pre-pandemic studies proposed that organizational downsizing, mergers, and changes may antagonistically influence employee's health (Gibbon et al., 2022; Jung et al., 2018), yet at times, additionally profound changes have been detected (Granstad et al., 2020). However, it is muddled how changes brought about by the COVID-19 pandemic in working environments might have impacted perceptions of the psychosocial work environment and employee well-being (Wong et al., 2021).

The work environment in the O&G industry is challenging and dangerous regarding safety and occupational hazards (Salleh et al., 2024a). Working environment stress is a type of pressure that initially comes in the workplace; as a consequence of the stressors that occur over extended periods, the definition of psychological stress changes. Work-related stress has also been identified as a significant risk indicator for both mental and physical health by occupational health researchers (Margheritti et al., 2025; Qiu et al., 2021). Job burnout syndrome may develop as a result of stressful work. It will boost the risk of injury and increase the probability of death (Naji et al., 2020). Moreover, work environment stress is caused by numerous factors, including employee-employer disputes (Pasamar et al., 2019).

The emergence of various work organization modifications in the past has been associated with psychological risks. The World Health Organization (WHO) and the European Agency for Health and Safety at Work (EU-OSHA) have said that there is a correlation between psychosocial risks and work-related stress. Moreover, a destitute psychosocial work environment can be related to health conditions due to long-term presentation to poor working conditions (EU-OSHA, 2014). The O&G business promotes many types of working schedules, including the fly-in and fly-out (FIFO) schedule (ILO, 2017). These sectors frequently operate on fourteen consecutive days of work followed by about fourteen days of rest. However, other schedules may consist of fourteen days of work followed by three weeks or even fourteen days followed by approximately one month of rest (ILO, 2017).

In addition, lengthy timetables, for example, a month on and about a month off, are found in some distant or abroad areas. Long working hours have been linked to poor mental and physical health globally (Chireh et al., 2023). According to a recent

systematic analysis of WHO and ILO joint estimates of disease and injury burden in 2016, approximately 488 million people, or 8.9 % of the global population, were exposed to working long hours (Pega et al., 2021). Recent occupational health literature has focused on this risk factor and its relationship with mental and physical health. Long working hours, for example, have been linked to stroke and ischemic heart disease in previous systematic reviews and meta-analyses (Niedhammer et al., 2021; Descatha et al., 2020; Li et al., 2020). Besides, long working hours have a mixed association with mental disorders. A recent systematic review discovered disparities in findings across studies conducted on different continents. Meanwhile, research studies from Asia and Europe found significant associations (Virtanen et al., 2018).

For instance, in the O&G industry, offshore specialist employees regularly move to start with one installation, then onto the next, and generally have no fixed work and leave cycle. These unpredictable working schedules could bring about worries for employees and their families. Moreover, FIFO employees are frequently expected to work broadened shifts; 12-hour shifts are the most widely recognized. There is a reliable connection between long working hours and adverse consequences on employees' well-being, vigilance, and work (ILO, 2017). Shift work is distinguished by alternating and rotating morning, afternoon, and night shifts, with employees frequently working outside of the standard hours of 7:00 a.m. to 6:00 p.m. (Straif et al., 2007). In general, shift work is defined as work that occurs between the hours of 1900 and 0600. Night work is a type of shift work in which most work is done between 2200 and 0600 hours (Fossum et al., 2013).

In developed countries, shift work employs at least 15 to 20 % of the working population (Jankowiak et al., 2024). Shift work is a widespread practice model in the O&G industry in many countries worldwide. Various shift patterns are used for offshore operations, such as 14 days (about two weeks), 14 nights, seven nights followed by seven days, or vice versa, and are all encountered (Tsvetkova & Gammelgaard, 2025). For offshore operations, various shift patterns include 14 days, 14 nights, and seven nights, followed by seven days, and vice versa. On the other hand, upstream operations in Malaysia require two weeks on an offshore platform and two weeks off duty. It ensures that the working schedule fully complies with Malaysia's Employment Act 1955 regarding rest days, working hours, holidays, and other service conditions (Makhtar et al., 2024). Furthermore, downstream operations use a two-shift system (12 hours per shift) with a 2/2/4 schedule (two days, two nights, and four days off).

However, the standard shift environment had no significant impact on health problems compared to shift employees.

The effects of shift work on diverse types of jobs and industries have been widely discussed. The most common impact during shift work environments, particularly at night, is circadian rhythms associated with altered activity or rest patterns (Chellappa, 2021). It creates severe stress for endogenous regulation of biological functions, which are driven by a body clock located in the suprachiasmatic nuclei of the encephalon and synchronized by environmental cues such as the dark or light cycle, in particular through non-vision-related phobic stimuli from retinal ganglion cells with high light sensitivity (Costa, 2016). Shift work disorder also encompasses insomnia and excessive sleepiness as a result of the work schedule. The study by Wang et al. (2018) compared the perceived physical and psychological health of adults working night and rotating shift schedules to day employees. Night and rotating shift employees with insomnia have sleep patterns similar to day employees (Booker et al., 2018; Parkes et al., 2019).

Few studies have investigated the connectivity between shift work and mental health problems in offshore employees (Al-Mekhlafi et al., 2024; Fink, 2024). As a result, the foundation for comparing results from past studies for offshore shift schedules needs to demonstrate a stronger relationship. However, Ljos and colleagues (2011) discovered that offshore employees on shift schedules that included night work had a higher risk of mental distress (HCL-5) than day employees offshore. However, when the association was adjusted for psychological and social work factors, the association was no longer statistically significant. Parkes (1999) found comparable results.

As a result, the evidence for a link between shift schedules and mental distress in offshore settings is inconclusive. The current findings contradict previous research on nurses. A cross-sectional study of nurses in Turkey found that night employees had higher levels of anxiety but no difference in depression levels when compared to daytime nurses (Selvi et al., 2018). Nurses working rotating shifts reported poorer sleep quality and mental health than nurses working during the day in Taiwan (Lin et al., 2012). On the other hand, a Danish prospective study of nurses discovered that shift employees had better mental health than day employees (Nabe-Nielsen et al., 2011).

There is some evidence, although still weak, of a gradual increase in mental health problems among men working nights over ten years. A British study found that

men who worked nights for more than four years had an increased risk of anxiety and depression symptoms when compared to men who had never worked nights (Bara & Arber, 2009). A longitudinal study in the Netherlands yielded equivalent results (Zhao et al., 2019). Despite some correlation between shift work and mental health problems, the evidence is inconclusive. The mixed results of the correlations between shift work and mental health have been attributed to selection effects, the most important of which is the healthy employees' effect (Pallesen et al., 2021). A few studies have examined the mental health effects of starting or stopping shift work (Pollock et al., 2020; Amanullah & Ramesh, 2020). A longitudinal study in the United States of non-shift employees who transitioned from non-shift work found that the development of anxiety and depression symptoms depended on the degree of sleep reactivity (Kalmbach et al., 2018).

Furthermore, a Dutch study found that depressed employees are more likely to switch from shift work to day work or from shift work to sick leave (Driesen et al., 2011). It is unclear whether the decision to change shifts was due to problems with the specific shift schedule or as a result of being depressed. According to one study, switching from night to daytime work may reduce anxiety and depression symptoms (Thun et al., 2014). Consequently, employees who change their work schedule due to health issues may be overrepresented among day employees in the current studies. Some of them may have changed due to the stress of working shifts. Thus, differences in mental health between shifts may have been obscured. The two prospective studies, however, only included respondents who worked the same shift schedule at baseline and follow-up. During the one-year follow-up, there was no change in mental distress. It is conceivable, however, that mental health disorders existed before the baseline. Finally, probably, shift employment is not as crucial as previously supposed for mental anguish. Instead, how shift schedules are organized is essential for mental health, balancing work periods with free periods, facilitating appropriate sleep environments, allowing influence over one's shift schedule or Rota, and facilitating work-family balance.

The need for comparability between findings across different studies has challenged shift work research. The findings attributed to the intricacies of "shift work." Shift schedules may differ regarding the number of consecutive nights worked, the time of shift start and end, the number of hours worked per shift, the length of the work period, free periods, and forward or backward shift rotation. As a result, determining

which aspects of the shift schedules in the current studies and the studies above contribute to the health effect in question, or the lack thereof, takes much work. Furthermore, they have four weeks of recovery following a two-week shift, so their total work exposure may need to be higher. If the rotation of day, evening, and night shifts is essential for mental health, the current offshore sample should be a better fit to answer the question (Berthelsen, 2017).

However, the rotation mainly was between day and night shifts due to the limited rotation schedule, which consisted of two to four nights each month. Despite the low number of night shifts, employees may experience sleep deprivation due to the alternating schedules between nighttime and day work, affecting their mental health (Seki & Yamazaki, 2006). Moreover, the diverse characteristics of "shift work" might result in varying health consequences depending on the specific combinations of consecutive nights, rotation schedules, and leisure intervals. Furthermore, the likelihood of experiencing adverse health consequences due to shift work and other occupational exposures may vary depending on an individual's tolerance.

The Cost of Ignoring Mental Health Research discovered that Malaysia is one of the world's most overworked countries, with 45-hour work weeks and only two weeks of annual leave (New et al., 2023). In contrast, Australia has 33-hour work weeks and a month off annually. According to the surveys conducted by the government and private organizations, Malaysians are overworked, do not get enough sleep, and are stressed, which leads to severe mental health conditions. Moreover, in 2019, according to the American Insurance Association, 51 % of employees experienced one or more dimensions of work-related, and 53 % reported getting less than seven hours of sleep per day.

Work environment conditions are often related to employee performance and well-being. The psychosocial work environment contributes to interpersonal and social experiences that affect behaviour and growth in the workplace. Poor work-life balance, abuse and intimidation, high work pressure or job demand, poor job control or decision latitude, and social support are correlated to prosperity, mental health at the workplace, high turnover rates, and premature retirement (Joanne et al., 2020). Those employees who work in positive psychosocial work environments, especially those with high job satisfaction and pleasant working conditions, are more likely to delay retirement (Thorsen et al., 2016). In contrast, employees facing hostile psychosocial work

environments with high job demands and little autonomy are likelier to leave or fasten their retirement plans (Thorsen et al., 2016).

Employee working conditions play a significant role in a company's ability to attract, retain, and motivate good employees, which is the root cause of employee happiness (Al-Ali et al., 2019). Schwartz (2012) adds that the importance of those working conditions, which include physical and psychological factors surrounding a job, as a motivator, and the absence of such motivating factors varies. Furthermore, working conditions that contribute to employee satisfaction led to increased motivation and commitment. On the other hand, the environment in which people work enormously impacts their happiness level for themselves and their work (Al-Ali et al., 2019).

Several authors have examined two facets of the work environment (Rachman, 2021; Rugulies, 2012; Rugulies et al., 2004). The first topic is work and its attributes, encompassing factors such as how it is executed and completed, job training and self-regulation concerning work-related tasks, a feeling of achievement, and the inherent worth of the work. The second component encompasses the setting, comprising physical and social working circumstances (Raziq & Maulabakhsh, 2015). According to Herzberg (1968), the working environment determines employee job satisfaction and dissatisfaction. George and Jones (1999) discussed the role of working conditions (both physical and social) in employee job satisfaction. Therefore, the work environment plays a significant role in employee job satisfaction because it has a considerable influence (Agbozo et al., 2017; Abualrub et al., 2016), and a healthy work environment is characterized by physical and psychological conditions, procedures, structures, relationships, and policies, which positively affects employee satisfaction, motivation, and performance in the workplace (Singh & Sharma, 2011).

Employee-job fit (how interested or bored they are), employee interactions (customers, subordinates, supervisors), the environment in which they work (noise level, crowdedness, temperature), and how the organization treats their employees (working hours, salary bonus and perks, rewards and punishments, treatment, and fairness) are all important in understanding employee job satisfaction. Working conditions such as working materials and technologies, work style, security, space capacity, office cleanliness, and restroom cleanliness provide positive emotion, safety, and inspiration (Singh & Jain, 2013). The working environment and situations are associated with job performance and work outcomes; the more constructive the working environment, the better the outcome (Javed et al., 2014).

2.6 Job Satisfaction As Mediating Variables

Organizations have begun to recognize that their most excellent investment is their employees in the current climate of turbulent change (Millar et al., 2017; Vomberg et al., 2015; Fulmer & Ployhart, 2014; Govaerts et al., 2011). Employee job satisfaction and motivation are essential for modern business and critical factors that distinguish successful organizations from the competition. Whenever considering job satisfaction and work motivation in general, the distinctive characteristics of these concepts in transition economies are of particular interest. Several recent research studies have discovered a positive relationship between the working environment and psychological factors on job satisfaction (Ma'rof et al., 2021).

Over the last 20 years, the issue of employee job satisfaction has become an important research topic that has received special attention from many researchers (Amran et al., 2021). Job satisfaction remains one of the most widely researched topics in Organizational Behaviour (Kumar & Giri, 2009). In addition, job satisfaction is a determinant of an individual's level of health and well-being. Job dissatisfaction can reduce productivity and negatively impact organizational performance (Faragher et al., 2005).

Employee job satisfaction is the main driver for their ability to create value, exhibit innovation, and perform well in the business. It also substantially influences employees' working circumstances and decision-making behaviour (Spector, 1985). Nevertheless, research has demonstrated that employees' physical and emotional well-being can be negatively impacted by their perception of occupational health hazards (Shan et al., 2022). Perceived occupational health hazards can lead to elevated stress levels and diminished organizational commitment, harming employee work satisfaction (Ramos et al., 2021; Peng et al., 2016). They also suggest that the perception of occupational health dangers might negatively impact employee work satisfaction.

Eslami and Gharakhani (2012) have conducted substantial research on job satisfaction models. They have shown that job satisfaction significantly impacts work performance, employee desire to resign, and retention. Experts, management levels, and the body of knowledge widely accept this finding. Job satisfaction can be achieved whenever the employee's "likes and dislikes" on the work they carried out have a positive or negative impact, such as the type of work, work atmosphere, and

interpersonal relationships (Gibson et al., 2011). Furthermore, “keeping the happy ship” is widely used among offshore maritime O&G employees, implying that job satisfaction is essential to organizational culture (Mustafa et al., 2022). Job satisfaction combines psychological, physiological, and environmental factors that allow a person to feel good at work (Al-Ali et al., 2019).

In addition, Norizan (2013) further links job satisfaction to Maslow’s Theory of the Hierarchy of Needs, claiming that people’s needs and requirements are never satisfied because they always desire more after one requirement has been met. They never give up striving for job satisfaction. According to Halkos and Bousinakis (2017), employee satisfaction can be greater when there is a healthy workplace and employee benefits, while dissatisfaction negatively affects the organization. Robbins and Judge (2018) suggest that job satisfaction is a positive sense of work that arises from a broad evaluation of characteristics. Another study by Adigun, Oyekunle, and Onifade (2017) demonstrates that job satisfaction significantly impacts employee performance. Conclusively, the job tested the employee’s performance level regarding job satisfaction.

An offshore platform's work environment is unique, including those employees who live and work in the same confined area surrounded by nothing but the unpredictable ocean. Employees on offshore O&G platforms face constant uncertainty due to workplace safety, hazardous tasks, production demands, and technological changes (Harun et al., 2014). Many people may prefer something other than offshore jobs due to the challenging work environment and nature of the work involved. The industry may need help recruiting and retaining exceptionally skilled and experienced offshore employees (Harun et al., 2014). As a result, many O&G organizations go out of their way to ensure that their employees' onboarding time is as pleasant as possible. Offshore O&G platform employees' work performance is pivotal to the survival of any O&G company. They are, without a doubt, the most essential capital and must be continuously motivated to stay.

In today's competitive environment, how employees are treated is the primary source of gaining a competitive advantage and determining organizational performance (Todorovi et al., 2017; Kandasamy & Ancheri, 2009; Lawler, 2005). Many businesses need to recognize the importance of a positive working environment for employee job satisfaction, and as a result, they face numerous challenges at work (Raziq et al., 2015). Employees are crucial parts of the process of achieving an organization’s mission and

vision. Employees must meet the organization's performance criteria to ensure the quality of their work. Employees require a working environment that allows them to work freely and without problems that may prevent them from performing to their full potential to meet organizational standards. A good working environment increases employee loyalty, level of commitment, efficiency and effectiveness, and productivity. Also, it develops a sense of ownership among employees, which ultimately increases organizational effectiveness and reduces prohibited costs due to dissatisfied employees (Raziq et al., 2015). Without employees, no organization could achieve its organizational or financial goals (Johari et al., 2012).

Compared to the onshore working environment, the offshore working group presents a unique situation that must be explicitly addressed (Afza et al., 2016; Ross, 2009). As a result, maintaining employee satisfaction in an offshore setting is challenging due to its working environment. Most offshore employees need help to sustain themselves when it comes to shift rotation. It demonstrates that the industry is described as 'high risk' with a challenging work environment. Furthermore, Elliot (1985) described the offshore working environment as challenging, dangerous, and socially isolated. Aside from that, Offshore working environments expose employees to high hazards, disasters, and accidents (Bergheim et al., 2015).

On the other note, health is a three-pronged physical, psychological, and social response to internal and external stimuli that seeks to maintain, stabilize, and comfort. As a health determinant, job stress includes distressing emotional responses that occur when there is a mismatch between the demands and requirements of a job that requires talent, resources, or staffing. Today, it has been determined that stress can either cause or contribute to the evolution and development of many physical and psychological illnesses (Lambert et al., 2018). Job satisfaction was among the first indicators of employees' reactions to tickle public interest (ILO, 1984). Since the 1930s, measurement techniques have been developed to determine how satisfied people are with their jobs.

Job satisfaction is one of the emotional responses elicited by contrasting actual and expected work results. The consequences of job dissatisfaction are not only limited to the psychological and individual dimensions; they can also appear after experiencing industrial conflicts and riots, strikes, worker punishment and dismissal, despotic order by the manager, and other such issues. Furthermore, job dissatisfaction impacts societies' economic and social development (Kampkotter et al., 2017). Furthermore,

work shifts are recognized as one of the factors influencing job stress. According to the literature, the number of stressful events for shift employees is higher than for day employees. In addition, shift systems in the petrochemical industry vary for various reasons, including organizational, industrial, and economic challenges, each with its characteristics, advantages, and disadvantages (Choobineh et al., 2012).

Furthermore, work shifts can impact job satisfaction and health on the one hand. They can be linked to a reduced ability to work in different timeframes and job dissatisfaction. Furthermore, shift work is more common in large and complex work environments such as petrochemicals; thus, its adverse effects will be significantly more significant in such environments (Choobineh et al., 2012; 2011). Around the turn of the century, there was a surge of interest in job satisfaction (Rukh et al., 2015). Research conducted by Nadinloyi et al. (2013) found there is a link between job satisfaction and mental health, depression, and social action. Furthermore, Lee et al. (2009) discovered that employees experiencing severe psychological distress had lower job satisfaction. Previously, some researchers approached job satisfaction regarding whether it meets physical or psychological needs regarding work benefits, such as wages.

Nevertheless, contemporary academics prioritize conceptual processes above fundamental needs (Spector, 1997). Employees are driven by three fundamental needs: autonomy, competence, and relatedness (Spector, 2021). Autonomy refers to the inherent inclination to exert control or authority over one's surroundings. When individuals lose command of their lives, they may experience heightened stress levels and develop a solid need to regain that control. This factor contributes to individuals' occasional resistance to obeying commands, even if the commands benefit them. Competence is defined as the desire to achieve meaningful goals in life. Employees want to feel that they excel in at least some domains. Nobody wants to feel like they are a failure because they cannot take any action. On the other hand, relatedness refers to the need to have positive relationships with other people, including good working relationships and friendships (Spector, 2021).

Employee satisfaction has well-established benefits, so Human Resources (HR) professionals and leaders across all industries spend significant time maximizing those benefits for organizational outcomes (Giardino, 2019). Spector (1997) identified three critical components of job satisfaction. The following are examples: He stated that human values should manage organizations. Organizations that are managed with such values will treat their employees with respect and fairness. In such cases, job satisfaction

evaluations can be presented as an indicator of employee effectiveness. Employees' emotional and mental states are said to be good when they have an elevated level of job satisfaction. As a second feature, the behaviour of employees as a result of their job satisfaction levels will impact the functioning and activities of institutions.

In other words, it is concluded that an employee's high job satisfaction level leads to positive behaviours. In contrast, if the job satisfaction level is low, this leads to negative behaviours. Finally, Spector stated that job satisfaction can be used to predict organizational activity. Various satisfaction levels in different organizational units can be determined by evaluating job satisfaction levels in organizations. Thus, organizational unit changes should be made to increase performance. Therefore, job satisfaction is affected by the nature of the job, advancement opportunities, wages, management, working conditions, and groups. These factors are also thought to lead to job dissatisfaction (Aziri, 2011). It is said that these factors affecting job satisfaction constitute the dimensions of job satisfaction.

Employers should prioritize creative employees who can quickly adapt to recent changes in today's culture and during rapid technological change. Adaptable, social, and productive employees are also the ones most satisfied with their jobs; job satisfaction is a handy tool for assessing and adapting leadership guidelines based on employee feedback (Cronley & Kim, 2017). An employee's level of satisfaction is an essential variable for a manager or organization to predict absenteeism, as well as willingness to resign or leave an employee's work. Employee satisfaction is also influenced by expectations for future growth (Mayuri & Sumedha, 2019).

Job satisfaction was the most crucial factor strongly related to organizational productivity. Job Satisfaction is the degree to which these employees rate their work, which is likely not high (Murad, 2018). According to Judge et al. (2017), when employees are happy with their work due to creating charming stress within the organization, they can motivate employees to work hard, and the organization can achieve impressive results. Furthermore, according to Boamah et al. (2017), job satisfaction is a type of engaged factor linked to company efficiency. Furthermore, according to Laschinger (2017), a prominent level of job satisfaction contributes to low employee turnover, which helps organizations become productive and obtain an excellent reputation.

There are a variety of scales measuring job satisfaction in organizational research. Few studies conducted (e.g., Tsounis & Sarafis, 2018; Mahdi, Zin, Nor Sakat

& Naim, 2012; Stanton, Balzer, Julian, Thoreson, Aziz, Fisher & Smith, 2001) claimed that the Job Descriptive Index (JDI) developed by Smith, Kendall & Hulin (1969) is the most researched scale of job satisfaction. In this regard, many researchers have developed more industry-specific job satisfaction scales. For instance, Ozpehlivan and Acar (2015) developed job satisfaction scales for textile employees; Pollnac, Seara, and Colburn (2015) and Pollnac and Poggie (1988) for commercial fishermen; and Astrauskaite et al. (2011) for secondary school. It is presumed that little empirical research has been conducted to create an offshore-based scale. Furthermore, more information is needed about the contextual settings regarding the associations and dimensions that influence employee job satisfaction. A bespoke scale could provide significant evidence to organizations indicating the existence of job satisfaction and dissatisfaction, as well as the specific job satisfaction attributes that are most lacking.

A large number of questionnaire-based studies on job satisfaction have been conducted (Sutherland & Cooper, 1989; Sutherland & Flin, 1989; Rundmo, 1996; Ulleberg & Rundmo, 1997; Wickramasinghe, 2009; Wickramasinghe & Jayaweera, 2010; Dickey et al., 2011; Nielsen et al., 2011; Nielsen et al., 2013; Harun et al., 2014; Li et al., 2014; Olaniyan & Hystad, 2016; Yuen et al., 2018). As Sutherland and Flin (1989) discussed, the study examined some psychological and social aspects of offshore working life. The study findings demonstrated that offshore individuals reporting higher stress levels showed lower job satisfaction and mental well-being. Another study done by Sutherland and Cooper in the same year found that no significant differences were reported in stress levels or stress manifestations (i.e., job satisfaction, mental health, alcohol, or tobacco usage).

The latest study conducted by Yuen et al. (2018) on Singaporean ship management organizations demonstrated that job satisfaction was considerably correlated with the job performance of seafarers. Seafarers are considered in this study because the working environment is more or less the same as the oilfield working environment. These two jobs are considered as high-demand jobs, substantial risk of psychosocial factors, and thus lead to mental health issues if not taken into high consideration by the organization and especially the employees themselves. Employees' motivation and job satisfaction are investigated using motivational theories, including need-based, reinforcement, and process theories. On the other hand, employee motivation is a concept that takes time to define. There is a connection between motivation and job satisfaction, which is the foundation of any organization. There

needs to be more clarification between motivation and job satisfaction (Pananrangi et al., 2020).

Employee satisfaction has been a mainstay of industrial and organizational psychologists' research (Ali & Anwar, 2021). Some people enjoy working and consider it an essential part of their lives. On the other hand, some people despise their jobs and only work because they have to. Job satisfaction indicates how much people enjoy their jobs. Job satisfaction is the most extensively researched aspect of organizational behaviour (Anwar, 2017). At this point, employee happiness is influenced by various factors, such as salary, location, and other complex factors, such as job satisfaction. According to Aziri (2011), there is still no general agreement on job satisfaction. Indeed, different authors have different perspectives on job satisfaction. George (2018) defines job satisfaction as a collection of feelings and beliefs about one's current job. It is more of an attitude, a state of mind. Job satisfaction is one of the most crucial factors influencing employee happiness, and it is frequently used interchangeably with employee happiness. According to Kaliski (2017), job satisfaction is enthusiasm and happiness with one's work.

It is essential to recognize the level of job satisfaction for various reasons, and the findings of job satisfaction studies affect both employees and organizations. From The employees' perspective, it is evident that people prefer to be treated fairly. Employees who feel respected and satisfied at the workplace may receive adequate treatment. According to the organization, decent job satisfaction can lead to better employee performance, affecting company outcomes (Smith et al., 2020). Employee satisfaction is regarded as a critical driver of employee retention and productivity. Employee satisfaction is a prerequisite for increasing productivity, responsiveness, quality, and service recognition.

Job satisfaction is influenced by intrinsic and extrinsic motivators, the quality of supervision, social relationships with the workgroup, and whether or not individuals achieve success or failure in their work. It is believed that positive behaviour is most likely to occur when employees are well-motivated and feel committed to the organization and when the job provides them with a prominent level of satisfaction (Paais & Pattiruhu, 2020). According to the research, the most crucial factors influencing job satisfaction are career opportunities, job influence, teamwork, job security, and job challenges (Riyadh, 2020). Numerous studies have suggested that job satisfaction factors should be taken into account more to comprehend the complexities

and interdependence of work attitudes and to achieve the desired work conditions among employees (Ahad, Khan, & Rahman, 2020; Hope, holding, Verner-Filion, Sheldon, & Koestner, 2019; Utomo, Udin, & Haryono, 2022).

2.7 Theory Underpinnings

Current research on psychosocial factors highlights the need to consider multiple interacting variables when examining workplace risks (Erwandi et al., 2021). Both employees and management play a role in recognising how these factors influence health and organisational performance (Bennouna et al., 2025). In practice, occupational risks often arise from the interaction between psychological, physical, chemical, biological, and biomechanical elements. These risks are embedded in everyday work processes, such as operating machinery, handling hazardous materials, and managing demanding job responsibilities (World Health Organization, 2022).

Work-related illnesses may develop from repeated exposure to such conditions, leading to both short-term and long-term health effects. These outcomes are not limited to workplace factors alone, but may also be influenced by individual lifestyle and behavioural patterns (Giuffrida et al., 2002). At a broader level, global evidence continues to show the scale of the issue. The International Labour Organization (ILO) reported that more than 1.9 million deaths were linked to work-related accidents and diseases, particularly in high-risk sectors such as O&G, construction, and manufacturing. This supports the view that psychosocial hazards are a core component of occupational risk rather than a secondary concern (Leka et al., 2020).

To explain these relationships, several theoretical perspectives have been developed. The Demand–Control Model by Robert Karasek explains how high demands combined with low control led to job strain (Karasek, 1979; Hausser et al., 2022). The Effort–Reward Imbalance (ERI) Model by Johannes Siegrist focuses on the imbalance between effort and rewards, particularly in relation to fairness and recognition (Siegrist, 1996; Rugulies, 2023). In addition, the Conservation of Resources (COR) Theory introduced by Stevan Hobfoll explains how individuals experience stress when their resources are threatened or depleted (Hobfoll, 1989; Halbesleben et al., 2022).

While these theories provide useful insights, empirical studies highlight several limitations when applied to complex work environments. The Demand–Control Model

is considered overly restrictive, as it focuses primarily on job demands and decision latitude, without accounting for broader organisational and social factors (Häusser et al., 2022). The ERI Model, although useful in explaining perceived unfairness, is limited by its narrow focus on reward structures and does not fully capture environmental or contextual job conditions (Rugulies, 2023). Meanwhile, COR Theory operates at a more general psychological level and lacks a clear structure for categorising specific workplace variables, making it less practical for organisational-level analysis (Halbesleben et al., 2022). These limitations reduce their ability to fully explain the range of psychosocial conditions present in complex and high-risk environments such as offshore O&G, where multiple stressors and resources interact simultaneously.

The selection of the Job Demands–Resources (JD-R) model in this study is based on a comparison with other established work stress theories. The Demand–Control model by Karasek (year) focuses mainly on the interaction between job demands and decision latitude. While this is useful, it does not fully capture broader organisational and social factors that influence employees’ experiences. The Effort–Reward Imbalance model developed by Siegrist (year) explains stress through imbalance between effort and rewards, particularly in terms of fairness and recognition, but it gives less attention to the wider work environment. The Conservation of Resources theory introduced by Stevan Hobfoll provides a general explanation of stress through resource loss and gain, although it does not clearly structure specific workplace variables for empirical analysis.

In comparison, the JD-R model by Bakker and Demerouti offers a more practical framework by grouping work conditions into job demands and job resources. This makes it easier to include the variables used in this study, such as job stresses, job security, social support, and work environment, within a single model. The JD-R model also explains two processes: one related to how job stresses lead to strain and poorer mental health, and another showing how job resources support motivation and job satisfaction. This is useful for the present study, as it allows both negative and positive outcomes to be examined at the same time.

Given the nature of offshore O&G work, where employees face multiple and overlapping pressures, a model that allows flexibility is needed. The JD-R model fits this requirement and aligns well with the study design, particularly in explaining the role of job satisfaction as a mediating factor between work conditions and mental health.

This study operationalises this comparison by mapping all selected variables (job stresses, job security, social support, and work environment) into the JD-R structure, demonstrating its ability to accommodate a broader range of psychosocial factors compared to alternative models.

To provide a clearer basis for selecting the most appropriate theoretical framework, the key features, strengths, and limitations of the Demand–Control, Effort–Reward Imbalance, Conservation of Resources, and Job Demands–Resources models are summarised in Table 2.1.

Table 2. 1
Comparison of The Theories

Aspect	Demand-Control (DC) Model	Effort-Reward Imbalance (ERI) Model	Conservation of Resource (CDR) Theory	Job Demands-Resources (JD-R) Model
Key Scholar	Robert Karasek	Johannes Siegrist	Stevan Hobfoll	Arnold Bakker & Evangelia Demerouti
Core Idea	Job strain occurs when high demands combine with low control	Stress arises from imbalance between effort and rewards	Stress occurs when resources are lost, threatened, or insufficient	Work outcomes depend on balance between job demands and job resources
Primary Focus	Job demands + decision latitude	Effort vs reward (fairness, recognition)	Resource loss and gain processes	Broad categorisation of demands and resources
Scope of variables	Narrow (2 main variables)	Narrow (effort and reward)	Broad but abstract	Broad and structured (flexible inclusion of variables)
Level of analysis	Job design level	Social exchange / fairness level	Individual psychological level	Multi-level (job, organisational, social)
Strengths	Simple, foundational model for job strain	Explains fairness, recognition, and motivation issues	Strong explanation of stress accumulation and burnout	Integrates multiple factors; flexible across industries
Limitations (evidence-based)	Ignores social support and organisational context (Häusser et al., 2022)	Limited to reward imbalance; less attention to environment (Rugulies, 2023)	Lacks clear structure for workplace variables (Halbesleben et al., 2022)	Less explicit on organisational systems (can be extended)
Ability to explain stress outcomes	Yes (strain-focused)	Yes (stress from imbalance)	Yes (resource loss → stress)	Yes (health impairment process)
Ability to explain motivation/ positive outcomes	Limited	Limited	Indirect	Strong (motivational process included)
Suitability for offshore O&G context	Limited (too simplistic)	Partial (reward-focused only)	Moderate (general explanation)	High (captures multiple interacting factors)
Application in this study	Not adopted	Not adopted	Supporting perspective only	Main theoretical framework

As shown in Table 2.1, the Job Demands–Resources (JD-R) model provides a broader and more flexible structure compared to the Demand–Control, Effort–Reward Imbalance, and Conservation of Resources models. While these models explain specific aspects of work-related stress, they are limited in scope, either focusing on restricted variables or lacking a clear structure for organising workplace factors. In contrast, the JD-R model allows the integration of multiple job demands and job resources within a single framework, making it more suitable for capturing the range of psychosocial conditions examined in this study.

In addition, the JD-R model explains both the health impairment process and the motivational process, enabling the study to examine not only negative outcomes such as mental health strain, but also positive mechanisms such as job satisfaction. This is particularly relevant as job satisfaction is positioned as a mediating variable in this study. Given the complexity of offshore oil and gas operations, where multiple stressors and organisational factors interact, the JD-R model provides a more appropriate framework due to its flexibility and alignment with the study variables.

2.7.1 Job-Demands Resources Model (JD-R) Model

The Job Demands–Resources (JD-R) Model, developed by Arnold Bakker and Evangelia Demerouti, explains how different aspects of work influence employees' health, satisfaction, and performance. Earlier models such as those by Robert Karasek (1979) and Johannes Siegrist (1996) provided useful insights into work stress, but they tend to focus on specific job conditions. The JD-R Model, in comparison, is more flexible and can be applied across different industries and organizational settings.

At its core, the model distinguishes between job demands and job resources. Job demands refer to aspects of work that require continuous physical or psychological effort, such as workload, time pressure, and emotional strain. Job resources, on the other hand, include factors that help employees manage these demands, such as social support, leadership, and a supportive work environment (Bakker & Demerouti, 2017). In this study, the term job stresses are used to describe job demands, as it better reflects the ongoing pressures experienced in offshore operations, while still remaining consistent with the JD-R concept.

Although the JD-R Model provides a broad framework, it mainly focuses on how demands and resources interact at the individual level. It pays less attention to how

organizational systems, policies, and leadership practices shape these conditions in practice. This becomes more noticeable in complex settings such as offshore O&G operations, where organizational structures play a strong role in influencing employees' experiences.

More recent work has shown that job demands and resources are not fixed, but change over time alongside developments such as digitalization, workplace culture, and evolving social interactions (Li et al., 2022; Bakker, 2023). This suggests that the work environment is continuously shaped by broader organizational and contextual factors. Job demands are often discussed in terms of challenge and hindrance demands. Challenge demands, such as high-performance expectations, may support growth and development. In contrast, hindrance demands, such as unclear roles or unfair supervision, tend to increase stress and reduce motivation (Wang et al., 2023; Xie et al., 2024). When these demands become excessive or prolonged, they may lead to fatigue, burnout, and poorer mental health.

Job resources help to offset these effects. Resources such as social support, effective leadership, and a positive work environment enable employees to cope better with work pressures (Demerouti, 2022; Bakker et al., 2011). They also contribute to higher motivation and job satisfaction (Crawford et al., 2010). In addition, personal resources, including resilience and self-confidence, support employees in managing demanding situations (Li et al., 2023; De Clercq et al., 2024).

Two underlying processes explain how the model operates. The health impairment process describes how prolonged job stresses lead to strain and burnout (Bakker et al., 2007; Schaufeli et al., 2014). The motivational process explains how job resources promote engagement and well-being (Bakker & Demerouti, 2017). In high-risk industries, supportive leadership and strong workplace relationships have been shown to reduce stress and improve mental health outcomes (Abdullah et al., 2023; Fattori et al., 2024).

In offshore O&G settings, these dynamics are particularly relevant. Employees often work long rotations, experience isolation, operate in hazardous environments, and face uncertainty related to job security. These conditions create continuous job stresses that may affect mental health (Mathisen et al., 2022; Ma & Ni, 2023). In this study, job security is treated as a job stressor, as uncertainty about employment can create psychological strain similar to other demands. At the same time, organizational support, fair management, and welfare facilities act as important resources that help employees

cope with these pressures (Baygi et al., 2022; Gilbert et al., 2023).

Within this study, job stresses (job demands and job security) are treated as stressors, while social support and work environment are positioned as job resources. Job satisfaction is introduced as a mediating variable linking these factors to mental health outcomes. Job satisfaction refers to a positive emotional response towards one's work (Locke, 1976). When employees feel supported, satisfaction tends to increase and contributes to better mental health (Lee & Kim, 2023; Yasin, 2024). When demands outweigh available resources, satisfaction tends to decline, leading to higher stress levels (Bakker & Demerouti, 2017). Empirical studies have also shown that job satisfaction mediates the relationship between work conditions and mental health (Sarwar et al., 2024; Rusu et al., 2023).

This relationship can also be understood through Conservation of Resources Theory, which explains how individuals build and protect resources over time. Employees with stronger resources are generally better able to cope with prolonged stress, while continuous resource loss may lead to psychological strain. This perspective supports the JD-R Model by reinforcing the role of resources in maintaining well-being.

However, in offshore O&G environments, psychosocial risks are not shaped by job characteristics alone. They are also influenced by how organizational systems are implemented in practice. Leadership communication, safety culture, and organizational policies all affect how job stresses are managed and how resources are provided. These aspects are not explicitly addressed in the original JD-R framework. For this reason, this study extends the JD-R Model by introducing organizational learning as an antecedent. This helps explain how formal rules, leadership practices, and socialization processes influence the availability of job resources and the management of job stresses. This extension provides a more context-specific explanation of how psychosocial factors affect mental health in offshore O&G settings. Figure 2.2 shows the relationship between all the variables used in this study.

2.8 Conceptual Framework

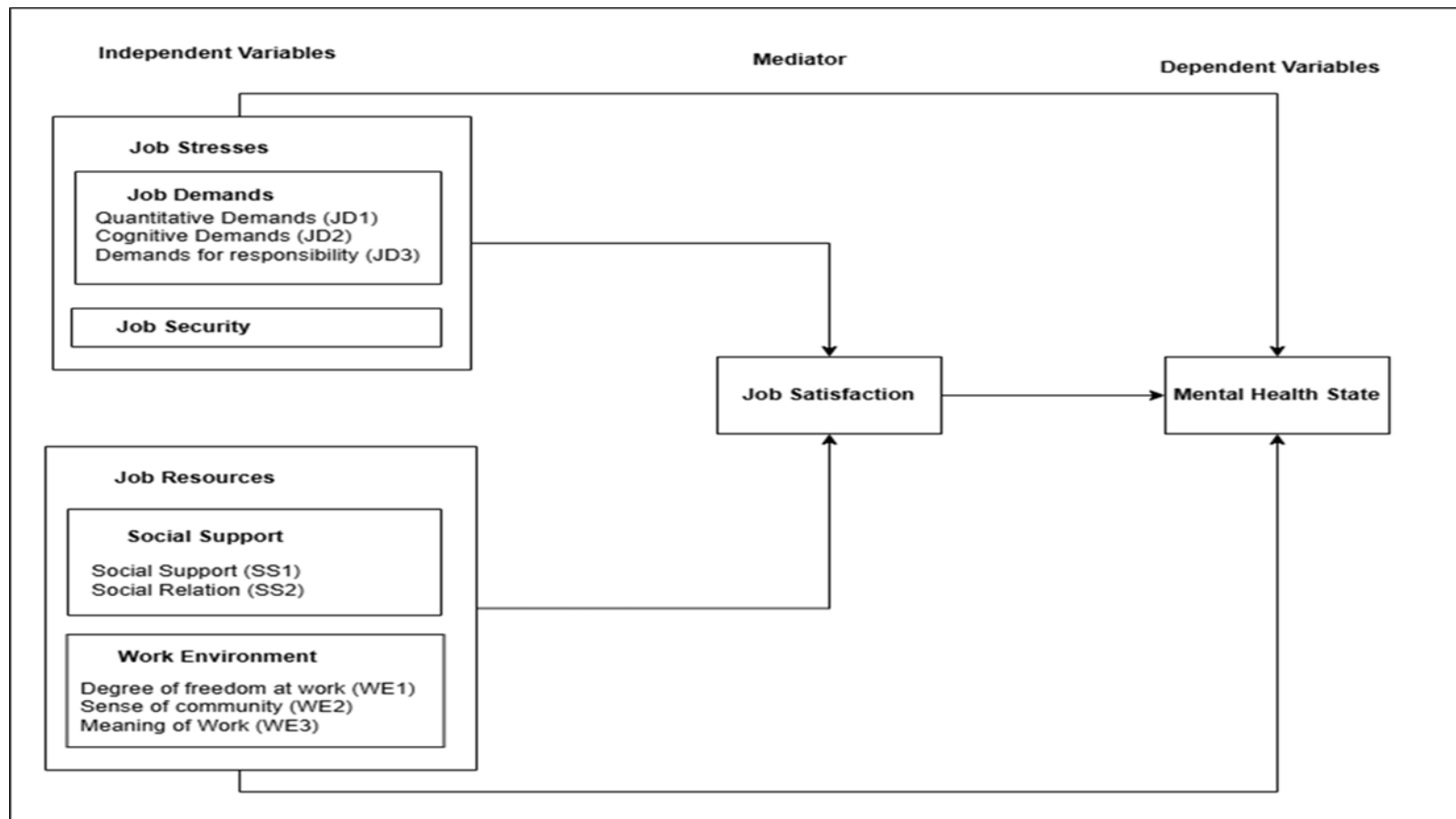


Figure 2. 2 Adapted from Canadian Centre of Occupational Safety and Health, Mental Health – Psychosocial Risk Factors in the Workplace

Based on the proposed conceptual framework, this study examines both the direct and indirect relationships between psychosocial factors and employees' mental health in offshore O&G settings. Psychosocial factors are categorised into job stresses (quantitative demands, cognitive demands, demands for responsibility, and job security) and job resources (social support, social relations, degree of freedom at work, sense of community, and meaning of work).

It is hypothesised that all job stresses and job resources have significant direct relationships with employees' mental health. Specifically, higher job stresses are expected to negatively influence mental health, while stronger job resources are expected to improve employees' mental health state.

In addition, this study proposes that job satisfaction functions as a mediating variable in these relationships. Job satisfaction is expected to transmit the effects of both job stresses and job resources on mental health. In other words, job stresses may reduce job satisfaction and subsequently worsen mental health, whereas job resources may enhance job satisfaction and, in turn, improve mental health outcomes.

2.9 Hypothesis

A hypothesis is a precise, testable statement of what the researcher predicts will be the study's outcome. Thus, in this study, several hypotheses are derived from the conceptual framework in the abovementioned section.

2.9.1 Relationship Between Job Stresses And Employees' Mental Health State

Job stress in this study is conceptualized through two dimensions, which are job demands and job security. The dimension of job demands comprises three components, namely cognitive demands, quantitative demands, and demands related to responsibility. These dimensions collectively capture the pressures experienced by employees in performing their tasks. The following section discusses the elements of job demands and job security, as well as their relationship to employees' mental health.

2.9.1.1 Relationship Between Quantitative Demands And Employees' Mental Health State

It is important to distinguish between quantitative and qualitative demands when addressing the concept of job demands (Fajaryati et al., 2020). A wide range of terms is used to describe quantitative employment requirements, such as extended working hours, overtime, workload, work pressure, work pace, and the overall volume of work (Stevens et al., 2022; Sarwar & Panatik, 2020). Each of these terms carries specific meanings and reflects different aspects of work intensity. Empirical evidence shows a positive relationship between quantitative and qualitative demands at both the daily and individual levels (Giebe & Rigotti, 2022; Kunzelmann and Rigotti, 2021). Quantitative demands represent the amount of work expected, but each task also contains qualitative elements that determine its complexity and impact on employees (Schilbach et al., 2023).

High quantitative work demands often require employees to spend more time completing tasks than initially planned or contractually allocated. As a result, extended working hours and higher stress levels are commonly observed in such contexts (van Veldhoven et al., 2014). However, some studies suggest that the correlation between overtime, job demands, and job strain is relatively weak (Afota et al., 2020). Other aspects of quantitative demands, such as the number of tasks and workload volume, can also contribute to mental health strain by overloading employees' time and cognitive resources (Norway, 2019).

Employees in the offshore O&G industry encounter particularly challenging working conditions that include long shifts, remote locations, excessive noise, vessel movement, and hazardous operations (Anderson et al., 2022; Nepal, 2021). These demanding job characteristics are closely linked to increased stress, fatigue, and reduced well-being (Barello et al., 2021). In such environments, organizations must carefully manage workload distribution. Strategic recruitment to address attrition and known leave periods, as well as providing employees with reasonable control over scheduling and work pace, can help maintain workforce stability and reduce psychosocial strain (WorkSafe, 2024).

Previous research indicates that offshore employees in Germany face substantial quantitative demands such as high work intensity, strict time constraints, extended work periods, and additional working hours (Hennings, 2015). Empirical findings

consistently demonstrate that job demands contribute to strain reactions and negatively affect employees' mental and physical well-being (Demirović et al., 2022; Urbanaviciute et al., 2021). Quantitative demands have been shown to correlate directly with elevated stress levels across many occupational sectors, including offshore operations (The American Institute of Stress, 2023; Mousavi et al., 2021). Offshore O&G employees have reported that the quantitative aspects of their work influence their stress levels, fatigue, and sleep quality (Mette et al., 2018).

In addition, several studies have documented the negative impact of job demands such as shift work and excessive workload on employees' health and stress levels in the offshore sector (Merkus et al., 2015; Berthelsen et al., 2015). Although it is well established that high quantitative demands are associated with adverse health outcomes, most research has examined these effects at the individual level while paying limited attention to the organizational structures in which such work is performed (Stevens et al., 2022; Mousavi et al., 2021).

These findings are considered relevant to offshore O&G employees, who frequently experience similar working conditions and psychosocial pressures (Puskeppeleit, 2014). Therefore, the following hypothesis is proposed:

H1: There is a direct and significant relationship between quantitative demands and employees' mental health state.

2.9.1.2 Relationship Between Cognitive Demands And Employees' Mental Health State

Workplaces are characterized by various types of job demands that differ depending on the nature of employment, the industry, and the work setting. Among these, cognitive demands play a significant role in influencing employees' performance and well-being. Cognitive demands refer to the amount of sustained mental effort required to complete tasks or coordinate multiple responsibilities simultaneously. They encompass the intellectual processes of thinking, decision-making, problem-solving, and learning that are integral to modern work (Abbasi and Bordia, 2019). A lack of adequate cognitive stimulation in the workplace may adversely affect employee motivation and overall well-being (Glaser et al., 2015).

The COVID-19 pandemic dramatically altered work structures, particularly following the implementation of population movement restrictions aimed at curbing the spread of the virus. These changes contributed to heightened mental health challenges among employees (Taylor, 2020). Technology subsequently emerged as a vital element for sustaining remote work, transforming both communication and work execution processes (Molino et al., 2020). Information and communication technologies have facilitated and accelerated workflows while simultaneously increasing the volume of information available to employees. However, their overuse has also intensified work-related stress, especially among remote employees during the pandemic period (Rudolph et al., 2020).

The extensive use of technology has created expectations for constant connectivity and immediate responsiveness. This state of perpetual engagement reduces opportunities for psychological recovery and leads to fatigue, cognitive overload, and mental health problems (Talevi et al., 2020).

Human labour inherently comprises both mental and physical components, and individuals experience different levels of work intensity based on the cognitive and physical requirements of their tasks (Lazarova et al., 2023). Employees exposed to excessive mental workload tend to experience higher stress levels and fatigue, while insufficient workload may result in boredom and under-stimulation. Achieving an optimal workload balance between excessive and insufficient demands is essential, though the ideal level varies among individuals. The degree of task difficulty is directly related to the amount of effort and concentration required for effective task completion (Pedersen, 2023).

Cognitive demands must therefore be examined in terms of both the mental effort required and the nature of the tasks performed, as these factors collectively determine the overall cognitive workload (Mohanty et al., 2024). The mental load varies depending on the complexity, novelty, and familiarity of the tasks. Routine and well-practised activities generally require less mental effort over time, whereas novel or complex tasks increase cognitive strain.

Technological advances over the past two decades have significantly changed human-computer interactions, reducing physical workload but altering the type and intensity of cognitive processing involved (Diederich et al., 2022; Hancock et al., 2021). The shift toward technology-mediated work has, therefore, increased cognitive

engagement, requiring employees to continuously adapt to digital systems and multitask under pressure.

Based on the above discussion, the following hypothesis is proposed:

H2: There is a direct and significant relationship between cognitive demands and employees' mental health state.

2.9.1.3 Relationship Between Demands For Responsibility And Employees' Mental Health State

The demands of responsibility can manifest across various workplace contexts and job requirements. In organizational settings, assuming greater responsibility involves demonstrating readiness to undertake additional tasks and obligations while being accountable for the outcomes of one's actions and decisions (Indeed Career Guide, 2023; Sergeeva, 2021). Broadly, responsibility refers to having the authority or duty to perform specific tasks and being answerable for their successful completion (Nieprzecka, 2024). It is important to distinguish between duties and responsibilities. Duties represent the mandatory tasks that stem from one's job position, whereas responsibility entails the obligation and authority to execute tasks effectively to achieve expected results and to be held accountable for their performance.

Within the O&G industry, particularly in offshore operations, the demands associated with responsibility are intensified due to the hazardous and high-risk nature of the work. Employees are frequently required to operate heavy machinery, manage hazardous materials, and adapt to physically demanding and irregular work patterns (Asare et al., 2021). Accidents, including injuries and explosions, are relatively common occurrences in oil field environments (Allan Berger and Associates, 2022). Although oil corporations often attribute such incidents to the inherently dangerous nature of the work, negligence and operational failures remain major contributing factors. Working on oil rigs also necessitates continuous availability, with employees often working extended hours under physically taxing conditions, which elevates the risk of fatigue and accidents. Equipment malfunctions, human error, and exposure to flammable substances can further result in fires, injuries, or fatalities (Fox et al., 2023).

The relationship between demands for responsibility and employee mental health is complex and influenced by multiple organizational and psychological factors. Research has shown growing recognition of how job demands and organizational culture shape employees' psychological well-being. The American Psychological Association's Work and Well-Being Survey (2022) reported that over 80 % of employees consider employer support for mental health an important factor in their employment decisions (Stringer, 2023). Consistent with this, several studies highlight the importance of creating supportive work environments that foster mental well-being through effective leadership, skill development, and the provision of sufficient organizational resources (World Health Organization, 2022; United States Department of Health and Human Services, 2022). Such efforts include enhancing managerial commitment to employee mental health, ensuring adequate resource allocation, and maintaining both physical and psychological safety in the workplace.

Based on the above discussion, the following hypothesis is proposed:

H3: There is a direct and significant relationship between demands for responsibility and employees' mental health state.

2.9.1.4 Relationship Between Job Security And Employees' Mental Health State

Many studies in social and health research have shown that job insecurity is linked to poor mental health. Most of this research is based on observation, so it is sometimes difficult to prove cause and effect (Burgard, 2021). Studies that look at job insecurity, including unemployment and job loss, often find higher levels of anxiety, depression, and other emotional problems among affected employees (LaMontagne et al., 2021).

Job insecurity is often described as a source of stress at work (Benach et al., 2014). Some researchers also study perceived job insecurity, which means the fear of losing one's job even if it has not yet happened. A review of studies from the United States and Europe found that people who feel insecure about their jobs are more likely to experience depression than those who are unemployed. The link was stronger for those who feared losing their jobs than for those who had already lost them (Alcover et al., 2020). This is especially relevant today, as many jobs are unstable and short-term (Ganson et al., 2021).

Some studies do not find a direct link between job insecurity and mental health but show that poor working conditions may act as a bridge between the two (Harmony United Psychiatric Care, 2022). The effects are stronger for employees who have families to support, such as children or elderly parents, because they worry more about income and stability. Even though many of these studies only capture one point in time, the results across different contexts point to a clear connection (Pauksztat et al., 2022; Green, 2020). Larger reviews that combine results from several studies also confirm that job insecurity harms mental health (Jiang et al., 2021).

During the COVID-19 pandemic, job insecurity became more severe as many people lost jobs or had their hours and pay reduced (Pauksztat et al., 2022). This problem was also common in the offshore O&G industry, where fewer people were allowed to work on platforms due to safety restrictions (Wilson et al., 2020). The fear of losing a job affects more than just finances. It also weakens social connections and the sense of purpose that come from working, both of which are important for mental health.

Research continues to show that job insecurity negatively affects employees' mental and physical health, well-being, and satisfaction at work (Obrenovic et al., 2021; Yu et al., 2021; Johnson et al., 2020). Poor job stability can lead to long-term health problems and make employees feel socially excluded or undervalued (Vargas-Jimenez et al., 2020). Other studies show that when people feel insecure about their jobs, they tend to lose motivation, feel emotionally tired, and experience greater stress or depression (Saeed et al., 2023; Konkel and Helfeman, 2021; Jiang and Lavaysse, 2018).

Based on these findings, the following hypothesis is proposed:

H4: There is a direct and significant relationship between job security and employees' mental health state.

2.9.2 Relationship Between Job Resources And Employees' Mental Health State

Based on the proposed conceptual framework, job resources in this study consist of two main dimensions, namely social support and work environment.

2.9.2.1 Relationship Between Social Support And Employees' Mental Health State

Psychologists and mental health experts often highlight the importance of having strong social support networks (Kendra, 2023). People are encouraged to seek help from family and friends when working toward goals or facing difficulties (Fostervold et al., 2024). Many studies have shown that social connections are linked to better health and well-being (American Psychological Association, 2019). In contrast, the absence of social support has been linked to loneliness and depression, which may affect brain function and increase the risk of alcohol use, heart disease, and suicidal thoughts (Asibor and Moru, 2024).

Social support plays an important role in employees' mental health. Studies show that it has a direct and positive effect on both physical and mental health (Shan and Yadav, 2024; Lucas et al., 2021). Because health is influenced by many factors — such as biological, psychological, social, cultural, and economic — it is important to recognize that mental well-being also depends on the quality of social relationships (Sung et al., 2024). A lack of support or feelings of isolation can increase stress and contribute to mental health problems (Munyan, 2021).

Interest in the link between social relationships and health has grown in recent years, especially regarding service delivery and policy (Groarke et al., 2020). During the COVID-19 pandemic, preventive measures such as social distancing, quarantine, and isolation were necessary to limit the spread of the virus (Centers for Disease Control and Prevention, 2020). However, these restrictions also reduced social interaction and created feelings of isolation and loneliness. While the economic effects of these restrictions were widely recognized (International Monetary Fund, 2020), their long-term social and psychological impacts are still being studied.

Evidence from large reviews shows that loneliness and poor social support are associated with a higher risk of death, similar to well-known health risks such as obesity, physical inactivity, and smoking (de Heer et al., 2024; Usama et al., 2024). Loneliness can affect health through biological and behavioural mechanisms, including poor sleep, stress, and weaker immune function (Yu et al., 2024; Cacioppo and Cacioppo, 2014). A systematic review by Leigh-Hunt et al. (2017) found that isolation and loneliness are linked to poorer mental and physical health. However, the authors noted that it is still unclear whether loneliness causes poor health or results from it.

Despite this evidence, loneliness and a lack of social support have not received enough attention in mental health services, research, or policy (Brandt et al., 2022). Until recently, more focus was placed on genetics and brain function than on social factors influencing mental health (Bjørlykhaug et al., 2022). Studies have found that low social support is linked to health problems, job loss, and depression (Schulder et al., 2024; Lee et al., 2024). In contrast, strong social support helps protect against the negative effects of workplace stress and promotes overall well-being (Hughes et al., 2022).

Long-term studies show that support from colleagues and supervisors improves recovery and return to work, especially for employees with physical conditions such as back pain (Etuknwa et al., 2023; Oakman et al., 2023). However, less is known about the effects of support outside of work, such as that from family and friends, on job performance (Peters et al., 2018). The relationship with direct supervisors is particularly important for mental health. Managers who understand employees' work conditions and show empathy can reduce fatigue and emotional strain (Osterman and Hult, 2020). Supervisory support has been shown to lessen exhaustion and reduce the effects of work-family conflict on physical strain (Dohrmann et al., 2019).

At the workplace, social support mainly comes from supervisors and colleagues. Low levels of supervisory support have been linked to a higher risk of anxiety and depression (Van Hees et al., 2022). Job performance tends to improve when employees receive help from co-employees and managers, while lack of support increases dissatisfaction and stress (Du et al., 2023).

Based on these findings, the following hypothesis is proposed:

H5: There is a direct and significant relationship between social support and employees' mental health state.

2.9.2.2 Relationship Between Social Relations And Employees' Mental Health State

Loneliness is defined as the feeling of being alone or socially disconnected, even when surrounded by others, and the distress that comes from the gap between desired and actual social relationships (Perissinotto et al., 2019). It represents a negative emotional state closely linked to various mental health problems (Jabbari et al., 2024). In the workplace, loneliness has been shown to increase employees' stress levels, while

those who feel connected to others are better able to manage job-related pressures (Evans and Fisher, 2021).

Recognizing its growing impact, the World Health Organization has identified loneliness as a global public health concern (World Health Organization, 2023). Although loneliness existed before the COVID-19 pandemic, the situation worsened when social distancing, lockdowns, and other control measures limited in-person interaction. These restrictions reduced opportunities for social engagement, leading to greater feelings of isolation for many people. For example, Killgore et al. (2020) reported that 43 % of participants experienced increased loneliness during the pandemic, while another study found that about 70 % of respondents felt lonely, excluded, or lacking companionship in the previous week (Groarke et al., 2020). Quarantine measures were also linked to increased psychological distress (Fernández et al., 2020).

In work settings, employees may experience loneliness due to fear of being judged by colleagues or supervisors, which makes them less likely to seek help when facing difficulties. This is often observed among new employees who are still adapting to their roles. The shift to virtual work arrangements has also increased loneliness, as remote communication limits opportunities for natural social interaction (Cannas, 2023). Humans are inherently social, and reduced face-to-face contact can create feelings of detachment and emotional isolation.

Research consistently shows that social isolation negatively affects mental health, contributing to depression and reduced psychological well-being (Vasile et al., 2024; Setyorini et al., 2024). Although many studies confirm a strong connection between social relationships and health outcomes, the exact processes that explain this relationship remain less understood (Kan and Xie, 2024). Evidence continues to demonstrate that positive social connections support both individual and community health (Schulder et al., 2024; Deepa et al., 2023).

In remote or offshore work environments, professional isolation has been shown to reduce job performance and motivation, even though it may temporarily lower employees' intention to leave their jobs (Kizrak et al., 2024; Swain et al., 2020). The lack of meaningful social relationships in such environments weakens engagement and increases emotional fatigue.

Given the importance of social interaction, and the combined influence of social support and mental health on employees' overall well-being, the following hypothesis is proposed:

H6: There is a direct and significant relationship between social relations and employees' mental health state.

2.9.2.3 Relationship Between Degree Of Freedom At Work And Employees' Mental Health State

Mental health problems are common among employees and have significant costs for individuals, employers, and society. Because of this, researchers and policymakers have increasingly focused on how employment conditions and job quality affect mental health, particularly disorders such as depression and anxiety (Rugulies et al., 2023; Gibbs et al., 2023). The Mental Health Foundation (2021) has emphasized that the conditions and environment in which people work can strongly influence their mental well-being. The development of mental health problems is complex, often resulting from a mix of biological, psychological, and social factors (Kirkbride et al., 2024).

In today's uncertain and fast-changing work environment, employees are expected to shape their job roles and relationships in ways that align with both organizational needs and personal goals (Nie et al., 2023). This adaptability supports long-term organizational performance and encourages individual growth. One key factor linked to mental well-being is freedom at work, which refers to the degree of control employees have over their tasks and decisions (Torrès et al., 2022). In simpler terms, it represents how much authority employees have to manage their work. Research shows a strong link between freedom at work and the mental well-being, engagement, and job satisfaction of offshore employees (Nie et al., 2023; Ewers and Kangmennaang, 2023).

The COVID-19 pandemic accelerated global digitization, transforming work processes and business operations (Bach et al., 2021). To adapt to these rapid changes, employees and organizations must build resilience to cope with new work demands and uncertainties. Employees often engage in self-initiated actions to redefine their job tasks, improve relationships, and create more meaningful work experiences. Such

proactive behaviours, often called job crafting, contribute to greater happiness and flexibility at work (Roczniowska et al., 2023). Studies show that limited control at work can lead to feelings of helplessness, powerlessness, and emotional fatigue (Andersen et al., 2022; Norrman et al., 2020).

Freedom at work is closely related to job crafting, which has become a focus of both management practice and academic research. Job crafting allows employees to adjust their work responsibilities and relationships to better match their skills and preferences. This process improves motivation, engagement, and overall well-being (Nie et al., 2023; Dutta et al., 2023; van Wingerden et al., 2017; Gordon et al., 2015). It also helps organizations remain stable, innovative, and better equipped to deal with uncertainty (Xu et al., 2019; Petrou et al., 2015). Previous studies have shown that factors such as personal traits, motivation, job characteristics, social connections, and leadership style are closely linked to job crafting behaviours (Tajpour et al., 2022; Chen et al., 2022; Bajaba et al., 2021; Thun and Bakker, 2018).

Based on these findings, the following hypothesis is proposed:

H7: There is a direct and significant relationship between the degree of freedom at work and employees' mental health state.

2.9.2.4 Relationship Between Sense Of Community And Employees' Mental Health State

Human beings are naturally social and not meant to live in isolation. A sense of community is vital for overall well-being, especially for individuals experiencing mental health challenges such as loneliness and isolation (Gilbert, 2019). Workplace culture plays an important role in this regard, as employees spend much of their time with the same group of colleagues. Creating a sense of community within the workplace is therefore essential to building a positive and supportive work culture.

Following the COVID-19 pandemic, organizations have placed greater emphasis on mental well-being. The pandemic accelerated the global shift to remote and virtual work, a practice that had already been growing for two decades (Gibbs et al., 2023). For the offshore O&G industry, this shift brought both opportunities and challenges. Remote work increased flexibility by allowing employees to perform tasks from anywhere and at any time. It also helped organizations maintain operations during

external disruptions such as geopolitical events or environmental changes (Schotter, 2021). Many organizations now offer flexible schedules, telecommuting arrangements, and mental health support through workplace benefits (Kane Partners, 2022).

However, remote work also has drawbacks. It can reduce job satisfaction by weakening employees' sense of belonging and limiting social interaction, both of which are essential for mental health and well-being (Krug et al., 2021). In today's work environment, employees increasingly seek workplaces that offer a sense of purpose, value their contributions, and provide strong social and emotional support (Forbes, 2022). The absence of these qualities can lead to disengagement and higher turnover.

The workplace often provides more than just financial stability, it serves as a source of connection, support, and community. A recent survey by the American Psychological Association (2023) found that 94 % of respondents considered a sense of belonging at work important or essential. Building such a community benefits both employees and employers, improving well-being and productivity (Weir, 2023). The rise of remote work during the pandemic further highlighted the importance of social connection. Research has shown that employees who lack a sense of community at work are more likely to experience anxiety, depression, and stress compared to those who feel connected and supported (Bardosh, 2023; Park et al., 2023).

Based on these findings, the following hypothesis is proposed:

H8: There is a direct and significant relationship between a sense of community and employees' mental health state.

2.9.2.5 Relationship Between Meaning Of Work And Employees' Mental Health State

In recent years, the search for meaning in one's work has gained renewed attention, particularly due to rapid technological change and the disruptions caused by the COVID-19 pandemic. Alongside the increasing public interest in finding purpose at work, it reflected in popular media, books, and podcasts that researchers have also deepened their focus on the concept of meaningful employment (Magni and Manzoni, 2020; Lysova et al., 2019). Scholars have defined and measured meaningful work in different ways, often using related terms such as meaningful labour or meaningful employment interchangeably.

Pratt and Ashforth (2003) distinguished between meaning and meaningful work. From a traditional economic view, employment can be seen as an exchange in which individuals trade time and effort for financial rewards (Cassar and Stephan, 2018). However, work can extend beyond financial transactions. It can offer opportunities for employees to face challenges, demonstrate competence, and build meaningful connections with others. Through work, individuals can experience personal satisfaction, a sense of achievement, and a stronger feeling of happiness and purpose — sometimes even greater than that derived from leisure activities.

Meaningful work allows employees to gain recognition and personal growth, especially when their efforts are valued by colleagues, families, or the community (Charles-Leija et al., 2023). When employees perceive that their work benefits others or contributes to a purpose larger than themselves, they experience a stronger sense of fulfilment (Mäkikangas et al., 2023). Work that provides a sense of contribution and purpose can enhance productivity and promote a positive outlook, transforming daily activities from mere obligations into rewarding experiences.

After the COVID-19 pandemic, many organizations including those in the O&G sector have increasingly adopted artificial intelligence (AI) technologies to support daily operations. The World Economic Forum (2018) noted that the growing use of AI would influence how employees experience their jobs and how they perceive meaning in their work. Meaningful work involves the belief that one's job has value, importance, and a broader purpose. It typically includes using one's abilities in diverse and creative ways that positively impact others (Bankins and Farmosa, 2023). Creating opportunities for meaningful work not only improves employee outcomes but also holds ethical importance as a foundation for human well-being and growth (Allan et al., 2019).

The COVID-19 pandemic provides an important context for studying the positive and negative effects of meaningful work. As work arrangements have changed drastically, with many employees continuing to work from home, the way people find meaning in their jobs has also evolved.

Based on this discussion, the following hypothesis is proposed:

H9: There is a direct and significant relationship between the meaning of work and employees' mental health state.

2.9.3 The Mediating Role Of Job Satisfaction In The Relationship Between Job Stresses And Employees' Mental Health State

This subsection explains the mediating role of job satisfaction in the relationship between job stress, which includes job demands and job security, and employees' mental health state.

2.9.3.1 The Mediating Role Of Job Satisfaction In The Relationship Between Quantitative Demands And Employees' Mental Health State

The COVID-19 pandemic has affected the mental well-being of employees across many sectors. Changes in the working environment can also reduce employees' sense of well-being (Bulińska-Stangrecka et al., 2021). Work intensification is one of the major sources of occupational stress and is known to have negative effects on employees. It refers to the increasing speed and effort required in daily tasks, where employees feel pressured to work harder and faster with limited rest (Kele and Nyanga, 2023). The topic of work intensification has attracted wide attention among researchers, academics, and human resource practitioners (Mauno et al., 2023; Huo et al., 2022; Pollock and Hauseman, 2019), leading to varied perspectives on its causes and effects.

Previous studies have identified several factors contributing to work intensification, including global competition, economic uncertainty, and organizational restructuring. Earlier research by Warr (1987) and de Vries and Balazs (1997) found that work intensification is linked to lower job satisfaction, higher stress, and reduced overall well-being. More recent studies by Wittmers and Maier (2024) and Mauno et al. (2023) reported strong associations between work intensification, job demands, workload, and stress. McBride and Lucio (2021) also found that higher demands and pressures in domestic and low-skilled occupations have created more challenging and complex work environments.

In many cases, work intensification results from deliberate changes in human resource practices aimed at improving performance, but these practices may unintentionally pressure employees to take on heavier workloads and tighter schedules (Kele and Nyanga, 2023). When job satisfaction is low, organizational goals are often harder to achieve. Overburdening employees can lead to excessive workloads and negative outcomes for both employees and employers (Rohman and Ichsan, 2021).

Compensation plays an important role in maintaining job satisfaction. Financial and non-financial rewards serve as recognition for employees' effort and commitment, motivating them to perform better and supporting their career growth (Chi et al., 2023). Managers often seek ways to strengthen job satisfaction because it directly contributes to higher productivity and better organizational performance.

Heavy workloads can also have serious consequences, including increased safety risks and workplace conflict. Pariona-Cabrera et al. (2024) found a clear link between job stress, high job demands, and incidents of workplace violence among healthcare employees. The study showed that high demands and limited control contribute to stressful and unsafe conditions.

Based on these findings, the following hypothesis is proposed:

H10: Job satisfaction will mediate the relationship between quantitative demands and employees' mental health state.

2.9.3.2 The Mediating Role Of Job Satisfaction In The Relationship Between Cognitive Demands And Employees' Mental Health State

The well-being of employees determines the overall well-being of an organization. When employees are mentally and physically healthy, the organization becomes more effective, stable, and capable of sustaining growth. Cognitive demands in the workplace refer to the mental skills required to perform tasks effectively (Amadi et al., 2024). These demands include problem-solving, critical thinking, memory, attention, and decision-making. Research shows that cognitive demands can act as either a source of stress or a source of motivation, depending on how employees experience them (Junça-Silva et al., 2024; Knight et al., 2023).

Organizations need to maintain a balance in employees' cognitive demands to prevent mental overload while still offering opportunities for learning and development. The link between cognitive demands and job satisfaction is complex and depends on how employees perceive the difficulty and meaning of their tasks (Kubicek et al., 2023). Cognitive demands are often associated with flexible work arrangements, which include scheduling working hours, organizing tasks, and collaborating effectively with others (Jia et al., 2024; Prem et al., 2021).

Even before the COVID-19 pandemic, rapid technological progress had already increased employees' cognitive load (Kubicek et al., 2022). During the pandemic, new and sudden work requirements were often seen as barriers, forcing employees to adapt quickly and manage uncertainty. These changes placed additional pressure on employees and negatively affected their well-being. The shift to working from home during lockdowns also changed the nature of cognitive demands, as employees had to adjust to new work settings and routines (Nakrošienė et al., 2019; Lunde et al., 2022). Many employees struggled to balance their physical and mental health while adapting to these new conditions. Studies have found that higher cognitive demands, longer working hours, and work overload were major contributors to burnout during this period (Soto-Rubio et al., 2020; Luceño-Moreno et al., 2020).

Working remotely also created new challenges, such as learning unfamiliar technologies, acquiring new skills, managing unclear boundaries between work and personal life, and coping with limited access to resources and information (Oakman et al., 2020). These issues increased cognitive demands and expanded employees' responsibilities (Lemonaki et al., 2021). Employees in offshore O&G platforms face even greater cognitive challenges because of the complex nature of their tasks and their isolated work environment, where they must use their mental abilities to maintain safe and efficient operations.

As organizations move into the post-pandemic era, many are adopting hybrid work models that combine remote work with time in the office. While employers may view remote work as cost-effective and flexible (Alexander et al., 2021), it often shifts hidden costs and added responsibilities to employees (Kossek and Kelliher, 2023). These added pressures can reduce job satisfaction and increase the risk of mental health problems.

Based on this discussion, the following hypothesis is proposed:

H11: Job satisfaction will mediate the relationship between cognitive demands and employees' mental health state.

2.9.3.3 The Mediating Role Of Job Satisfaction In The Relationship between Demands For Responsibility And Employees' Mental Health State

At the workplace, responsibilities can be complex and affect employees in different ways. There are several types of responsibility, including individual work, teamwork, and leadership. In today's business environment, teamwork is seen as an important element of organizational success. When collaboration is poor, staff productivity and overall organizational performance tend to decline (Bokaii, 2023). Working effectively in teams can enhance both productivity and performance. In organizational settings where every team member contributes to the group's success, employees develop a deeper understanding of the value of their work and how it influences their colleagues and the organization as a whole (Petkova et al., 2021; Zhang et al., 2020).

Job responsibilities and descriptions can influence employees' level of job satisfaction. The content of a job, including the type of tasks and level of responsibility, shapes an employee's interest in the position. When a job does not match an employee's skills, abilities, or growth opportunities, dissatisfaction may arise, leading some employees to seek new roles. On the other hand, providing meaningful tasks and career development opportunities can improve job satisfaction (Bartik et al., 2020).

The COVID-19 pandemic has brought major changes to working environments, requiring employees to balance their individual responsibilities with those of their teams (Fox et al., 2022). Managers play an important role in helping employees adapt by creating clarity and alignment across the organization. When employees feel connected and valued as part of a team, their job satisfaction increases, as does their sense of belonging (Bokaii, 2023).

In isolated work environments such as offshore O&G platforms, the demands for responsibility are often greater. Employees must rely on teamwork to maintain safe and efficient operations. Teamwork becomes a valuable learning experience when it is well-structured and guided by competent leaders (Kotlyar and Krasman, 2022; Meslec et al., 2020). When subordinates feel supported and well-managed by their leaders, they tend to experience higher satisfaction and better mental health. Effective communication within the team also helps improve confidence, cooperation, and productivity among team members (Gonzalez, 2021).

Based on these findings, the following hypothesis is proposed:

H12: Job satisfaction will mediate the relationship between demands for responsibility and employees' mental health state.

2.9.3.4 The Mediating Role Of Job Satisfaction In The Relationship between Job Security And Employees' Mental Health State.

Job insecurity is a personal experience that often creates discomfort and feelings of helplessness. Factors such as personality traits and previous experiences with unemployment can influence how individuals perceive job security. The importance of job security and job satisfaction is subjective, as some employees prioritize stability while others value happiness and fulfillment at work. Unlike temporary work stressors such as conflict or time pressure, job insecurity is a continuous source of stress that is difficult to resolve (Sætrevik et al., 2020). Others argue that job satisfaction plays a more significant role in overall well-being (Salleh et al., 2024). The COVID-19 pandemic created severe challenges for organizations worldwide. Many businesses faced economic strain as consumer demand decreased, which in turn affected employment stability (Chhabra and Pandey, 2023).

Every employee seeks some level of security in their job, as it influences motivation, commitment, and performance (Al-Mansoori et al., 2020). A lack of job security can lead to low morale, poor engagement, and even physical or psychological problems such as depression (Anand et al., 2023). Changes in the external environment often influence employees' mental states and perceptions of stability, as identity and sense of safety can shift over time (Kira et al., 2021). These fear-based emotions affect how individuals respond to uncertainty and perceived threats at work (Kerahrodi and Michal, 2020).

In many developed countries, work contracts are becoming shorter and less stable (Benach et al., 2014). This trend also applies to the offshore O&G sector, where job insecurity contributes to mental health risks (Schneider and Harknett, 2019). Seafaring, for instance, is widely recognized as one of the most physically and mentally demanding occupations. The International Maritime Health Association (2012) described it as one of the most hazardous professions due to the dangers of working at sea. Although it is often well paid, seafaring involves long periods of isolation, limited

social contact, and continuous exposure to risk (Ali et al., 2023). These conditions make seafarers vulnerable to stressors such as confinement, poor working conditions, and a lack of job stability (Sarinas et al., 2022).

Job satisfaction among seafarers is strongly influenced by stress levels and the perceived fairness of rewards (Yuen et al., 2018). When employees can use their skills effectively and receive recognition for their contributions, they experience a sense of value and motivation (Sarinas et al., 2022). Recognition and appreciation improve loyalty and reduce turnover. Promoting employee welfare also enhances quality of life and supports personal and professional development (Boelhouwer and Noll, 2024).

In recent years, working conditions have changed significantly, increasing job insecurity in many sectors. The COVID-19 pandemic intensified this trend, especially in industries such as oil and gas, retail, tourism, and entertainment (Wilson et al., 2020). This insecurity raised employees' stress levels and financial worries (Menendez-Espina et al., 2019). Before the pandemic, teleworking was rare outside specific fields such as information technology or public administration (Hoti et al., 2020). The pandemic forced many organizations to adopt remote work, restructuring how employees performed their duties.

These changes have placed additional pressure on employers to balance competitiveness with employee well-being. The pandemic highlighted the need for organizations to protect both the mental and physical health of their workforce while maintaining performance (Blustein et al., 2020; McKibbin and Fernando, 2020; Wilson et al., 2020; Rasdi et al., 2021). As work conditions continue to evolve, there is a growing need to understand how employees adapt to these shifts and how they affect health, job satisfaction, and productivity (Birrell et al., 2021).

Due to the limited number of studies examining job satisfaction as a mediator in the relationship between job security and mental health, particularly in the context of COVID-19, the following hypothesis is proposed:

H13: Job satisfaction will mediate the relationship between job security and employees' mental health state.

2.9.4 The Mediating Role Of Job Satisfaction In The Relationship Between Job Resources and Employees' Mental Health State

This subsection explains the mediating role of job satisfaction in the relationship between job resources, which include social support and work environment, and employees' mental health state.

2.9.4.1 The Mediating Role Of Job Satisfaction In The Relationship Between Social Support And Employees' Mental Health State

Social support plays an important role in overall well-being. However, one of the main strategies to reduce the spread of COVID-19 has been social distancing, which limits in-person interaction. During times of crisis, the need for social support becomes even more critical for individuals to manage stress and uncertainty. Social support requires people to adapt their usual ways of connecting and often assumes that they already have strong social networks or access to communication technology (Mohd et al., 2020). It can be described as the experience of being cared for, valued, and part of a network that provides mutual help and reassurance (Sarason et al., 1987; Wills, 1991). Many studies have highlighted its preventive role in mental health. Both cross-sectional studies (Cao et al., 2018; Walker and Jacobs, 2014) and longitudinal research (Koelmel et al., 2017; Rothon et al., 2012) consistently show that higher levels of social support are strongly associated with better mental health outcomes.

Recent evidence reinforces the protective role of social support in promoting mental well-being (Acoba, 2024; Xiao et al., 2020). For example, Tambling et al. (2023) found that emotional support was more strongly related to mental health among females than males. During the COVID-19 pandemic, individuals who reported higher levels of social support experienced lower levels of depression, anxiety, and stress (Ghafari et al., 2021; Grey et al., 2020; Qi et al., 2020; Xiao et al., 2020).

Several studies have discussed social support without specifying its source—whether from colleagues, supervisors, or family and friends (Henry et al., 2023; Elomaa et al., 2023). Among seafarers, those who received higher levels of social support reported better quality of life, lower depression, and less psychosocial stress compared to those with less support (McVeigh et al., 2021). According to Lee et al. (2020), greater social support reduced the indirect link between stress and problematic alcohol use by

lowering depressive symptoms. Similarly, strong workplace support, such as help from supervisors and peers, has been linked to greater job satisfaction and lower stress levels (Janosy et al., 2023; Frenzel et al., 2023).

In contrast, Bobdey et al. (2020) found that navy personnel living on ships reported lower perceived social, appraisal, self-esteem, and belonging support compared to those living with their families. Likewise, Chami-Maleeb (2022) observed that organizational support improved employees' quality of work life by increasing confidence and reducing fatigue. While many studies have confirmed a link between social support and mental health, most were conducted in specific populations. It remains unclear whether these findings apply to offshore O&G employees, particularly during the COVID-19 pandemic (Lincoln, 2022; Sackery et al., 2021).

In summary, existing research consistently shows a positive relationship between social support and mental health (Khan et al., 2024; Jean, 2024). Social support improves mental well-being by reducing perceived stress (Acoba, 2024; Bedaso et al., 2021). Although this relationship is well-established, the underlying mechanisms remain less understood (Alhakimi et al., 2023). This gap offers a valuable opportunity for further research, especially in the context of the offshore O&G industry during and after the COVID-19 pandemic.

Based on this discussion, the following hypothesis is proposed:

H14: Job satisfaction will mediate the relationship between social support and employees' mental health state.

2.9.4.2 The Mediating Role Of Job Satisfaction In The Relationship Between Social Relations And Employees' Mental Health State

The COVID-19 pandemic has had a major impact on the global economy, health systems, and cultures. Governments around the world have introduced quarantine, isolation, and social distancing measures to limit the spread of the virus. These measures have restricted social interactions with friends, family, and colleagues, changing the way people connect and communicate. Social relationships are an essential part of daily life and have a strong influence on both mental health and work performance (Breetzke and Wild, 2022). Regular interaction and communication with others are associated with greater well-being (Okabe-Miyamoto et al., 2021). However, there is still limited

research on the psychological, behavioural, and social effects of the pandemic on workplace mental health (McKenna-Plumley et al., 2021; Kämpfen et al., 2020; Zhang and Ma, 2020). The work environment plays a crucial role in shaping mental health, and social isolation and loneliness are now recognized as common stressors in the workplace (Bowers et al., 2022).

Hayes-Meijia et al. (2024) found that job satisfaction strongly influences both employee performance and mental health. As more employees return to physical workplaces following the easing of pandemic restrictions, the importance of mental health support in the workplace has grown. In Malaysia, studies conducted before the pandemic showed that poor workplace mental health reduced productivity and increased absenteeism and turnover (Kendrick et al., 2023; Faye, 2022). Professor Datuk Dr. Andrew Mohanraj, President of the Malaysian Mental Health Association, emphasized the importance of promoting psychological well-being at work because employees spend much of their time in their workplace. A lack of mental health support can weaken employees' confidence and reduce their ability to perform effectively.

Social interaction is fundamental to human life and helps individuals build relationships and make sense of their environment. Research shows that social interaction supports both mental and physical health (Bupa Global, 2023). Positive interactions can improve mental health by reducing stress and promoting relaxation (Breetzke and Wild, 2022). Loneliness often results from a mismatch between desired and actual social connections (Lam et al., 2024). Therefore, restrictions that limit social contact can increase loneliness and reduce mental well-being (Tatar et al., 2024).

Isolation at work, whether physical or emotional, can lead to feelings of loneliness. Loneliness has been linked to poorer cognitive functioning, higher levels of depression, and weaker immune response (Kara et al., 2024). Although loneliness is increasingly common in modern society, research on how it relates to the workplace remains limited (Lowman et al., 2024). Manninen et al. (2023) found a negative relationship between workplace loneliness and job satisfaction, suggesting that employees who feel isolated are less satisfied with their jobs.

Based on these findings, the following hypothesis is proposed:

H15: Job satisfaction will mediate the relationship between social relations and employees' mental health state.

2.9.4.3 The Mediating Role Of Job Satisfaction In The Relationship Between Degree Of Freedom At Work And Employees' Mental Health State

Digitalization has transformed traditional work practices. The growth of the Internet, the widespread use of mobile devices, and the expansion of social media have all significantly influenced how modern organizations function. Compared to conventional work methods, flexible working arrangements offer greater convenience, adaptability, and sustainability, leading to substantial shifts in how employees perform their duties. The COVID-19 pandemic further accelerated the adoption of digital technologies, promoting remote and flexible work across various sectors (Stamm et al., 2023).

Research examining the link between the degree of freedom at work and employees' mental health has often drawn from the Demand-Control (DC) model (Karasek, 1979; Karasek and Theorell, 1990) and the Job Demands-Resources (JD-R) model (Bakker and Demerouti, 2017; Schaufeli and Bakker, 2004). Both frameworks emphasize that greater freedom at work is associated with improved psychological well-being. Within the JD-R model, the degree of freedom is viewed as a job resource. Resources in the psychosocial work environment help reduce stress related to job demands, enhance employees' ability to meet work goals, and promote personal and professional growth, learning, and development (Demerouti and Bakker, 2023). Thus, according to this model, a higher degree of freedom at work is expected to have a positive and direct relationship with employees' well-being. Employees with greater autonomy are better able to manage their workload and respond effectively to job pressures (Uhlig et al., 2023).

Previous studies also show that the relationship between psychosocial work conditions and job outcomes can differ across occupational groups (Leka et al., 2023; Clausen et al., 2022). Wang et al. (2022) explored how freedom at work affects job satisfaction and found that higher degrees of autonomy positively influence well-being. The motivational approach supports this view, suggesting that freedom at work enhances positive experiences and correlates with key well-being indicators such as job satisfaction (Vlachos et al., 2024). Organizational behaviour research has also demonstrated a strong association between autonomy and job satisfaction (Annual et al., 2023; Ade-Adeniji et al., 2021). Bawa and Creg (2023) further explained that

providing employees with greater freedom encourages intrinsic motivation, which leads to stronger job commitment.

In summary, when employees experience job satisfaction, their mental health tends to improve as well. Based on this understanding, the following hypothesis is proposed:

H16: Job satisfaction will mediate the relationship between the degree of freedom at work and employees' mental health state.

2.9.4.4 The Mediating Role Of Job Satisfaction In The Relationship Between Sense Of Community And Employees' Mental Health State

Since adults spend a large portion of their time at work and are often exposed to various pressures, hazards, and risks, the workplace and its related factors can be regarded as social determinants of health that affect the well-being of the entire community (Woods et al., 2023). The well-being of workplace communities has received growing attention within community psychology, especially as more community psychologists contribute to organizational settings (Scotto et al., 2019). After experiencing lockdowns and social restrictions, many employees have expressed a strong desire to reconnect, build new relationships, and strengthen workplace communities. Managers who recognize that employee satisfaction extends beyond completing tasks and earning wages can help cultivate a sense of belonging and teamwork that supports job satisfaction and mental well-being (McCarthy, 2022).

The development of mental health problems involves multiple contributing factors, and research shows that the number and quality of social relationships can influence these outcomes (Park et al., 2023). The emotional and cognitive aspects of a sense of community are important predictors of mental health, making this form of social capital highly relevant. Scholars in social epidemiology highlight that being part of a social network contributes to psychological benefits such as a sense of belonging, purpose, security, and self-worth (van Agteren et al., 2021; Kim et al., 2018). A strong sense of community not only improves mental health but can also act as a protective factor during challenging life situations (Senbursa and Dunder, 2024).

A sense of community refers to shared unity, inclusion, and mutual support among employees in the workplace (Cicognani, 2024). It describes how strongly employees feel connected to their colleagues and leaders, as well as their level of participation and support within the organization (Buonomo et al., 2023). The quality of organizational relationships and the frequency of interaction with peers and supervisors have been identified as major factors influencing job satisfaction, particularly during the COVID-19 pandemic. The pandemic significantly affected work arrangements, leading to increased reliance on digital communication and remote work through information and communication technologies (Pansini et al., 2023).

The shift from time-based to goal-based work systems introduced new challenges in areas such as task delegation, performance evaluation, and work-life balance. During the 2020–2021 pandemic period, many governments promoted remote work as a safety measure to protect employees' health and well-being (Wood et al., 2023). This approach helped reduce infection risks while maintaining productivity (De Vincenzi et al., 2022). In many cases, employees reported satisfaction with remote work, and performance outcomes were equal to or better than traditional on-site work, creating a mutually beneficial situation for both employers and employees (Krug et al., 2021).

Before the pandemic, research had already shown that remote work could increase job satisfaction if in-person communication and collaboration were preserved (Cooper, 2023). However, social isolation and reduced face-to-face interaction can weaken employees' sense of belonging, leading to lower motivation, engagement, and job satisfaction (Tahlyan et al., 2024). Maintaining a sense of connection, participation, and teamwork in remote work settings improves well-being and satisfaction (Jämsen et al., 2022; Nasurdin et al., 2018).

The workplace adjustments prompted by COVID-19 have provided new insights into how organizations can sustain employee well-being. Companies that encourage a strong sense of belonging and connectedness, even in virtual settings, can help reduce the negative effects of remote work on job satisfaction (Wang et al., 2021).

Based on this discussion, the following hypothesis is proposed:

H17: Job satisfaction will mediate the relationship between a sense of community and employees' mental health state.

2.9.4.5 The Mediating Role Of Job Satisfaction In The Relationship between Meaning Of Work And Employees' Mental Health State

Although there is limited consensus on the definition of meaningful work, most scholars agree that it reflects how individuals evaluate the significance and worth of their work (Rosso et al., 2010; Pratt and Ashforth, 2003). Meaningful work typically involves performing tasks that are important, promote personal growth, and contribute positively to society (Blustein et al., 2023). When combined with job satisfaction, meaningful work has been found to enhance employees' mental health (Magrizos et al., 2023). Research on the concept of meaning in work has expanded considerably over the past few decades (Wu et al., 2023; Parray et al., 2023). Multiple fields, including organizational behaviour, vocational and organizational psychology, communication studies, and ethics, have explored meaningful work from different perspectives (Bailey et al., 2019; Martela and Fessi, 2018).

The wide range of viewpoints across disciplines has contributed to the ongoing debate over how meaningful work should be conceptualized. Bailey et al. (2019b) identified thirty-six distinct definitions of the term in academic literature. Many management scholars suggest that organizations should actively promote meaningful work to achieve positive outcomes for both employees and the organization (Canboy et al., 2023; Jasinenko and Steuber, 2023). Although the process of finding purpose in work is complex, several factors that lead to this positive state have been identified (Tyssedal, 2023). Organizational working conditions, such as policies, practices, and workplace culture, play an important role in fostering meaningful work experiences.

Employees' sense of meaning at work is also associated with their perception of work quality. While there is no single, unified theory of meaningful work, the concept appears in several major organizational psychology frameworks (Tay et al., 2023). For example, in the Job Characteristics Model (Hackman and Oldham, 1976), meaningful work serves as a mediator between job characteristics—such as skill variety, task identity, task significance, autonomy, and feedback—and positive outcomes such as intrinsic motivation, better performance, and greater job satisfaction (Lips-Wiersma et al., 2023). The Job Characteristics Model remains a core framework for understanding how job design can enhance motivation and satisfaction.

According to the Job Demands-Resources (JD-R) model, meaningful work functions as a psychological resource that helps employees cope with stress and pressure (Meng et al., 2023; Sánchez-Cardona et al., 2023). Like other resources, it reduces the negative impact of job demands, whether mental, emotional, or physical and promotes higher motivation and improved organizational outcomes. Reviews and meta-analyses of the Job Characteristics Model have consistently shown a positive relationship between meaningful work and job satisfaction, although the direction of causality is still uncertain (Oh et al., 2024; Tan et al., 2023).

Interest in meaningful work has also grown outside academic research. Many employees, particularly younger generations, value purpose-driven employment and are even willing to accept lower pay in exchange for more meaningful roles (Blustein et al., 2023; Soren and Ryff, 2023). As millennials increasingly dominate the workforce, the importance of meaningful work continues to rise (Elenov et al., 2024; Indrayani et al., 2024). Organizations are beginning to explore practical ways to help employees experience greater meaning in their work (Dhingra et al., 2021; Volini et al., 2021). Although empirical studies are still limited, available evidence suggests that meaningful work generally contributes positively to well-being (Sonnentag et al., 2023). A meta-analysis by Dobrow et al. (2023) found that meaningful work was strongly linked to overall health, life satisfaction, and sense of purpose, and moderately associated with lower stress and depression.

Meaningful work and job satisfaction are closely intertwined, and both play important roles in maintaining positive mental health. Since working adults spend a significant portion of their lives at work, engaging in meaningful tasks during this time can have a direct influence on mental well-being (Goh, 2023).

Based on this discussion, the following hypothesis is proposed:

H18: Job satisfaction will mediate the relationship between the meaning of work and employees' mental health state.

2.10 Gaps In Literature

Despite the growing awareness of mental health as an essential component of occupational well-being, the offshore O&G sector has received limited scholarly attention, particularly in Malaysia. This industry is characterized by physically

demanding work, long shifts, isolation, and restricted access to mental health support. These pressures are not only psychological but also social and organizational in nature. However, most existing research does not adequately capture this complexity, leaving several important gaps. Therefore, this study seeks to address these gaps through a comprehensive and integrated approach.

The first gap is conceptual, relating to how mental health is defined and measured in offshore O&G research, as well as how it is linked to theoretical frameworks such as the Job Demands Resources (JD R) model. Much of the existing literature adopts a narrow view of mental health, focusing primarily on psychological distress such as anxiety, depression, or burnout, or on isolated outcomes like emotional exhaustion or stress (Fox et al., 2023; Amoadu et al., 2023). This limited approach overlooks the possibility that employees may experience reduced psychological functioning even in the absence of clinical disorders. For offshore employees who often face prolonged isolation, hazardous conditions, and limited access to psychological support, such subclinical mental strain is highly relevant.

A second major limitation is the limited application of the dual continuum model of mental health, which conceptualizes mental illness and mental well-being as related but distinct constructs (Hutton et al., 2022; Windsor Shellard and Gunnell, 2019). This model complements the JD R framework by explaining how job demands contribute to ill-being, while job resources promote well-being. However, this dual perspective is largely absent from offshore research, restricting a comprehensive understanding of how workplace factors influence the full spectrum of mental health outcomes (Rahman et al., 2024; Lee et al., 2024).

The third gap is theoretical, involving the under exploration of job satisfaction as a mediating factor within the JD R model. Although JD R theory suggests that job resources can buffer the negative effects of job demands on employee outcomes (Bakker and Demerouti, 2023), empirical studies rarely examine job satisfaction in this mediating role, particularly in high risk and predominantly male sectors such as offshore O&G (Khalid et al., 2024; Alqaralleh and Siengthai, 2023). Instead, job satisfaction is often treated merely as an outcome variable rather than a dynamic protective factor that mitigates psychological strain. This oversight limits the explanatory and practical value of the JD R model in understanding resilience and well-being among offshore employees.

Beyond these conceptual and theoretical concerns, there is also a methodological gap. Most studies on offshore O&G employees' mental health rely exclusively on either quantitative or qualitative methods, with little effort to combine the two (Tan et al., 2024; Abdullah et al., 2025; Smith and Johnson, 2023). While quantitative approaches are effective in identifying statistical relationships among variables such as job demands, job resources, and mental health, they often fail to explain the contextual and organizational factors underlying these relationships (Yaakub et al., 2023; Abor et al., 2023). In contrast, qualitative studies provide valuable insights into individual experiences and coping mechanisms but lack generalizability.

The limited use of mixed methods in offshore research represents a missed opportunity to integrate the strengths of both paradigms. Mixed methods design, particularly convergent or explanatory sequential approaches, can quantify key relationships while also uncovering the underlying mechanisms and personal narratives that explain them. This combined approach is particularly relevant in offshore O&G contexts, where employees' experiences are shaped by interacting physical, psychological, and organizational pressures that cannot be fully understood through a single method. Integrating numerical and narrative data provides a more complete and contextually valid understanding of mental health outcomes and can inform more practical, evidence-based interventions (Khalid et al., 2024; Alqaralleh and Siengthai, 2023).

In summary, this study addresses three main gaps in the literature on offshore O&G employees' mental health in Malaysia. The first is a conceptual gap concerning the definition and operationalization of mental health. The second is a theoretical gap regarding the mediating role of job satisfaction within the JD R and dual continuum frameworks. The third is a methodological gap related to the limited use of mixed methods research. By integrating these frameworks and applying a mixed methods approach, this study provides a more comprehensive and contextually grounded understanding of the psychosocial and organizational factors that influence mental health in the offshore O&G sector.

2.11 Conclusion

This chapter presents an overview of employees' mental health in both the global and Malaysian contexts, followed by a discussion of the O&G industry and its relevance to occupational mental health. It also reviews key policies related to employee well-being, including the Occupational Safety and Health Act 1994, the Employment Act 1955, the Mental Health Act 2002, and the National Mental Health Policy. In addition, this chapter elaborates on the independent, dependent, and mediating variables illustrated in the conceptual framework. It concludes with the development of hypotheses designed to examine the relationships among these variables. The following chapter will describe the research methodology employed in this study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Chapters 1 and 2 of this study presented the research background and literature review within the context of psychosocial factors, mental health state, and job satisfaction. The current chapter outlines the research methodology adopted for the study. It explains the research design, describes how the constructs in the research model are operationalized, and details the instruments used for measurement. This chapter also presents the data sources and the procedures used for data collection, followed by a description of the methods applied for data analysis. The chapter concludes with a discussion of the research paradigm and analytical approaches employed. Overall, it serves as a guide for how and where the information related to the study objectives was obtained.

3.2 Research Philosophy

Saunders, Lewis, and Thornhill introduced the Research Onion model in their book *Research Methods for Business Students*. This model is designed to explain the stages involved in developing a research study and to guide students in structuring their methodology in a systematic manner. The Research Onion, as illustrated in Figure 3.1, represents the layers of decisions that shape the overall research design. It comprises six main layers, namely: (1) Research Philosophy, (2) Research Approach, (3) Research Strategy, (4) Methodological Choice, (5) Time Horizon, and (6) Data Collection and Analysis.

3.2.1 Philosophy

When conducting research, a researcher makes a series of assumptions, either consciously or unconsciously (Burrell and Morgan, 2016). These assumptions can be grouped into three types: ontological, epistemological, and axiological. They guide researchers in formulating research questions, selecting appropriate methods, and

interpreting findings (Crotty, 1998). Collectively, these assumptions form the foundation of the research philosophy.

The ontological assumption concerns the nature of reality and how a researcher perceives the existence of what is being studied. The epistemological assumption relates to the nature of knowledge and how valid information can be acquired. The axiological assumption focuses on the role of values and beliefs in influencing research. According to Saunders et al. (2015), research philosophy refers to a system of beliefs and assumptions that shapes how knowledge is developed.

There are five main research philosophies, each built on different ontological, epistemological, and axiological foundations: (1) Positivism, (2) Critical Realism, (3) Interpretivism, (4) Postmodernism, and (5) Pragmatism. Positivism reflects the philosophical stance of the natural sciences and seeks to produce law-like generalizations from observable social reality. Critical Realism aims to explain observed events by exploring the underlying structures and mechanisms that shape them. Interpretivism, like Critical Realism, emerged as a critique of Positivism, emphasizing the subjective meaning of human experiences. Postmodernism focuses on the role of language, culture, and power relations in shaping knowledge and challenges dominant perspectives by amplifying marginalized voices. Pragmatism, on the other hand, values practical outcomes and views ideas as meaningful only when they lead to effective action (Kelemen et al., 2019).

Based on these perspectives, this study adopts the Pragmatism philosophy. Pragmatism is appropriate because it integrates both objective and subjective approaches, combining factual analysis with contextual understanding. It recognizes that knowledge is best developed when theories, concepts, and ideas are evaluated for their usefulness in addressing real-world problems. This philosophy allows the study to balance quantitative precision with qualitative depth, ensuring that both practical relevance and theoretical rigor are maintained.

3.2.2 Approach

The second layer of the research onion represents the research approach. Once the appropriate research philosophy has been selected, the next step involves identifying the approach that aligns with it. The choice of philosophy discussed in the previous section determines the logic for developing theory and interpreting findings.

Furthermore, the selected approach influences the research design and the choice of methods (Creswell & Poth, 2016). There are two main types of research approaches, namely inductive and deductive.

The deductive approach begins with the development of hypotheses derived from existing theories and previous literature. These hypotheses are then tested through data collection and analysis to determine whether they hold true in specific contexts. In contrast, the inductive approach starts with observations and seeks to develop new theories based on patterns identified from the collected data. Qualitative and quantitative research are closely linked to these approaches. Qualitative research often employs an inductive approach and focuses on textual, visual, or audio-based data, while quantitative research generally follows a deductive approach and relies on numerical data.

This study adopts a deductive approach. The decision is based on the nature of quantitative research, which begins with theoretical foundations and advances through hypothesis testing. In this study, established theories are applied to a specific context to determine their validity and relevance. Therefore, the deductive approach is considered appropriate as it enables the testing of theoretical relationships among the variables identified in the conceptual framework.

3.2.3 Strategies

A research strategy refers to the overall plan that outlines how a researcher intends to conduct a study (Saunders et al., 2015). There are several types of research strategies, including experimental research, action research, case study research, grounded theory, survey design, and in-depth interviews.

Experimental research involves manipulating one variable, known as the independent variable, to observe its effect on another variable, known as the dependent variable. It focuses on identifying and testing the relationships between variables (Ghazinoory & Aghaei, 2024). This strategy follows the principles of the scientific method and is generally conducted in controlled environments such as laboratories. Its main purpose is to test, confirm, or refute a research hypothesis.

Action research, in contrast, takes place in real-world settings such as classrooms, hospitals, and workplaces. It helps researchers identify and address problems or weaknesses within practical environments. This strategy is often referred

to as participatory action research because it values the active involvement of participants in the process.

Case study research, on the other hand, involves an in-depth investigation of a specific case, such as an individual, group, organization, event, or phenomenon (Saunders et al., 2019). It aims to gain a deeper understanding of real-world issues within their social and cultural context. This strategy is typically qualitative in nature and is often associated with an inductive approach.

Grounded theory focuses on allowing patterns and relationships to emerge directly from the data. The researcher develops theories, models, or frameworks based on evidence collected from participants rather than starting with predefined assumptions. This strategy is especially useful for exploring new or under-researched topics where existing theories are limited.

A survey design is most suitable when researchers aim to answer questions related to “what,” “who,” “where,” “how much,” or “how many” (Sahay, 2016). This strategy involves collecting information from a selected sample and analyzing it to draw conclusions about the population. Survey research is often complemented by interviews to obtain deeper insights into participants’ views and experiences. Interviews can be conducted face-to-face or through telephone conversations, and they require skilled interviewers to minimize data loss and ensure accuracy (Ivono & Tsitsianis, 2020). Effective interviewing helps build trust with participants and encourages open and meaningful responses, especially when dealing with sensitive topics.

In this study, a survey design supported by questionnaires and in-depth interviews is adopted. This mixed approach allows the collection of both quantitative and qualitative data, providing a more comprehensive understanding of the research problem.

3.2.4 Choice Of Method

The research onion identifies three main methodological choices for conducting research: the mono method, the mixed method, and the multi method. The mono method involves the use of a single data collection technique followed by either qualitative or quantitative analysis. The multi method design, on the other hand, uses multiple data collection techniques and separate analysis procedures within either a qualitative or quantitative framework (Kasirye, 2024). The mixed method approach combines both

qualitative and quantitative techniques for data collection and analysis to provide a more comprehensive understanding of the research problem (Creswell, 2013).

According to Saunders et al. (2019), mixed method research can be categorized into three main types:

- 1) Concurrent mixed methods – data is collected using both qualitative and quantitative techniques during the same phase of the study and analyzed together.
- 2) Sequential mixed methods – data is collected and analyzed in two distinct phases, which can take two forms:
 - a) Sequential exploratory design: qualitative data is collected and analysed first, followed by quantitative data collection and analysis.
 - b) Sequential explanatory design: quantitative data is collected and analysed first followed by qualitative data collection and analysis.
- 3) Sequential multi-phase – data is collected and analyzed in multiple sequential stages, often across different phases of the research.

Based on these classifications, this study adopts a concurrent mixed method design, also known as concurrent triangulation. The purpose of this approach is to combine both quantitative and qualitative data to provide a more accurate and comprehensive understanding of the relationships among the variables under study. In this design, quantitative and qualitative data are collected simultaneously, although one type of data may be given greater emphasis depending on the research objectives (Creswell, 2013).

The quantitative and qualitative data sets in this study are designed to complement each other. Each data type provides insights that may not be captured by a single approach (Jick, 1979). Typically, both types of data are analyzed separately, and their results are integrated during the interpretation stage. The extent to which the findings from both data sets converge or support each other is examined during this process. The main rationale for using the concurrent mixed method design is to confirm, cross-validate, and corroborate the study findings, thereby enhancing the overall credibility and depth of the research.

3.2.5 Time Horizon

The time horizon refers to the period during which data is collected for a study. It can be categorized into two types: cross-sectional and longitudinal. Cross-sectional

research involves collecting data at a single point in time, which is commonly used in surveys to capture a snapshot of a particular phenomenon. In contrast, longitudinal research involves collecting data over an extended period, such as across several months or years, to observe changes and trends in specific variables. For this study, a cross-sectional time horizon is adopted, as data will be collected at one point in time to examine the relationships among the identified variables.

3.2.6 Technique And Procedures

The final layer of the research onion focuses on data collection and analysis methods. This stage outlines the specific techniques and procedures used to gather and interpret data in alignment with the study's objectives. At this point, the researcher determines whether to use primary or secondary data and decides on the nature of the data to be collected, either qualitative or quantitative. Data serves as the core element of the research process and forms the foundation upon which the study's findings and conclusions are built.

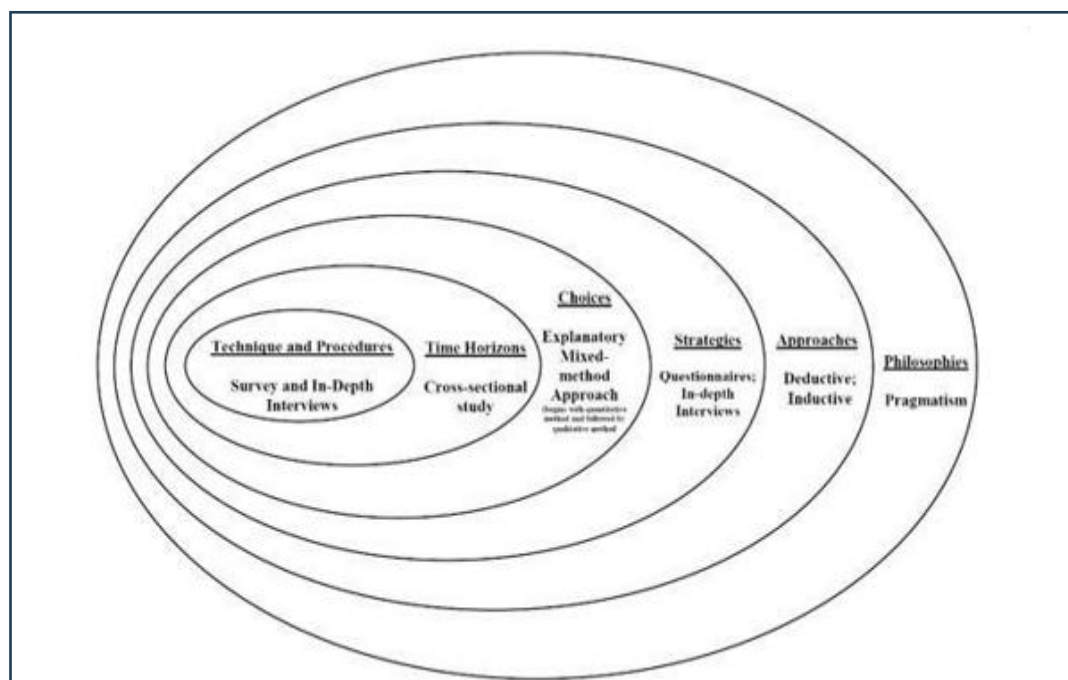


Figure 3. 1 Research Onion used in this study

3.3 Unit Of Analysis

This study applies specific inclusion and exclusion criteria to ensure that respondents are relevant to the research context. For the quantitative component, participants must be employees currently working in the offshore oil and gas industry in Malaysia, aged 18 years and above, and have at least one year of offshore working experience. This requirement ensures that respondents have sufficient exposure to offshore working conditions to provide meaningful responses. Employees in purely onshore roles or with less than one year of offshore experience are excluded, as their work conditions differ significantly from offshore environments.

For the qualitative component, participants are selected from individuals holding managerial or supervisory roles, particularly in Human Resource, Safety, Health and Environment (SHE), and Engineering and Operations departments. These individuals must be directly involved in organisational decision-making or implementation of policies related to employee well-being. Individuals without such responsibilities are excluded to maintain the relevance and depth of organisational insights.

Based on these criteria, the study adopts different sampling techniques for each component of the mixed-method design. For the quantitative phase, proportionate stratified random sampling is applied to ensure representation across different offshore roles and locations. This approach allows the study to capture variation in psychosocial conditions across the workforce.

For the qualitative phase, purposive sampling is used to identify key informants with relevant experience and knowledge. This is complemented by convenience sampling where necessary to gain access to participants within the offshore industry. The combination of these techniques supports both representativeness in the quantitative data and depth of insight in the qualitative data.

This study adopts a multi-level unit of analysis to align with its concurrent mixed-method design. For the quantitative component, the unit of analysis is the individual employee working in the offshore oil and gas industry, as the study examines personal experiences of psychosocial factors, job satisfaction, and mental health. Each respondent represents an independent unit, reflecting individual-level variation in workplace conditions and psychological outcomes.

For the qualitative component, the unit of analysis extends to organisational actors, particularly individuals in managerial and supervisory roles within Human Resource, Safety, Health and Environment (SHE), and Engineering and Operations departments. These informants are selected based on their involvement in organisational practices, policies, and decision-making processes related to employee well-being.

The combination of these units allows the study to capture both individual experiences and organisational perspectives, enabling a more comprehensive understanding of how psychosocial factors and mental health are shaped within offshore work environments.

3.4 Quantitative Method

Quantitative research is a systematic approach that focuses on collecting and analyzing numerical data to explain relationships among variables and test established hypotheses (Rana et al., 2021). It emphasizes objectivity and precision through structured instruments such as surveys or questionnaires, allowing the findings to be statistically analyzed and generalized to larger populations.

3.4.1 Sample Size

Reinartz et al. (2009) proposed that a sample size of 100 is sufficient to achieve acceptable levels of statistical power in PLS-SEM for data consideration in PLS-based studies. Meanwhile, Hair et al. (2013) claimed that the most appropriate sample size for achieving acceptable levels of statistical power in PLS-SEM should be between 100 and 250 respondents. Malaysia has a population of 12,254 offshore employees (Human Resources Development Fund, 2019). According to Van Haute (2021), using proportionate stratified random sampling, the sample size for this study was 412 employees. The questionnaire was distributed to the proposed offshore O&G company, as mentioned on Page 8, following the percentage of the offshore population in each state. Accordingly, four states have offshore employees. There are Kelantan, Terengganu, Sabah, and Sarawak. Table 3.1 shows the distribution of offshore operating organizations in Malaysia and the number of offshore employees according to the Human Resources Development Fund (HRDF) (2019).

Table 3. 1
O&G offshore operating organizations

State	Operating Organizations in Malaysia by proportionate	Samples based on proportionate
Sabah	Six organizations consisting of 408 offshore employees	35% = 143 employees
Sarawak	Five organizations consisting of 340 offshore employees	30% = 102 employees
Peninsular	Seven organizations consisting of 476 offshore employees	35% =167 employees
TOTAL		412 employees

3.4.2 Sampling Techniques

Before exploring the different sampling techniques, it is important to first define sampling and understand why researchers choose to select a sample. Sampling refers to the process of selecting a subset of individuals from a defined population or sampling frame to represent the entire population (Ritchie et al., 2003). It allows researchers to draw conclusions about the larger population and to generalize findings that support or refine existing theories. The selection of an appropriate sampling technique determines the accuracy and validity of these conclusions. In general, sampling techniques are grouped into two main categories: probability (random) sampling and non-probability (non-random) sampling. A broad sampling method must be identified before selecting a specific technique suitable for the research design. Figure 3.2 illustrates the different types of sampling techniques.

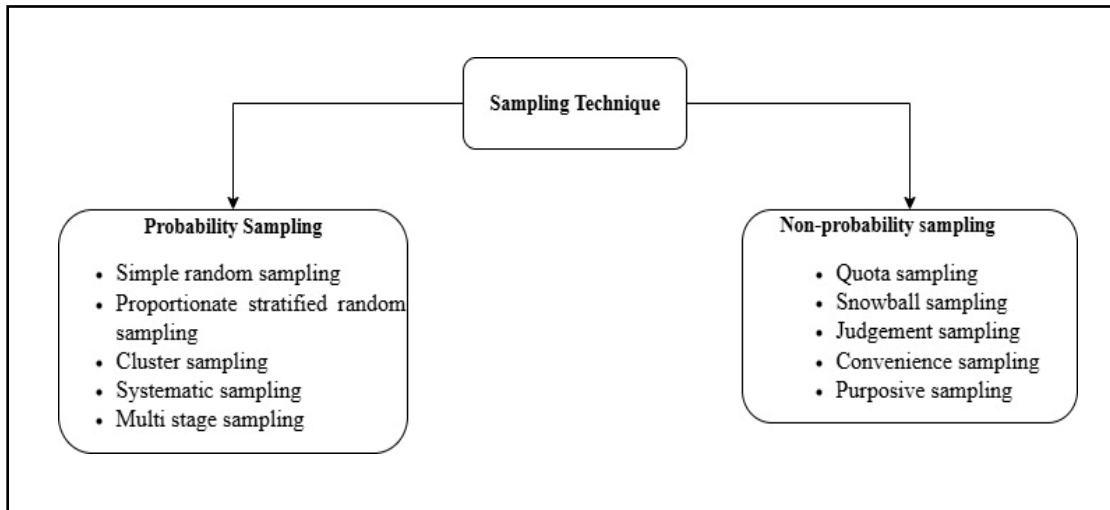


Figure 3. 2 Sampling Technique

Stratified random sampling is a type of probability sampling in which a research organization divides the entire population into multiple non-overlapping, homogeneous groups (strata) and randomly selects final members for the study from various strata, reducing costs and improving efficiency. Members of each of these groups should be distinct so that each member of all groups has an equal chance of being chosen using simple probability. This sampling technique is also known as “random quota sampling.” There are two types of stratified random sampling: proportionate stratified random sampling and disproportionate stratified random sampling.

Firstly, in proportionate stratified sampling, the size of each sample in a stratum is directly proportional to the size of the total population of that stratum. The sampling implies that each sample inside a stratum has an equal sampling proportion. The formula that can be used to calculate the sample size is as follows:

$$\text{Proportionate stratified random sampling formula: } n_h = (N_h / N) * n$$

n_h = Sample size for h^{th} stratum

N_h = Population size for h^{th} stratum

N = Size of the entire population

n = Size of the entire sample

Secondly, there is disproportionate stratified random sampling. In this sampling

method, the sampling unit in each stratum does not have to be representative of the population. This study uses proportionate stratified random sampling to ensure representation across different groups within the offshore oil and gas workforce. The sample is divided based on job function and working location, including Engineering and Operations, Safety, Health and Environment (SHE), support roles, and offshore regions such as Sabah, Sarawak, Terengganu, and Kelantan. Respondents are then selected randomly within each group according to their proportion in the population. The sample consists of employees currently working in the offshore O&G industry in Malaysia who meet the inclusion criteria, as listed; 1) the informants should be over 18 years old, and 2) the respondents must have more than one year of working experience offshore. This inclusion criteria will be slightly different for the qualitative data analysis.

3.4.3 Survey Instruments And Operationalization Of Research Constructs

This section explains the instruments used to measure the variables in the study and describes how each construct was operationalized. The survey instrument was designed based on established scales adapted from previous validated studies to ensure accuracy and reliability. Each construct which is job demands, job security, social support, work environment, job satisfaction, and employees' mental health state was measured using items rated on a Likert scale to capture respondents' perceptions. The operationalization process involved identifying the dimensions, defining measurable indicators, and linking them to the theoretical framework developed in Chapter 2. This section also provides details on the structure of the questionnaire, sources of measurement items, and procedures used to assess validity and reliability.

3.4.3.1 Questionnaire Design

The study instrument was developed by adapting items from previously validated measurement tools. Each item was carefully modified to ensure clarity and comprehension among respondents while maintaining the original intent of the question. Adjustments to the wording and length of the items were made to ensure that they accurately reflected the constructs under investigation.

a) Content And Purpose Of Questions:

The questionnaire was designed to measure psychosocial factors, job satisfaction, and mental health. The selection of items for these main constructs was based on an extensive review of previous empirical studies. All measurement items were derived from instruments that had been validated in earlier research. The questions were intended to assess respondents' satisfaction with various psychosocial aspects of their work and to evaluate their mental health status. By using validated scales, the study ensured the quality and consistency of measurement (Bryman & Bell, 2007). Adopting established measurement items also strengthened construct validity and helped ensure that responses would remain consistent across different individuals and contexts. Each question was carefully reviewed to confirm its relevance and eliminate unnecessary elements.

b) Wording And Language:

The language used in the questionnaire was designed to be clear, concise, and easy to understand. Following the recommendations of Podsakoff et al. (2003), particular attention was given to the choice of words and phrasing to prevent confusion. All items were written in plain English to make them accessible to participants with varying levels of language proficiency. Ambiguous or complex terms were avoided, and every question was formulated to address only one specific issue. This approach helped reduce uncertainty, vagueness, and the risk of misinterpretation. Since the original items were adapted from instruments developed in Western contexts, modifications were made to ensure linguistic clarity and cultural appropriateness for the study population.

c) Question Types And Formats:

The questionnaire consisted entirely of close-ended questions to measure all independent variables, the mediating variable, and the dependent variable, as well as the demographic information of respondents. The use of close-ended questions enabled respondents to make quick and accurate choices while facilitating efficient data analysis. All items were written as positive statements to avoid confusion that can arise

from negatively worded questions. Consistent with the guidelines of Podsakoff et al. (2003), the questionnaire design avoided complex or compound questions and used straightforward wording to support comprehension and reliability.

d) Common Method Variance (CMV):

Despite the careful design and administration of the survey, the possibility of common method variance (CMV) was acknowledged as a potential concern. To minimize its impact, several procedural and statistical strategies were employed. Three main techniques were applied to assess and control for CMV: Harman's single-factor test, full collinearity assessment, and the marker variable approach. These tests helped to confirm that no single factor accounted for most of the variance, indicating that CMV did not significantly affect the results.

3.4.3.2 Scaling

All components used in this study were adapted from existing validated survey instruments, and no single-item measure was included in the model assessment. Churchill (2022) highlighted the limitations of using single-item scales, noting that they often fail to capture the full scope of the construct being measured. To ensure reliability and precision in data collection, this study employed multiple-item measures for each construct. The questionnaire incorporated both a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The inclusion of these scales aimed to capture nuanced responses and to minimize common method bias. Details regarding the specific scaling used for each construct are provided in Appendix 1.

3.4.3.3 Structure Of The Questionnaire

The questionnaire was prepared in both English and Bahasa Melayu to accommodate participants' language preferences and to enhance understanding. It was divided into seven sections labelled A to G. Section A collected demographic information, including respondents' age, gender, education level, length of service, and marital status. This section used a nominal scale for data classification. Section B

focused on the dependent variable, which measured the mental health state of offshore oil and gas employees. Sections C, D, E, and F contained items related to the independent variables that represent psychosocial factors. Section G addressed the mediating variable, job satisfaction. All measurement instruments were adapted from prior studies conducted on similar topics. The items were modified to align with the context of this research, and their inclusion was based on acceptable reliability values, as indicated by Cronbach's alpha coefficients. Table 3.2 presents the detailed structure of the questionnaire.

Table 3. 2
Structure of the Questionnaire

Constructs	No of Items	Scale	Reference
Demographic Profile	-	-	Appendix 2
Mental Health State	5 items	Seven-Point Likert Scale	Appendix 3
Job Demands	10 items	Five-Point Likert Scale	Appendix 4
Job Security	5 items	Seven-Point Likert Scale	Appendix 5
Social Support	9 items	Five-Point Likert Scale	Appendix 6
Work Environment	8 items	Seven-Point Likert Scale	Appendix 7
Job Satisfaction	8 items	Five-Point Likert Scale	Appendix 8

3.4.4 Data Collection Procedure

Since this study employed a mixed-method design, data were collected through both questionnaires and in-depth interviews. The two methods were conducted sequentially, where the interview findings were used to validate and complement the information obtained from the questionnaires. Prior to the data collection process, the researcher obtained ethical clearance from the Research Ethics Committee of Universiti Teknologi MARA (UiTM) Institute of Graduate Studies. The questionnaire and interview protocols were reviewed and approved under reference number REC/05/2023 (PG/MR/168), as documented in Appendix 9.

Ethical considerations in this study were guided by the principles of credibility, trustworthiness, and respect for participants' rights, values, and beliefs. Confidentiality and privacy were maintained at all stages of the research, from participant recruitment to data reporting. The participating organization provided formal consent after receiving a full explanation of the study's objectives and procedures. All participants were briefed on the purpose, aims, and scope of the research before providing their voluntary

consent. Anonymity was strictly upheld throughout the process, and no identifying information was disclosed in the survey or interview reports. This approach was intended to encourage honest, accurate, and unbiased responses from all participants.

3.4.5 Statistical Analyses

The process of data analysis involved organizing the collected data according to the relevant constructs and identifying the relationships among them. Data obtained from the completed questionnaires were analyzed through a series of systematic procedures. The initial stage included data processing, which comprised editing, coding, and classification to prepare the dataset for analysis. The processed data were then entered into the IBM Statistical Package for the Social Sciences (SPSS) software for descriptive analysis. Subsequently, SmartPLS 4.0 software was employed to evaluate the measurement and structural models, assess the predictive power of the model, and examine the relationships among the study constructs.

3.4.5.1 Statistical Analyses Using SPSS

In the initial stage of data analysis, IBM SPSS software served as the primary tool for data entry, definition, and preparation. The software assisted in cleansing the dataset and detecting logical inconsistencies or irregularities in the responses. Before being converted into a usable data file, all responses were coded systematically. Several data screening procedures were applied to verify data quality, including checks for normality, missing values, data entry errors, and instances of straight-line or incomplete responses. This preparatory process ensured that the dataset was accurate and suitable for subsequent analysis (Blumberg et al., 2014).

During the data preparation phase, IBM SPSS Version 23 was used to organize and define the data based on the raw measurement items collected from the questionnaires. This program has been widely used in survey-based research for data entry, data cleaning, statistical assumption testing, and descriptive analysis. Figure 3.3 illustrates the sequential steps undertaken in the data preparation process. The final questionnaire items were coded and verified in SPSS, followed by a comprehensive data cleaning procedure. The data were carefully checked for missing responses, inconsistent entries, and outliers. Values falling outside the acceptable range were re-

examined and adjusted where necessary. Missing data were handled using the Expectation-Maximization (EM) method to maintain statistical validity. The dataset was then tested for basic statistical assumptions before being used in further analysis. A detailed explanation of these procedures is presented in Chapter 4. Once the data were validated, descriptive analysis was conducted using the same software to summarize key demographic and variable characteristics.

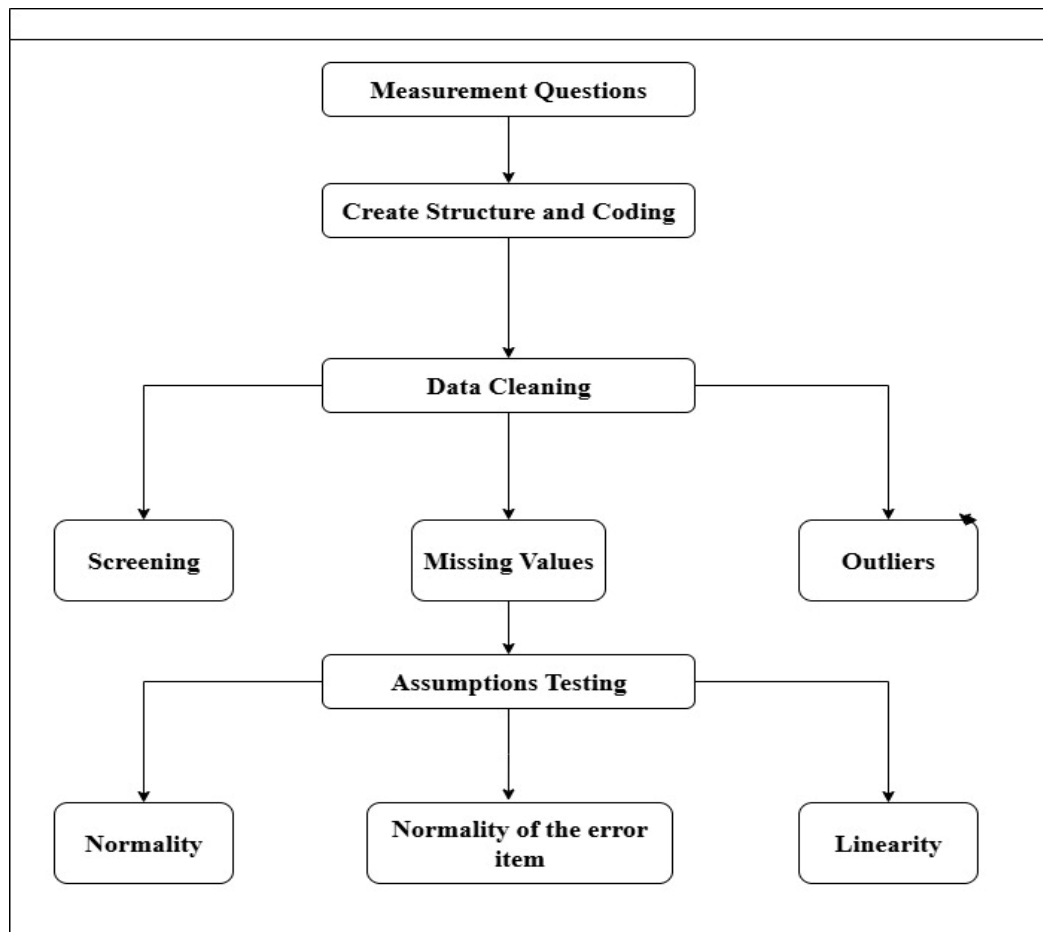


Figure 3. 3 Data Preparation Process

a) Frequency Analysis

The respondents' demographic profiles, such as gender, age, length of experience, etc., have categorical variables. The frequency distribution method was used to determine the number of occurrences of these variables.

b) Descriptive Analysis

This study analysed the independent, dependent, and moderating interval variables, providing descriptions of their maximum, minimum, mean, and standard deviation.

3.4.5.2 Statistical Analyses Using Structural Equation Model

The research model in this study was evaluated using the Partial Least Squares (PLS-SEM) methodology. PLS-SEM has various benefits compared to covariance-based structural Equation Modelling (CB-SEM), which will be described further in Table 3.3.

Table 3. 3
Rules of Thumb in Selecting between CB-SEM and PLS-SEM

	Criteria to evaluate	CB-SEM	PLS-SEM
1	Research Goal		
	i. Forecasting key target constructs		√
	ii. Alternative theories comparison, testing theory, or confirmation of a theory	√	
	iii. Exploratory of an existing structural theory		√
2	Measurement Model Specification		
	i. If the structural model contains formative constructs		√
	ii. If it requires additional specification in error terms, such as co-variation	√	
3	Structural Model		
	i. Complex Structural Model		√
	ii. Non-recursive Structural Model	√	
4	Data Characteristics and Algorithm		
	i. Meet the distributional assumptions of data	√	
	ii. Did not meet the distributional assumptions of data		√
	iii. Consider a small sample size		√
	iv. Consider a large sample size	√	√
	v. Non-normal distribution		√
	vi. Normal distribution	√	√
5	Model Evaluation		
	i. Latent Variable scores are used in subsequent analyses		√
	ii. Need global goodness of fit criterion	√	
	iii. Measurement model invariance needs to be the test	√	

Source: Adapted from Hair et al. (2011)

3.4.5.3 Justification For Using PLS-SEM

Based on the recommendation presented in Table 3.3, this study used PLS-SEM to evaluate the research model. The technique was selected based on the following conditions:

- The phenomenon under investigation is relatively recent, and new measurement models must be developed.
- The present study uses the JD-R theory with new variables to create the research model. Therefore, this research primarily focuses on theory development and

prediction, which aligns with the guidelines for PLS-SEM, as opposed to CB-SEM, which primarily focuses on theory testing.

- PLS-SEM offers researchers a greater level of statistical power compared to CB-SEM.
- PLS is well-suited for analysing complicated structural models that involve several components.

PLS-SEM has been extensively employed as the preferred data analysis approach in most psychosocial factors research. The use of PLS-SEM has been applied in particular research on psychosocial factors, including those conducted by De Oliveira et al. (2023), Felicia et al. (2023), Aljuaid et al. (2022), and Huang et al. (2021). This research has demonstrated that the selected technique is appropriate for this study.

The SmartPLS 4.0 software was used to concurrently simulate the interaction between the variables in this suggested research. All components in the study model were multi-item constructs and were conceptualized as reflecting rather than formative. Reflective constructs seek to discover measures that indicate inter-correlation, one-dimensionality, and good internal consistency. The subsequent subsections outline the criteria employed to evaluate the measurement model. The program utilizes a two-step process: i) evaluation of the measurement model; and ii) estimate of the structural model. The following phases are explained in more detail below:

3.4.5.4 Measurement Model Assessment

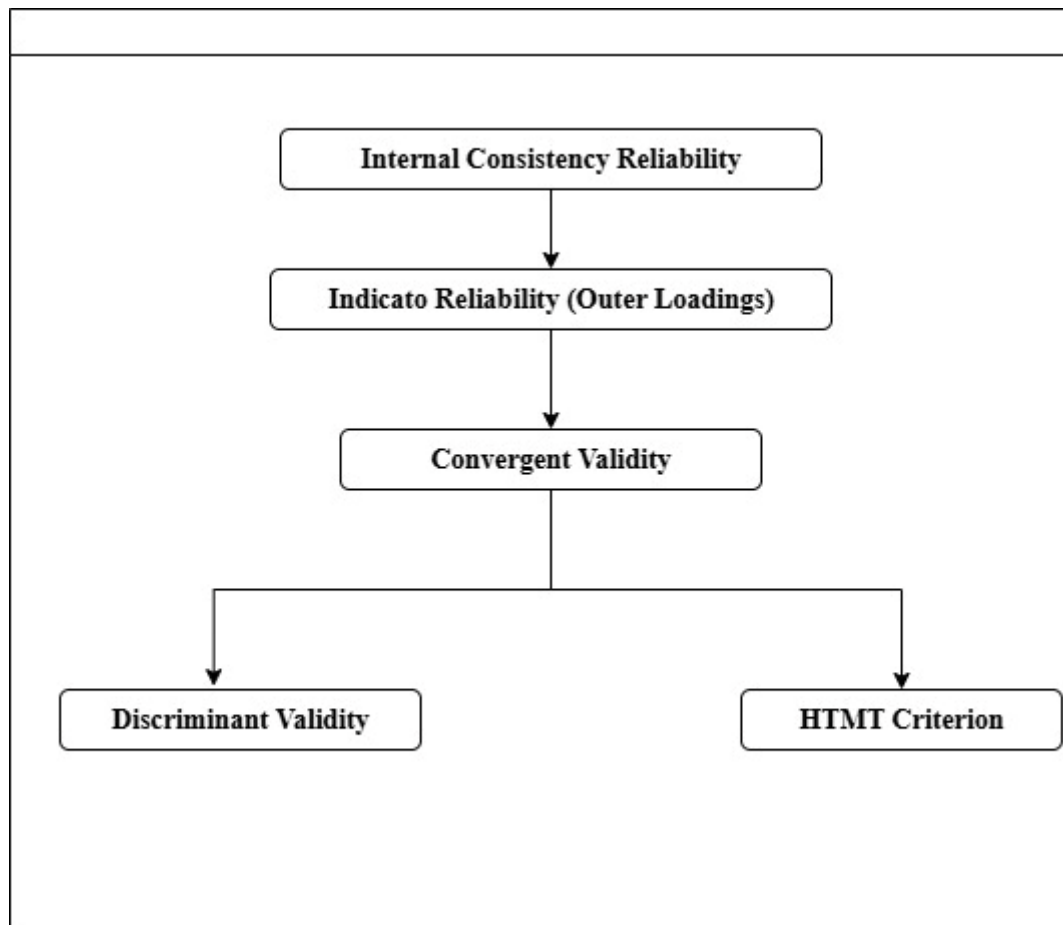


Figure 3. 4 Step-by-steps procedures in the Measurement Model

Stage 1 of the data analysis focuses on the assessment of the measurement model, which emphasizes the reliability and validity of the measurement items. According to Hair et al. (2017), once the requirements for the measurement model are fulfilled, researchers can proceed to evaluate the structural model. Reliability refers to the consistency of the measurement items in assessing the intended constructs, while validity indicates the extent to which the items accurately represent the concepts they are meant to measure. In this study, both convergent validity and discriminant validity were examined to evaluate the measurement model's reliability and validity. Figure 3.4 presents the sequential procedures undertaken in the measurement model assessment.

3.4.5.5 Indicator Reliability (Outer Loadings)

According to Urbach and Ahlemann (2010), an indicator is considered reliable when it consistently measures the construct it is intended to represent. Indicator

reliability is evaluated to determine the extent to which each item accurately reflects its corresponding construct. In this study, a cut-off value of 0.50 was applied to assess the adequacy of the indicator loadings, as recommended by Hair et al. (2010). Indicators with loading values equal to or greater than 0.50 were deemed acceptable, provided that the combined loadings contributed to an Average Variance Extracted (AVE) value exceeding 0.50, as suggested by Byrne (2016).

3.4.5.6 Convergent Validity

Convergent validity is evaluated to determine the extent to which multiple indicators of the same construct are correlated and measure the same underlying concept. It is commonly assessed using the Average Variance Extracted (AVE). Fornell and Larcker (1981) stated that a construct achieves convergent validity when the AVE value is equal to or greater than 0.50. According to Urbach and Ahlemann (2010), convergent validity reflects the degree to which two or more measures designed to assess the same construct are related, thereby confirming that the indicators represent a shared underlying concept.

3.4.5.7 Discriminant Validity

Discriminant validity refers to the extent to which constructs that are expected to be unrelated are indeed distinct from one another (Urbach & Ahlemann, 2010). Two commonly applied techniques to assess discriminant validity in Partial Least Squares (PLS) analysis are the Fornell-Larcker criterion, introduced by Fornell and Larcker (1981), and the examination of cross-loadings, as proposed by Chin (1998b). Cross-loading occurs when the component score of each latent variable is correlated with the scores of other items (Chin, 2009). Indicators are not interchangeable across constructs unless the loading of an indicator on its assigned construct is higher than its loadings on other constructs.

The Fornell-Larcker criterion specifies that the Average Variance Extracted (AVE) for each latent variable must exceed the maximum squared correlation between that variable and any other latent variable. This indicates that each construct shares more variance with its respective indicators than with other constructs. In addition, Henseler et al. (2015) recommended testing the Heterotrait-Monotrait (HTMT) ratio of

correlations to determine discriminant validity. The HTMT value should be significantly different from 1.00, as assessed through bootstrapping, and a threshold value of 0.85 or 0.90 is generally considered acceptable depending on the research context (Franke & Sarstedt, 2019). Table 3.4 provides a summary of the criteria used to evaluate the validity of the measurement model.

Table 3. 4
Summaries of Indices for Measurement Analysis

Assessment	Name of Index	Guidelines
Internal Consistency	Composite Reliability (CR)	CR>0.9 (Not Desirable) CR>0.7-0.9 (Satisfactory) CR>0.6 (for exploratory research)
Indicator Reliability / Factor Loadings	Indicator Loadings	Loadings 0.708 or higher are recommended. However, loading >0.7, 0.6, 0.5, or 0.4 is adequate if other items have higher loadings to complement the AVE and CR.
Convergent Validity	Average Variance Extracted (AVE)	AVE>0.50
Discriminant Validity	HTMT Criterion	● HTMT .85 ● HTMT inference using the bootstrapping technique (Henseler et al., 2015): Does the 90% bootstrap confidence interval of HTMT include the value -1<HTMT<1 (Liberal Criterion)

Source: Ramayah et al., 2018

3.4.5.8 Structural Model Estimation

The structural model's evaluation took place after the measurement model's construction. In this stage, the model's ability to forecast one or more target constructs was assessed (Hair et al., 2017). Hair et al. (2017) outlined six procedures to evaluate the structural model in PLS-SEM in their study. Figure 3.5 provides a more detailed depiction of these phases.

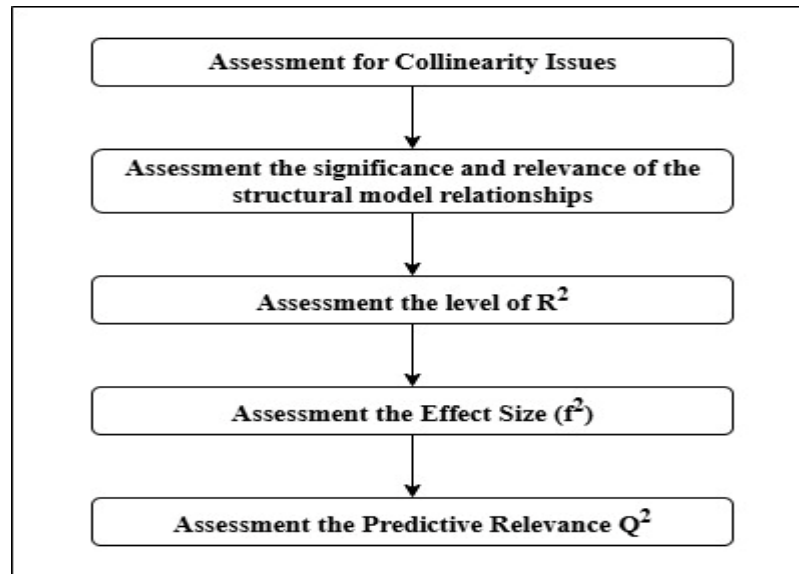


Figure 3. 5 Step-by-steps procedures in the Structural Model

3.4.5.9 Assessment Of Collinearity Issues

To minimize bias in the regression results, the structural relationships were examined, and potential collinearity issues were assessed. Previous research has shown that collinearity among predictor variables can distort statistical estimates when the Variance Inflation Factor (VIF) value exceeds 5. However, some scholars suggest that VIF values between 3 and 5 may also indicate possible collinearity problems (Benitez et al., 2020; Mason & Perreault, 1991). Therefore, it is advisable to maintain VIF values at or below 3 to ensure model stability and interpretability. One effective approach to reduce collinearity is to develop theoretically sound models with strong conceptual foundations (Hair et al., 2017).

3.4.5.10 Structural Model Relationship

The present study employed the bootstrapping technique, a nonparametric procedure in Partial Least Squares (PLS), to estimate the significance of the structural relationships and test the proposed hypotheses. Bootstrapping involves generating numerous random subsamples from the original dataset to compute standard errors for hypothesis testing (Hair et al., 2011). Chin (2009) recommended performing bootstrapping with at least 1,000 resamples to obtain robust statistical estimates. In this study, the t-statistics for all paths were calculated using the bootstrapping function in

SmartPLS 3.0 software to evaluate the significance of the path coefficients. The bootstrapping procedure was conducted at a significance level of 0.05, applying a one-tailed test with 1,000 subsamples. According to Ramayah et al. (2018), the critical values for a one-tailed test are 2.33 at the 1 % significance level ($\alpha = 0.01$), 1.645 at the 5 % significance level ($\alpha = 0.05$), and 1.28 at the 10 % significance level ($\alpha = 0.10$). Furthermore, smaller path coefficients indicate weaker relationships, while coefficients approaching +1 reflect stronger positive relationships (Hair et al., 2017).

3.4.5.11 Predictive Relevance Assessment (Q^2)

Besides examining the R^2 values to assess predictive accuracy, researchers may also consider the Stone-Geisser Q^2 value as an indicator of a model's predictive relevance (Stone, 1974; Geisser, 1974). The Q^2 value of latent variables in a PLS path model is traditionally obtained through the blindfolding procedure. However, the blindfolding function has been removed from SmartPLS 4, as it does not evaluate predictive potential beyond the original data. Instead, newer techniques such as PLSpredict and the cross-validated predictive ability test (CVPAT) have been introduced to assess the model's predictive performance on new data (Hair et al., 2022). These approaches are now recommended as more reliable methods for estimating predictive relevance, including for both endogenous constructs and single-item endogenous variables. A Q^2 value greater than 0.02 indicates that the model has sufficient predictive relevance (Fornell & Cha, 1994). Table 3.5 presents the guidelines used to validate the structural model.

Table 3. 5
Summaries of Indices for Structural Model

Assessment	Name of Index	Guidelines	Literature Support
Lateral Collinearity	Variance Inflator Factor (VIF)	$VIF \leq 3.3$	(Diamantopoulos & Siguaw, 2006)
		$VIF \leq 5.0$	(Hair et al., 2017)
Path Coefficient	Path Coefficient	p-value < 0.01	(Hair et al., 2017)
		t value > 2.59 (two-tailed)	
		t value > 2.33 (one-tailed)	
		p-value < 0.05	
		t value > 1.96 (two-tailed)	
		t value > 1.645 (one-tailed)	
		p-value < 0.10	

		t value > 1.645 (two-tailed) t value > 1.28 (one-tailed)	
R²	Coefficient of determination	0.26 – substantial 0.13 – moderate 0.02 – weak	(Cohen, 1988)
		0.67 – substantial 0.33 – moderate 0.19 – weak	(Chin, 2009)
		0.26 – substantial 0.13 – moderate 0.02 – weak	(Hair et al., 2017)
Q²	Stone Geisser Q ² Predictive Relevance	>0 indicates that exogenous constructs have predictive relevance for endogenous constructs	(Hair et al., 2017)

Source: Ramayah et al., 2018

3.4.6 Mediation Analysis

A mediating variable is an intermediate variable that explains the mechanism through which an independent variable influences a dependent variable. It represents the process or pathway by which an external factor exerts an indirect effect on an outcome. To establish mediation, the relationships among the independent, dependent, and mediating variables must be clearly defined and statistically supported. Although mediation analysis has been widely applied in previous studies, it has also faced criticism for its limited ability to detect indirect effects and for producing weak predictive results in some cases (Ramayah et al., 2018). To address this issue, the mediation analysis in this study examines the constituent paths between the independent and dependent variables through the mediator to estimate the indirect effects accurately.

The mediation effects were tested using the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach, as this method provides strong predictive accuracy and is suitable for testing complex models with mediating variables (Ramayah et al., 2018). PLS-SEM is particularly appropriate for exploratory research because it enhances predictive power, clarifies causal relationships, and allows simultaneous testing of multiple relationships within the model. Therefore, in this study, the PLS-SEM analysis using SmartPLS software was employed to evaluate the research model and assess the mediation effects with high predictive precision.

3.4.7 Common Method Bias

To address potential common method bias (CMB) arising from self-reported and cross-sectional survey data, this study adopted the full collinearity assessment technique proposed by Kock (2015). Unlike conventional multicollinearity diagnostics, which are limited to assessing collinearity among predictor constructs within a single regression equation, the full collinearity variance inflation factor (VIF) approach regresses each latent construct on all other constructs in the model, regardless of theoretical direction. This broader diagnostic is particularly relevant for CMB assessment because traditional VIFs detect only vertical multicollinearity within the structural model, whereas full collinearity VIFs identify inflation caused by shared method variance across the entire model, including measurement-related errors that influence unrelated constructs.

This method allows for the simultaneous detection of vertical collinearity (between predictors and outcomes) and lateral collinearity (among predictors), providing a more comprehensive and conservative evaluation of potential bias from common method variance. According to Kock (2015), full collinearity VIF values above 3.3 indicate possible CMB. In this study, all constructs recorded VIF values below this threshold, indicating that CMB did not pose a significant concern to model validity. Given the single-source data collection design, this diagnostic procedure was deemed suitable and contributed to the methodological robustness of the PLS-SEM analysis.

In addition to statistical assessment, several procedural strategies were implemented during instrument design and data collection to minimize potential biases, particularly CMB, as recommended by Podsakoff et al. (2003, 2012). To encourage thoughtful engagement and reduce patterned responses, the questionnaire alternated between five-point and seven-point Likert scales. Participants were informed of the scale variations to increase their attention and reduce the likelihood of automatic responses. Furthermore, selected items were reverse coded to discourage acquiescent response tendencies.

Psychological and proximal separation techniques were also employed to reduce consistency motif bias. Items measuring distinct constructs were placed in separate sections, and short transition statements were included to mentally separate conceptual categories. This prevented respondents from answering similar items in a uniform pattern. To minimize social desirability bias, participants were assured that there were

no right or wrong answers and that their responses would remain anonymous and confidential. Additionally, the order of items was randomized to reduce priming effects and response sequencing.

Additionally, these procedural and statistical measures enhanced response validity and reduced the likelihood of results being influenced by method-related variance. When combined with the post-hoc full collinearity VIF test, these strategies strengthened the methodological rigour and internal validity of the study. Table 3.6 presents the interpretation guidelines for VIF values.

Table 3. 6
VIF Interpretation Table

VIF Value	Interpretation
≤ 3.3	Acceptable. Indicates no major common method bias
> 3.3 to ≤ 5	May suggest moderate multicollinearity, but not necessarily CMB
≥ 5 to ≤ 10	Potential multicollinearity issue. Should be investigated
> 10	Severe multicollinearity or strong indication of CMB in the context of full collinearity assessment.

3.4.8 Pilot Study

A pilot study, also referred to as a feasibility study, is a small-scale preliminary investigation conducted prior to the main research to evaluate feasibility and refine the research design (Julia, 2023). It plays a crucial role in identifying potential weaknesses in the study's structure and methodology before the commencement of full-scale data collection. A pilot study assists in evaluating the practicality, resource requirements, time allocation, and cost implications of the main research. It also helps to test research instruments, assess participant recruitment processes, and refine data collection procedures to enhance the reliability and validity of the final study. In addition, the pilot study provides preliminary data that can guide sample size estimation and highlight logistical or ethical challenges, thereby minimizing unnecessary effort and the misuse of resources by both researchers and participants (In, 2017).

Since the primary aim of a pilot study is not hypothesis testing, a formal sample size calculation is often unnecessary. Some scholars recommend a minimum of 30 participants per group (Browne, 1995), while others propose at least 12 participants per

group (Julious, 2005). Determining an adequate sample size for a pilot study remains important, as it supports the assessment of feasibility, recruitment capacity, and procedural clarity. Before conducting a pilot study, all key variables and methodological procedures should be clearly defined and tested to ensure completeness and accuracy. Furthermore, the results of a pilot study not only inform the main research but can also provide valuable insights for other studies with similar designs, emphasizing the importance of documenting the study's feasibility outcomes in detail (In, 2017).

3.4.8.1 Cronbach's Alpha Guidelines

Lee Cronbach (1951) created Cronbach's Alpha to quantify dependability or internal consistency. Cronbach's alpha tests determine the reliability of multiple-question Likert scale surveys (Collins et al., 2006). These questions assess latent variables and hide or unobservable characteristics such as a person's conscientiousness, neurosis, or openness. If the instrument is reliable, there should be much covariance among the items with the variance. Cronbach's alpha is calculated by averaging all conceivable split-half reliabilities. In addition, it is frequently valuable to investigate what Cronbach's alpha becomes once a specific item is eliminated. If Cronbach's alpha increases significantly after removing an item, the item may not belong in the measure. In practice, these are extremely difficult to quantify. Cronbach's alpha measures how closely connected a group of test items is.

The Rule of Thumb for evaluating alpha for dichotomous or Likert scale questions, as presented in Table 3.7, is a valuable guideline.

Table 3. 7
Rule of Thumb of Cronbach's Alpha Results

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Source: Glen, 2015

Table 3.7 demonstrates the results of Cronbach's alpha for mental health state, job demands, job security, social support, work environment, and job satisfaction. Based on Table 3.8, mental health state, job security, and work environment achieved an excellent value (0.94, 0.96, 0.94), while job demands, social support, and job satisfaction are in acceptable category value (0.75, 0.78, 0.79). Generally, a score of more than 0.7 is usually okay (Glen, 2015). A high value of Cronbach's alpha may indicate that the test items are highly correlated.

Table 3. 8
Cronbach's Alpha of Pilot Study

Items	Cronbach's alpha	Internal consistency
Mental Health State	0.94	Excellent
Job Demands	0.75	Acceptable
Job Security	0.96	Excellent
Social Support	0.78	Acceptable
Work Environment	0.94	Excellent
Job Satisfaction	0.79	Acceptable

3.4.8.2 Composite Reliability Guidelines

Reliability refers to the extent to which a measurement instrument consistently produces stable and repeatable results. According to Netemeyer et al. (2003), composite reliability (CR), also referred to as construct reliability, is an indicator of internal consistency among scale items and functions similarly to Cronbach's Alpha. In this study, a pilot test was conducted using a self-administered questionnaire to evaluate the reliability of the measurement instrument. The questionnaire was distributed to 45 employees working in offshore environments. The responses were analysed using the composite reliability index to determine the internal consistency of each construct.

Table 3.9 presents the composite reliability values for mental health state, job demands, job security, social support, work environment, and job satisfaction. The results indicate that job demands, social support, and job satisfaction achieved satisfactory levels of reliability, with CR values of 0.81, 0.89, and 0.73, respectively. However, the CR values for mental health state (0.95), job security (0.97), and work environment (0.95) exceeded the ideal upper threshold. Although CR values greater

than 0.9 may indicate an undesirable level of redundancy among items, suggesting potential overlap in measurement, some scholars argue that values above 0.9 can still be acceptable when they demonstrate strong unidimensionality and do not compromise construct validity (Hair et al., 2017; Ghasemy et al., 2020). In this context, the obtained CR values suggest a high level of internal consistency across the constructs, supporting the reliability of the measurement instrument for use in the main study.

Table 3. 9
The results for Composite Reliability (CR)

Variables	CR	Indicator
Mental Health State	0.95	Not desirable
Job Demands	0.81	Satisfactory
Job Security	0.97	Not desirable
Social Support	0.89	Satisfactory
Work Environment	0.95	Not desirable
Job Satisfaction	0.73	Satisfactory

3.4.9 Summary of Measurement

Table 3.10 outlines a summary of the measurements adopted in this study. There are two main scales for the variables used in this study, which are the 5-Likert Scale: (1) Strongly disagree to (5) Strongly Agree and 7-Likert Scale; (1) Strongly Disagree to (7) Strongly Agree and arranged in intermittent to avoid bias. A total of 45 items were utilized in this study, and the corresponding score can be seen in Table 3.9.

Table 3. 10
Summary of Measurement Adapted in the Study

Variables	Number of items	α	Respondents	Source of scale
Mental Health State	5	0.94	Offshore employees	Kristensen et al. (2007). COPSOQ
Job Demands	10	0.75	Offshore employees	Kristensen et al. (2007). COPSOQ
Job Security	5	0.96	Offshore employees	Kristensen et al. (2007). COPSOQ
Social Support	9	0.78	Offshore employees	Kristensen et al. (2007). COPSOQ
Work Environment	8	0.94	Offshore employees	Kristensen et al. (2007). COPSOQ
Job Satisfaction	8	0.69	Offshore employees	Kristensen et al. (2007). COPSOQ
Total number of items	45			

3.4.10 Translation of Questionnaire

Questionnaire translation refers to the process of adapting survey instruments into local languages that are understood by respondents within the study population (Lau et al., 2017). This process is a critical component of high-quality research because inaccurate or incomplete translations can distort the intended meaning of questions, resulting in measurement errors or misinterpretation of key concepts. A poorly translated questionnaire may compromise the validity of the entire study, as it can alter the nuance and intent of carefully constructed items. The translation process typically involves paraphrasing and adapting questions between the source and target languages to maintain both linguistic and conceptual accuracy (Prentice et al., 2008; Shi, 2012).

Maneesriwongul and Dixon (2004) outlined two main procedures in questionnaire translation: forward translation and back translation. Forward translation involves translating the original instrument from the source language (English) into the target language (Malay). The translated version is then reviewed and refined to ensure linguistic clarity and cultural relevance. Following this, a back translation is conducted, in which the translated Malay version is translated again into English to verify the accuracy and consistency of meaning.

In this study, the translation protocol followed the procedures described by Maneesriwongul and Dixon (2004). The original English questionnaire was translated into Malay and subsequently sent for back translation with the assistance of qualified language editors from the Akademi Pengajian Bahasa, Universiti Teknologi MARA (UiTM). The official translation verification letter is provided in Appendix 10. The original and back-translated versions were compared to ensure conceptual equivalence and identify any discrepancies. All adjustments were documented in a reconciliation table, which included both language versions, translator comments, and detailed justifications for revisions. The final versions of the English and Malay questionnaires were verified for linguistic accuracy, conceptual consistency, and cultural appropriateness before being subjected to face validity assessment.

3.4.11 Modification Of Questionnaire

Questionnaires can be transformed in a variety of ways. There is no rigid standard for the number of items in a questionnaire (Tsang et al., 2017). Minor changes include changing the exact wording to make it more comprehensible while maintaining the meaning. “adaptation” refers to intentionally modifying the questionnaire to create a new one (Mohler et al., 2016). It also refers to “asking different questions” in the Questionnaire Design.

3.4.11.1 Rephrasing Item

In completing the research instruments, three items need to be restructured in terms of sentences, according to the expert. Two experts from Universiti Kebangsaan Malaysia (UKM) and Universiti Malaya (UM) validated the research instruments. See Appendix 11 and Appendix 12. Other researchers also rephrased items to increase scale reliability and consistency of response (Weijters & Baumgartner, 2012; Younis et al., 2023). Hence, based on experts' recommendations, three items were rephrased to ensure consistency and balance in the questionnaire. The details of these items are listed in Table 3.11.

Table 3. 11
Rephrasing of Items

Construct	Original Items	Rephrased Items
Mental Health State	I seem to get sick a little easier than other people	It appears that I am more susceptible/ prone to getting sick than others
Job Demands	1) It will cause financial losses if I make a mistake in my work. 2) My work is varied.	1) My work plan will cause financial losses if I make mistakes in my work 2) My work is varied, i.e., material technology, structural design, and control systems.

3.4.11.2 Elimination Of Items

Following the rephrasing process, several items in the instrument were modified from negatively worded to positively worded statements. One of the most common challenges faced by survey designers is that mixing negatively and positively worded items can introduce response artefacts instead of effectively reducing acquiescence bias as intended (Roszkowski & Soven, 2010). Previous studies have shown that words carrying either positive or negative connotations may influence how respondents interpret and respond to Likert scale items (Alabi & Jelili, 2023; Anjari, 2022). When all items are worded positively, respondents with an acquiescent response tendency are more likely to agree with statements regardless of their actual opinion, which may lead to inflated or inaccurate scores (Roszkowski & Soven, 2010). To address this issue, certain items in the questionnaire were re-coded to maintain response balance and improve measurement validity. The details of the re-coded items are provided in Appendix 13.

Table 3. 12
Deleted Items

Constructs	Indicators	Justification
Mental Health State	A1 - It appears that I am more susceptible/prone to getting sick than others.	According to the COPSOQ questionnaire, the items do not belong to the mental health construct.
	A2 - I am as healthy as anybody I know	
	A3 - I expect my health to get worse	
	A4 - My health is excellent	
	A10 - I feel tired	
	A11 - I have much energy	
	A12 - I have to work extremely fast	
	A13 - I get emotionally involved at my work	
	A14 - My work put me in emotionally disturbing situations	
Job Demands	B2 - I have enough time to complete all my work tasks.	To meet the Cronbach's Alpha values
	B11 - I could injure other people if I make mistakes at work	
	B14 – I can influence the amount of work assigned to me.	
	B15 – I can influence the quality of my work	
	B16 – My work is varied, i.e., material technology, structural design, and control systems.	
	B17 – I can use my skills	

	and expertise at work.	
Job Security	C6 - I feel that the work I do is essential.	The items do not belong to job security constructs, according to the COPSOQ questionnaire.
Social Support	D5 - My superior often talks with me about how well I am carrying out my work D10 - My immediate superior is good at work planning D11 - My immediate superior appreciates the staff and shows consideration for the individual D12 - I can speak with my colleagues about my feelings D13 - I can refer to a person while solving the problem	The items do not belong to social support constructs, according to the COPSOQ questionnaire.
Job Satisfaction	F9 - I have found it difficult to be happy F10 - I have not had the time to relax or enjoy myself F11 - I have felt harassed F12 - I have lacked initiative	The items do not belong to job satisfaction constructs according to the COPSOQ questionnaire.

3.5 Qualitative Method

For the qualitative component, this study adopted a qualitative descriptive design as part of the broader concurrent mixed-methods design. According to Creswell and Creswell (2018), qualitative research is appropriate when a study seeks to explore and understand the meanings, views, and experiences of individuals or groups in relation to a social or human problem. In this study, the qualitative strand was used to explore how organisational actors understand and manage psychosocial factors and employee mental health within offshore oil and gas settings.

The qualitative descriptive design was considered appropriate because the study did not aim to examine deep individual lived experiences from a philosophical or phenomenological perspective. Instead, it sought to obtain practical and contextually grounded insights into organisational practices, policies, leadership roles, and workplace processes related to employee well-being. This is consistent with Sandelowski's (2000) explanation that qualitative descriptive research is useful when the researcher aims to present participants' accounts in a direct and straightforward manner. Similarly, Kim et al. (2017) stated that qualitative descriptive design is commonly applied in health, policy, and organisational studies where the focus is on practical understanding rather than highly interpretive theoretical abstraction.

The qualitative data were collected through semi-structured interviews with managerial-level informants from Human Resource, Safety, Health and Environment (SHE), and Engineering and Operations departments. These informants were selected because they were directly involved in decision-making, policy implementation, safety practices, and workplace management. Therefore, they were considered well-positioned to provide informed perspectives on organisational processes that influence psychosocial risk management and employee mental health in offshore O&G settings.

In this study, the qualitative descriptive approach allowed the researcher to remain close to the participants' accounts while identifying common patterns across their responses. This was important because the study did not focus only on individual subjective experience. Rather, it aimed to understand how organisational learning, leadership influence, workplace practices, and mental health support shaped employees' mental health outcomes. This approach was also consistent with the pragmatic nature of the study, as it helped connect participants' explanations with actual organisational conditions in the offshore O&G environment.

The qualitative data were analysed using thematic analysis. This method was used to identify recurring themes related to organisational learning, leadership influence, workplace practices, psychosocial risk management, and mental health support. Thematic analysis was considered appropriate because it provides a systematic process for organising participants' responses into meaningful themes that are aligned with the research objectives. Overall, the qualitative descriptive design supported this study by producing findings that were grounded in participants' actual accounts and useful for explaining how organisational factors contribute to employee mental health outcomes in the offshore O&G industry.

3.5.1 Sample Size

In this study, the number of qualitative participants was determined based on data saturation, rather than a fixed number. This means data collection continued until no new insights were obtained from additional interviews.

A total of 17 managerial-level informants were interviewed, including individuals from Human Resource, Safety, Health and Environment (SHE), and Engineering and Operations departments. These participants were selected using purposive sampling, as they are directly involved in managing offshore employees and implementing workplace practices related to well-being.

Data saturation was assessed during the interview process through continuous monitoring of emerging themes during coding and analysis (Saunders, 2017; Ahmad et al., 2025). By approximately the 14th interview, responses began to show clear repetition, particularly in relation to organisational policies, leadership roles, and mental health practices. No substantially new themes or codes were identified in the subsequent interviews, indicating that thematic saturation had been reached. The remaining interviews served to confirm the consistency of earlier findings. Based on this, data collection was concluded, as additional interviews were unlikely to provide further meaningful insights.

Given that all informants held managerial roles with more than five years of experience, their perspectives were relatively consistent and well-informed, which supported the decision that further interviews were unlikely to add significant new insights.

3.5.2 Sampling Techniques

This study adopts purposive sampling, specifically criterion sampling, to select participants who are able to provide relevant insights into organisational practices and employee well-being in the offshore O&G industry. Participants are selected based on predefined criteria: (1) holding a managerial position or higher, (2) currently working in an offshore setting, and (3) having at least five years of offshore work experience.

In addition, convenience sampling is used to facilitate access to participants within the offshore industry, where access can be limited due to operational constraints. This allows eligible participants who are available and willing to take part in the study to be included.

3.5.3 Data Collection Procedure

The interview involved 17 informants from the senior leadership team. The number of informants was determined based on the principle of data saturation, which was achieved when no new information or themes emerged from additional interviews. The selection of informants was guided by the heuristic principle outlined by Creswell (2013), which emphasized the importance of selecting participants who could provide deep insights into the phenomenon being studied. This approach allowed for the comparison and cross-verification of information to ensure that the data analysis was comprehensive and meaningful.

The researcher administered the questionnaire to supervisors, executives, and technicians working in offshore environments. In parallel, in-depth interviews were conducted with senior management representatives, specifically from the Safety, Health and Environment Department and the Human Resources Management Department. This selection enabled the researcher to gain a broader understanding of the organizational and operational contexts within the offshore O&G sector.

Each interview session lasted approximately one to one and a half hours to obtain detailed information on the company's health and safety implementation practices. Prior to the interview, each participant was provided with an informed consent form to acknowledge voluntary participation. All interview sessions were recorded with the participants' permission and subsequently transcribed for analysis. The transcribed data were then analysed using ATLAS.ti software. The following

section presented the proposed questionnaire and explained how its findings were compared and aligned with the information obtained from the interview sessions.

3.5.3.1 Structure Of Interview Schedule

The proposed interview questions were as follows:

- 1) Can you describe the performance of your staff?
- 2) Could you share the factors that might have affected employees' performance in your company? (Probe: how and why, current policies, practices, safety and health issues, attitude, normative norms, and behavioural control of individuals) – this reflected Research Question 3 and Research Objective 3.
- 3) Would you mind sharing the company's efforts to promote employee job satisfaction? (Probe: how and why, including efforts to support mental health in the workplace, policies and practices, regulation of employee behaviour, and reward systems) – this reflected Research Question 5 and Research Objective 5.

During the interviews, the researcher also asked additional questions using the probing technique to gain a deeper understanding of the topics discussed. The complete list of interview questions was included in Appendix 15.

3.5.3.2 Interview Protocol

The suggested interview protocol served as a comprehensive framework for conducting the interviews. It guided several aspects, including the researcher's introduction, the interview topic, the process of obtaining participant consent, the formulation of interview questions, and the conclusion of the session. Before each interview, all pertinent details regarding the study and key elements of informed consent were addressed. The protocol also provided an opportunity to conclude the interview properly and allowed participants to share any additional views that had not yet been discussed. To establish rapport and create a relaxed environment, each session began with questions about the participants' basic background information. The interviews were conducted online using platforms such as Google Meet and Microsoft Teams, and

each session lasted approximately one hour. All interviews were recorded with participants' consent and later transcribed verbatim for thematic analysis using ATLAS.ti software. The interview protocol was included in Appendix 15.

3.5.4 Data Analysis

Data analysis refers to the process of organising and interpreting data to identify patterns and relationships that address the research objectives (Creswell & Plano Clark, 2018). In this study, quantitative data are analysed to examine relationships between variables, while qualitative data focus on understanding participants' experiences and organisational context. The aim is to produce findings that are relevant to the research questions.

The qualitative data were analysed using thematic analysis supported by ATLAS.ti. Interview transcripts were coded systematically to identify recurring themes related to organisational practices, leadership roles, and mental health. The software was used to organise, manage, and retrieve coded data efficiently, allowing patterns and relationships across responses to be examined more clearly.

3.5.4.1 Thematic Analysis

Thematic Analysis was employed to examine the qualitative data. Thematic Analysis (TA) is a systematic method used to identify, analyse, and interpret patterns of meaning, also known as themes, within qualitative data (Clarke & Braun, 2006; 2017). TA is recognised as a flexible analytic approach because it is not confined to any theoretical or epistemological position. Unlike other methodologies that are shaped by specific theoretical frameworks, TA functions as an analytic tool that can be applied across different paradigms. This does not imply that TA is atheoretical; rather, it allows researchers to make their theoretical positions explicit while applying a structured approach to qualitative analysis.

TA provides clear and systematic procedures for generating codes and themes from qualitative data (Clarke & Braun, 2017). Codes represent smaller analytical units that capture meaningful features of the data relevant to the research question. These codes are then grouped to form themes, which represent broader patterns of meaning supported by a central idea. Themes act as a framework for organising, interpreting, and

presenting the findings. The purpose of TA is not limited to summarising the data but to explore and interpret meanings that are significant to the study's objectives.

TA can be applied to identify patterns that relate to participants' experiences, perceptions, attitudes, and practices. It enables the researcher to understand how participants make sense of their social and work realities. In this study, TA was applied within an interpretive framework to explore how senior management in the offshore oil and gas industry perceived psychosocial factors and mental health practices. The method is suitable for analysing diverse forms of qualitative data, including interviews and written narratives, and can accommodate both small and large data sets (Beitin, 2012; Weller et al., 2018).

This study adopted the six-step framework developed by Braun and Clarke (2013), which provides a structured and transparent guide for conducting TA. The steps are: (1) becoming familiar with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report. This framework was chosen because it offers a clear and systematic approach that aligns with the exploratory nature of this research and supports rigorous qualitative interpretation.

3.5.4.2 Trustworthiness

In qualitative research, reliability refers to the consistency of data interpretation among different coders or analysts. It can be strengthened by maintaining detailed field notes, using recording devices during interviews, and accurately transcribing digital recordings. Validity, on the other hand, concerns the extent to which the data and its interpretation accurately reflect the phenomenon being studied. However, in qualitative research, the concept of validity is often discussed using different terminology compared to quantitative research. For qualitative inquiry to produce meaningful and credible outcomes, it must be conducted rigorously and systematically. The researcher must show that the data analysis process was carried out carefully, consistently, and comprehensively by documenting, organizing, and describing the analytical procedures in sufficient detail for readers to assess their credibility.

The credibility of qualitative research also depends on how well it resonates with stakeholders and users of the knowledge it generates. With this in mind, the researcher worked closely with key stakeholders to ensure that the findings could be translated into

practice. For the research to be recognized as relevant and legitimate by scholars, practitioners, policymakers, and the public, it must demonstrate trustworthiness. According to Lincoln and Guba (1988), trustworthiness allows the researcher to convince both herself and the readers that the study's findings are credible and worthy of attention.

Lincoln and Guba (1988) expanded the notion of trustworthiness by introducing four key criteria: credibility, transferability, dependability, and confirmability. These criteria parallel the traditional quantitative standards of validity and reliability. Later, the authors added a fifth criterion, authenticity, which reflects the fairness and integrity of the research process. Collectively, these criteria guide researchers in conducting qualitative studies that are transparent, rigorous, and ethically grounded. They serve as the foundation for evaluating the reliability and validity of this study's thematic analysis.

3.5.4.3 Credibility

In this study, triangulation was carried out by integrating quantitative and qualitative findings during the interpretation stage, rather than analyzing both components independently. The process began with the analysis of quantitative data using SPSS and SmartPLS, where the relationships between job stresses, job resources, job satisfaction, and mental health were established. The results showed the strength and direction of these relationships, including the significant influence of work environment and social support, as well as the mediating role of job satisfaction.

The qualitative data were then analyzed using thematic analysis in ATLAS.ti. Interview transcripts were reviewed multiple times to ensure familiarity with the data. Initial coding focused on recurring ideas related to organizational practices, leadership roles, and employee well-being. As the analysis progressed, similar codes were grouped and refined into broader themes. Key themes such as organizational learning, rules and regulations, and socialization processes were developed based on consistent patterns across informants rather than isolated responses.

Triangulation was conducted by comparing the quantitative results with the qualitative themes. The quantitative findings were first used to identify which psychosocial factors had the strongest influence on mental health. These were then examined alongside the qualitative data to explain how and why these relationships

occurred in the offshore O&G context. For example, the strong effect of work environment was supported by qualitative findings describing leadership practices, safety procedures, and communication systems.

The role of social support identified in the quantitative model was also reinforced by interview data highlighting peer interaction, team cohesion, and informal support systems. In cases where relationships were weaker, such as job security, the qualitative findings provided additional context by showing how contract uncertainty and organizational policies influenced employees' perceptions. Through this process, the findings were confirmed, explained, and expanded, with quantitative data showing overall patterns and qualitative data providing contextual explanation.

The credibility of the qualitative findings was further supported through a systematic and iterative coding process. Codes and themes were continuously reviewed and refined to maintain consistency with the data. Themes were retained only when supported by repeated patterns across multiple informants, reducing the risk of bias and ensuring that the findings reflected shared experiences. In addition, the inclusion of informants from different departments, including Human Resource, Safety, Health and Environment (SHE), and Engineering and Operations, allowed for comparison across organizational roles.

To further strengthen credibility, member checking was conducted. Selected participants were provided with a summary of the interpreted findings to verify whether the analysis accurately reflected their views and experiences. Feedback from participants indicated that the interpretations were consistent with their perspectives, with no major discrepancies reported. This process helped reduce the risk of misinterpretation and ensured that the findings remained grounded in participants' actual experiences. Evidence of this process is provided in Appendix 16.

Overall, triangulation and systematic thematic analysis, supported by member checking, contributed to a more complete and reliable understanding of how psychosocial factors influence mental health in offshore O&G settings.

3.5.4.4 Confirmability

Confirmability refers to the extent to which the findings and interpretations of a study are shaped by the participants' data rather than by researcher bias or personal assumptions. It emphasizes objectivity and requires researchers to demonstrate how

conclusions were derived directly from the data (Tobin & Begley, 2004). According to Guba and Lincoln (1988), confirmability is achieved when credibility, transferability, and dependability are established, as these elements collectively ensure that the findings are grounded in evidence rather than in the researcher's perspective.

To strengthen confirmability, researchers had provided a transparent explanation of the theoretical, methodological, and analytical decisions made throughout the study. Koch (1994) suggested that clear documentation of these justifications enables readers to understand the reasoning behind the researcher's choices and to evaluate the study's integrity. In this study, detailed documentation was maintained at each stage, including the rationale for coding decisions, theme development, and interpretation of results.

The process of analysing qualitative data often involves systematic coding, verification, and cross-checking of patterns within the data (Ruis et al., 2021). However, this process can be demanding and complex, as noted by Alvesson and Kärreman (2011) and Cole et al. (2011). To manage this complexity and improve transparency, computer-aided qualitative data analysis software (CAQDAS) was used. The software selected for this study was ATLAS.ti, which facilitated the organization, retrieval, and examination of qualitative data.

Using ATLAS.ti enabled the researcher to maintain a detailed audit trail of analytic decisions, including coding structures, memos, and thematic links. This digital traceability ensured that every interpretation could be traced back to its original data source, thereby reinforcing the transparency and dependability of the findings. Furthermore, the use of CAQDAS supported the visualization of relationships among themes, helping to communicate the analytical process more clearly and enhance confirmability (O'Kane et al., 2019).

In practice, the analysis was carried out as follows. All interview recordings were first transcribed verbatim and reviewed for accuracy. The transcripts were then imported into ATLAS.ti for analysis. An initial round of open coding was conducted to identify meaningful segments of text related to organisational practices, leadership roles, and mental health. Similar codes were then grouped into broader categories, followed by the development of themes through an iterative process. Throughout the analysis, memos were written to capture emerging interpretations and reflections. The coding process was reviewed multiple times to refine themes and ensure consistency

across the data. This process allowed patterns and relationships to be identified systematically, leading to the final set of themes used for interpretation.

Overall, confirmability in this study was established through a systematic documentation process, transparent analytical decisions, and the effective use of ATLAS.ti as a data management and verification tool. These measures ensured that the findings authentically reflected the participants' perspectives and that interpretations were firmly anchored in empirical evidence.

3.5.4.5 Dependability

Dependability in qualitative research refers to the stability and consistency of findings over time and under similar conditions. It reflects how well the research process has been documented, allowing others to follow and understand how the study was conducted. Lincoln and Guba (1988) described dependability as a parallel to reliability in quantitative research. It emphasizes the importance of showing that the research process is logical, traceable, and clearly documented.

Dependability ensures that if the study were to be repeated with the same participants, methods, and context, similar results would likely be obtained. This does not imply replication in the statistical sense but rather the consistency and transparency of the process. To achieve this, researchers are encouraged to maintain detailed records of all stages of data collection and analysis. This allows others to evaluate the appropriateness of the methods used and the extent to which the findings can be trusted (Nowell et al., 2017).

In this study, dependability was enhanced through a clear documentation trail that detailed each step of the research process, including data collection, coding, and analysis. An audit trail was maintained, recording all methodological decisions, changes, and reflections made throughout the study. This approach allows external reviewers or readers to trace how the data moved from raw material to the final interpretation. In addition, consistent use of data management software, such as ATLAS.ti, supported systematic organization and retrieval of qualitative data.

Peer examination was also conducted to further strengthen dependability. This involved discussions with academic supervisors and colleagues familiar with qualitative research to review coding decisions and interpretations. Their feedback helped confirm that the findings were supported by the data and that the analysis process remained

transparent and rigorous. Through the combination of an audit trail, systematic data management, and peer review, the study achieved a dependable research process that supports the credibility and overall trustworthiness of the findings.

3.5.4.6 Transferability

Transferability refers to the extent to which the findings of a study can be applied or adapted to other contexts or situations. This concept is particularly relevant in qualitative research, as it recognizes that generalization is not based on statistical inference but on the depth of contextual understanding (Tobin & Begley, 2004). According to Guba and Lincoln (1988), researchers may not know in advance which settings or populations will find their results applicable. Therefore, the responsibility of the researcher is to provide rich, detailed descriptions of the research context, participants, and procedures. Such descriptions allow readers and other researchers to assess the extent to which the findings may be relevant to their own settings or populations.

In this study, transferability was enhanced through comprehensive documentation of the research environment, participant characteristics, and data collection procedures. By presenting thick descriptions of the offshore oil and gas work setting, the psychosocial context, and the participants lived experiences, the study provides sufficient detail for readers to evaluate the potential applicability of the findings to other occupational or industrial contexts.

3.6 Summary Of Data Collection

Based on the abovementioned procedure, Table 3.13 below summarizes the data collection used in this study to answer the research objectives and questions developed.

Table 3. 13
Summary of Data Collection Method

RQ/RO	TYPE OF DATA	DATA COLLECTION METHOD
RQ1/RO1	Qualitative	Interview
RQ2/RO2	Quantitative	Survey
RQ3/RO3	Quantitative	Survey
RQ4/RO4	Quantitative	Survey
RQ5/RO5	Quantitative & Qualitative	Survey & Interview

3.7 Chapter Summary

This chapter presented the theoretical framework and research methodology, including the research philosophy, design, population, sample size, research instruments, data collection procedures, and statistical techniques. The study adopted a cross-sectional design, with offshore oil and gas employees serving as the unit of analysis. Purposive sampling was used to select participants with relevant experience in offshore operations.

A structured questionnaire comprising seven sections was distributed to collect quantitative data. The questionnaire included a demographic section and four independent variables; job demands, job security, social support, and work environment. The dependent variable was the employees' mental health state, while job satisfaction served as the mediating variable.

Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) Version 28 and Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0 (Hair et al., 2014). Qualitative data, on the other hand, were analyzed thematically using ATLAS.ti software.

The integration of both quantitative and qualitative approaches provided a more comprehensive understanding of the relationships among psychosocial factors, job satisfaction, and mental health. The next chapter will present the data analysis and research findings derived from both quantitative and qualitative components of the study.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents a comprehensive evaluation of the research findings, integrating both statistical and qualitative analyses to provide a holistic understanding of the study outcomes. Prior to conducting the Partial Least Squares Structural Equation Modelling (PLS-SEM) evaluation, several data preparation procedures were undertaken, including data editing, coding, and screening, in accordance with Hair et al. (2021). The multivariate analysis section also addresses the assessment of underlying statistical assumptions to ensure the robustness and validity of the findings.

Subsequently, the chapter presents descriptive statistics detailing respondents' demographic profiles, along with the dimensions of job demands and job resources measured in this study. Correlation analyses were then performed to examine the interrelationships among the key constructs, providing preliminary insights before proceeding to the structural model evaluation.

To enhance clarity and logical flow, the presentation of results is organized into two main sections: quantitative and qualitative analyses. The quantitative section focuses on measurement and structural model assessments using PLS-SEM, while the qualitative section explores thematic insights derived from interview data, analyzed using ATLAS.ti in line with Creswell and Poth (2018). This dual-analysis approach enables triangulation of findings, thereby strengthening the overall validity and interpretive depth of the study. The chapter concludes with a concise summary highlighting the main analytical outcomes and their implications for subsequent discussion.

4.2 Quantitative Analysis

Quantitative analysis was applied to address the study's second, third, and fourth research objectives. Several procedures were carried out to prepare the data before conducting the analysis to maintain its accuracy and consistency. These objectives aimed to assess the relationship between psychosocial factors and employees' mental

health state in the offshore O&G industry, to identify the most significant psychosocial factors influencing employees' mental health, and to examine the mediating effect of job satisfaction on the relationship between psychosocial factors and mental health state. The following section explains the steps taken in preparing the dataset for quantitative analysis, which involved processes such as data screening, coding, and initial statistical evaluation to confirm the suitability of the data for further analysis.

4.2.1 Data Preparation

The first step in the data analysis process involved preparing the dataset before assessing the research model. Data preparation included editing, coding, and data entry, which were conducted to ensure the accuracy, completeness, and reliability of the dataset, thereby maintaining research quality and integrity (Blumberg et al., 2014). In this study, once the raw data were obtained, they were edited and structured using SPSS Version 29. During this process, the variables were renamed to make them suitable for analysis, followed by an initial phase of data exploration and visualization to identify patterns, detect potential errors, and confirm readiness for subsequent statistical procedures.

4.2.2 Data Recording

At this stage, the raw data were systematically collected and documented in designated repositories to maintain accuracy, consistency, and traceability throughout the research process. Each entry was organized according to a predefined coding structure and stored in secure, access-controlled locations to safeguard data confidentiality. Once data recording was completed, the process progressed to data processing, which refers to the structured transformation of raw data into an analyzable format through computational and statistical procedures (Hendrycks et al., 2019).

In this study, data processing consisted of two main stages: data cleaning and data screening. Data cleaning focused on detecting and correcting errors, including incomplete responses, duplicate entries, and outliers, to reduce potential bias in the analysis. It also involved verifying the accuracy of coded categorical variables and performing consistency checks on numerical data. Subsequently, data screening was

conducted to evaluate the suitability of the dataset for the planned statistical and qualitative analyses. This included assessing normality, linearity, and homoscedasticity for quantitative variables, as well as confirming the completeness and thematic coherence of qualitative transcripts. These procedures were fundamental in ensuring that the dataset satisfied the methodological assumptions of the chose

4.2.3 Data Cleaning

Data cleaning refers to the systematic process of identifying and correcting erroneous or inconsistent entries within a dataset. This process involves detecting incomplete, inaccurate, or irrelevant data and subsequently applying suitable modifications, replacements, or deletions to correct the identified issues (Ilyas & Chu, 2019). The main goal of data cleaning is to preserve the internal consistency of the dataset and ensure its compatibility with other related datasets within the analytical system. Data errors may occur due to several factors, including human input mistakes, corruption during data transmission or storage, and inconsistencies in data definitions across different repositories (Brownlee, 2020).

In this study, data cleaning was conducted to prepare the dataset for statistical analysis by minimizing inaccuracies and enhancing analytical validity. Several preliminary statistical assessments were performed to evaluate data normality, detect missing values, and identify any potential common method bias. In addition, descriptive analytics tools in SPSS Version 29 were used to examine distribution patterns and detect outliers. Collectively, these procedures ensured that the dataset adhered to the methodological assumptions required for subsequent inferential analyses and maintained a high level of data integrity.

4.2.4 Data Screening

It is essential to thoroughly examine and rectify any flaws in the data and configuration, before running the analysis. The initial pre-analysis phase involves examining and refining the data at two fundamental levels: 1) identification of missing values and outliers and 2) assessment of the degree of common technique bias. The data for each variable in this research underwent screening. Screening procedures were performed using SPSS version 29, then the data were exported to SmartPLS.

Questionnaires that fell into the following categories were eliminated throughout the coding process:

- 1) Questionnaires including missing pages
- 2) Questionnaires with any portion remaining unanswered
- 3) Critical questions that were not addressed
- 4) Observable patterns of responses detected

Throughout this procedure, a comprehensive review and analysis have been conducted on all data provided by the respondents. This phase is crucial in ensuring the reliability, usability, and validity of the data for the future analysis stage.

4.2.4.1 Blank Responses

The initial stage of data cleaning involved identifying incomplete responses within the collected questionnaires. This process was performed using Microsoft Excel to detect blank entries across all variables. Questionnaires showing more than 25 % missing responses in the independent variables or any missing response in the dependent variables were excluded from the dataset. Using the COUNTBLANK function, the data were examined for empty cells within the specified range of items. The results indicated that there were no blank responses in the dataset (Microsoft, 2024), confirming that all respondents had completed every question in the survey.

4.2.4.2 Missing Values

The final stage of the data cleaning process involved identifying any missing elements within the dataset. Missing data occur when respondents intentionally or unintentionally fail to answer one or more questions (Mirzaei et al., 2022). Such omissions can reduce the statistical power of a study and produce biased estimates, which may compromise the validity and interpretability of the results (Kang, 2013). Missing data reduce the ability to detect significant relationships, distort parameter estimates, and weaken the representativeness of the sample. These issues collectively increase the complexity of data analysis and pose a potential threat to the reliability of the study's conclusions. After thorough examination, no missing values were detected

among the 364 valid cases included in this study, indicating that all responses were complete and suitable for subsequent statistical analysis. It is presented in Appendix 15.

4.2.4.3 Outliers

Outliers are defined as data points that display unusually extreme responses to one or more items in a dataset (Sullivan et al., 2021). Detecting outliers is an essential step, as they can distort the normality of data distributions and bias the results of statistical analyses. Following the guidelines proposed by Hair et al. (2011) and Tabachnick and Fidell (2012), this study employed a multivariate detection technique to identify potential outliers among the independent and dependent variables.

Outlier detection was conducted using the Mahalanobis D^2 measure, a statistical method that evaluates the degree of deviation of each observation from the mean across multiple variables (Hair et al., 2010). This procedure, executed using SPSS Version 29, calculates the multivariate distance of each case within the dataset, where larger D^2 values indicate greater deviation from the overall data pattern.

Based on the Mahalanobis Distance analysis, 48 cases were identified as outliers, each exhibiting a D^2 value greater than 7.2. As shown in Appendix 16, these cases were excluded from further analysis to maintain data integrity and ensure the validity of subsequent statistical procedures. After the removal of these outliers, the final dataset consisted of 364 valid cases, which were retained for the subsequent multivariate analyses.

4.2.5 Common Method Bias

Common method bias arises when the same measurement instrument is used to collect data for both independent and dependent variables, potentially inflating or deflating observed relationships (Kock, 2017). Previous studies have shown that common method bias can affect item validity, item reliability, and the covariation among latent constructs (Podsakoff et al., 2024). To minimize this bias, Podsakoff et al. (2024) recommend incorporating procedural remedies such as varying the measurement scales used in the questionnaire. Accordingly, this study employed both 5-point and 7-point Likert scales to reduce the likelihood of response bias.

For statistical verification, a quantitative assessment of common method bias was performed on all 68 items using Harman's single-factor test. The exploratory factor analysis of the 364 valid cases revealed that the first unrotated factor accounted for 30.5% of the total variance explained. Based on the guideline by Podsakoff (2012), a value below 50% indicates that common method bias is not a significant concern. Therefore, the results, as presented in Appendix 17, confirm that common method bias was not present in this study.

4.2.6 Descriptive Analysis

Descriptive analysis serves as a fundamental statistical technique in this study, providing an initial understanding of the dataset and enabling the systematic presentation of respondents' demographic profiles and variable characteristics. Traditionally, descriptive analysis has been applied in sensory evaluation research for its ability to generate structured and replicable assessments of measured attributes (Kemp et al., 2018). In this study, its function extends beyond mere data summarization. Descriptive analysis, performed using SPSS Version 29, was employed to identify central tendencies, data dispersion, and distribution patterns for all study variables. This process facilitated the identification of underlying characteristics related to job demands, job resources, job satisfaction, and mental health among offshore oil and gas employees. Consistent with recent applications highlighted by Chen et al. (2024), descriptive analysis continues to evolve as a flexible and reliable method for producing interpretable, unbiased, and statistically meaningful insights that inform subsequent multivariate testing.

Complementing this, data mining techniques were incorporated to support deeper exploration and validation of relationships within the dataset. Data mining emphasizes the extraction of patterns, correlations, and trends from large volumes of information using computational and statistical approaches (Vijay & Bala, 2015). In this study, the data mining process was integrated into the analytical workflow to detect hidden patterns and potential interactions among constructs before proceeding with structural modeling in SmartPLS. Using descriptive and predictive features in SPSS, the analysis focused on identifying variable relationships that could inform the PLS-SEM evaluation. This dual strategy, combining descriptive statistical evaluation with

exploratory data mining has enhances the robustness of the analytical process by merging interpretive human reasoning with algorithmic precision.

Together, descriptive analysis and data mining offer complementary strengths. Descriptive analysis provides clarity and transparency in understanding the data structure, while data mining supports the discovery of deeper associations among the constructs. Their combined application strengthens the empirical foundation of this study, ensuring that both statistical validity and interpretive depth are achieved in analyzing the psychosocial factors influencing job satisfaction and mental health among offshore O&G employees.

4.2.7 Response Rate

This study presents two forms of response rate reporting: the initial rate calculated before data cleaning and the adjusted rate computed after excluding incomplete or ineligible responses. Reporting both figures provides a clearer depiction of participant engagement and data retention throughout the research process. This dual approach aligns with best practices in mixed methods research, where response rates are viewed not only as indicators of data quality but also as contextual measures of representativeness and credibility. A high response rate enhances confidence in the generalizability of the findings; however, it must be interpreted in conjunction with other indicators of methodological rigor, including data triangulation, instrument reliability, and thematic saturation within the qualitative analysis. Together, these measures contribute to a more comprehensive assessment of the study's validity and trustworthiness.

4.2.7.1 Before Data Cleaning

The questionnaire was distributed to a total of 412 offshore O&G employees across five Malaysian states with significant offshore operations, namely Sabah, Sarawak, Kelantan, Terengganu, and Pahang. The response rate for this survey is presented in Table 4.1.

Table 4. 1
Participant Response Rate before data cleaning

State	No. of Responses	Percentage (%)
Sabah	143	34.72
Sarawak	102	24.76
Terengganu	79	19.17
Kelantan	79	19.17
Pahang	9	2.18
TOTAL	412	100

4.2.7.2 After Data Cleaning

Following preliminary screening, 48 responses were excluded from the dataset due to the presence of outliers and inconsistencies that suggested the data did not accurately reflect the intended population characteristics. Specifically, these cases included unusually short completion times, patterned responses across Likert items, and demographic data that fell outside the expected range for offshore O&G employees. After this data cleaning process, 364 valid responses were retained for subsequent analysis. Table 4.2 presents the final response rate used in this study.

Table 4. 2
Participants Response Rate after Data Cleaning

States	No. of Responses	Percentage (%)
Sabah	131	31.80
Sarawak	90	21.84
Terengganu	67	16.26
Kelantan	67	16.26
Pahang	9	2.18
TOTAL	364	88.34

A response rate of approximately 60 % is generally considered acceptable in survey-based research for identifying meaningful patterns and drawing valid inferences (Schneider et al., 2016). In this study, as presented in Table 4.2, the final usable response rate after the removal of outliers was 88.34 %. This figure surpasses the conventional benchmark and reflects a strong level of participant engagement. The high response rate enhances the robustness of the dataset and supports the reliability and validity of the

subsequent statistical analyses.

4.2.8 Descriptive Analysis Of Respondents

This section presents the demographic characteristics of the respondents. A total of 364 offshore oil and gas employees participated in the study, and their demographic profiles are summarised in Table 4.3. Participants were recruited according to predefined inclusion criteria to ensure the relevance and validity of the data. Eligible respondents were individuals aged 18 years or older, with at least one year of work experience in an offshore setting, and who were actively employed in offshore operations during the period of data collection. These criteria were established to ensure that participants possessed adequate exposure and experience to provide informed and contextually accurate responses related to the study variables.

Table 4. 3
Profile of Respondents

Items	Category	Frequency	Percentage (%)
Gender	Male	297	81.6
	Female	67	18.4
Academic Qualification	SPM	65	17.9
	Diploma	135	37.1
	Bachelor's Degree	145	39.8
	Master's Degree	19	5.2
Age	18 years – 28 years	129	35.6
	29 years – 39 years	217	59.5
	40 years – 50 years	18	4.9
Length of Service	1 year to 5 years	101	27.7
	6 years to 10 years	161	44.3
	More than 10 years	102	28.0
Work Shift	Rotating Shifts	274	75.3
	Day Shifts	39	10.7
	Night Shifts	51	14.0
Work Location	Sabah	131	36.0
	Sarawak	90	24.7
	Terengganu	67	18.4
	Kelantan	67	18.4
	Pahang	9	2.5

The demographic characteristics of the respondents reveal a clear gender imbalance, reflecting the male-dominated structure of the offshore oil and gas workforce. As shown in Table 4.3, male respondents represented the majority ($n = 297$, 81.6%), while females accounted for 18.4% ($n = 67$). This disparity mirrors national and global industry trends, where women remain underrepresented in offshore operational and technical roles due to the physically demanding and rotational nature of the work environment.

In terms of age distribution, most respondents ($n = 217$, 59.5%) were between 29 and 39 years old, followed by those aged 18–28 years ($n = 130$, 35.6%) and a smaller group aged 40–49 years ($n = 18$, 4.9%). These figures suggest that the offshore

workforce in Malaysia is relatively young, predominantly comprising individuals in the early and mid-career stages.

Educationally, a substantial proportion of respondents held tertiary qualifications. Specifically, 39.8% (n = 145) possessed a bachelor's degree, 37.1% (n = 135) held a diploma, 17.9% (n = 65) had completed secondary education (Sijil Pelajaran Malaysia), and 5.2% (n = 19) reported having a master's degree. This distribution indicates a moderately well-educated workforce, with most employees having qualifications beyond secondary schooling, aligning with the technical and professional requirements of offshore employment.

Regarding work experience, 44.3% (n = 161) of participants had between six and ten years of offshore experience, 28.0% (n = 102) had more than ten years, and 27.7% (n = 101) had between one and five years. This pattern reflects a balanced composition of mid-career and senior personnel within the sample, offering diverse perspectives on psychosocial and occupational factors.

Work shift patterns indicated that most respondents (n = 274, 75.3%) were engaged in rotating shifts, a standard practice in offshore operations. Smaller groups worked permanent night shifts (n = 51, 14.0%) or fixed day shifts (n = 39, 10.7%).

Geographically, the largest proportion of respondents were based in Sabah (n = 131, 36.0%), followed by Sarawak (n = 90, 24.7%), while Kelantan and Terengganu contributed equally (n = 67, 18.4% each). Pahang represented the smallest share of respondents (n = 9, 2.5%).

In summary, the sample predominantly comprised male, young, and well-educated employees primarily located in East Malaysia and engaged in rotating shift work. These characteristics are consistent with established workforce demographics in the offshore O&G sector and provide an essential contextual foundation for interpreting the psychosocial and mental health findings presented in the subsequent sections of this chapter.

4.2.9 Level Of Mental Health, Job Satisfaction And Psychosocial Factors

The quantitative data were analyzed using IBM SPSS Statistics Version 29, which facilitated both descriptive and inferential analyses. Descriptive statistics, including mean, standard deviation, and variance, were computed to summarize the distributional properties of each variable, while multiple regression analysis was used

to examine the relationships among the study constructs. The analysis focused on six principal variables: job demands, job security, social support, work environment, job satisfaction, and mental health. The mean and standard deviation values for each construct are presented in Table 4.4.

To reduce the potential for common method bias, the study incorporated procedural remedies recommended by Podsakoff et al. (2003, 2024), including the use of mixed Likert scale formats. Items were presented using both five-point and seven-point Likert scales, arranged alternately to limit response patterning and mitigate standard scale effects. It was assumed that respondents could interpret and respond to the items accurately despite variations in scale format.

For constructs measured using a five-point Likert scale namely job demands, social support, and job satisfaction, the mean values were interpreted as ≤ 2.99 (low), 3.00–3.99 (moderate), and ≥ 4.00 (high). For constructs assessed using a seven-point Likert scale specifically job security, work environment, and mental health which the interpretation categories were ≤ 2.99 (low), 3.00–4.99 (moderate), and ≥ 5.00 (high). The classification thresholds and corresponding results are summarized in Table 4.4.

Table 4. 4
Score Category

Likert scale type	Mean Scores	Score Category
5 points	Equal or less than 2.99	Low
	3 to 3.99	Moderate
	Higher than 4.00	High
7 points	Equal or less than 2.99	Low
	3 to 4.99	Moderate
	Higher than 5.00	High

Source: Podsakoff et al. (2013, 2003)

Table 4. 5
Mean Scores and Standard Deviations of the Study Variables

Variables	Mean	SD	Score Category	Scale
Job demands	3.37	.380	Moderate	5 points
Job security	2.06	.995	Low	7 points
Social support	4.10	.660	High	5 points
Work environment	5.80	.991	High	7 points
Job satisfaction	4.20	.779	High	5 points
Mental health state	5.41	.926	High	7 points

Table 4.5 presents the mean values for each of the six key variables based on responses from 364 offshore O&G employees. Among the job resources, both social support and work environment scored within the high category, with mean values of 4.10 and 5.80, respectively. These findings indicate that respondents perceived strong social support from their organisation, supervisors, and colleagues. The high score for work environment further suggests that, despite the physically isolated nature of offshore work, employees experienced a supportive and engaging setting characterised by positive interactions with management, collegial relationships, and a sense of balance between work and personal life.

In contrast, job demand and job security were both identified as job stressors, recording moderate and low mean values of 3.37 and 2.06, respectively. The moderate job demand score reflects respondents' experiences of uneven workload distribution and the need to work extended hours to meet operational requirements. Meanwhile, the low job security score points to employees' concerns about employment stability, which may be influenced by factors such as increasing automation, technological transitions in the O&G industry, and health-related apprehensions surrounding long-term offshore employment.

Interestingly, the results also reveal that job satisfaction recorded a high mean score, which corresponded with a similarly high mental health score ($M = 5.24$). This suggests that although employees acknowledged the existence of occupational stressors, many maintained a positive mental health state. This outcome implies that job satisfaction may function as a protective or buffering factor, mitigating the negative effects of psychosocial risks on employees' mental health within the offshore O&G context.

4.2.10 Multiple Regression Analysis – RO3 (To Determine The Most Significant Psychosocial Factors Influencing The Mental Health Of Offshore O&G Employees)

In this study, multiple regression analysis was conducted to address Research Objective 3, which aims to determine the most significant psychosocial factors influencing the mental health of offshore O&G employees. The analysis examined the extent to which job demands, job security, social support, work environment, and job satisfaction predict employees' mental health status.

Multiple regression was used to assess the combined and individual effects of these variables on mental health. This approach allows the identification of which factors contribute most strongly to the outcome, while controlling for the influence of other variables in the model. The overall model fit was evaluated using the coefficient of determination (R^2), and the relative importance of each predictor was assessed based on the regression coefficients. Through this analysis, the study identifies the key psychosocial factors that have the strongest influence on mental health, providing a clearer understanding of which workplace conditions require greater attention in offshore O&G settings.

Table 4. 6
Correlations

		Mental Health	Job Demands	Job Security	Social Support	Work Environment
Pearson Correlation	Mental Health	1.000	.084	-.116	.112	.192
	Job Demands	.084	1.000	-.031	.190	.266
	Job Security	-.116	-.031	1.000	-.308	-.336
	Social Support	.112	.190	-.308	1.000	.567
	Work	.192	.266	-.336	.567	1.000
	Environment					
Sig. (1- tailed)	Mental Health	.	.044	.009	.011	<.001
	Job Demands	.044	.	.267	.000	.000
	Job Security	.009	.267	.	.000	.000
	Social Support	.011	.000	.000	.	.000
	Work	.000	.000	.000	.000	.
	Environment					
N	Mental Health	364		364		364
	Job Demands	364		364		364
	Job Security	364		364		364
	Social Support	364		364		364
	Work	364		364		364
	Environment					

Table 4. 7
Model Summary for Multiple Regression Analysis
Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
1	.921 ^a	.730	.305	.669	1.027

a. Predictors: (Constant), job demands, job security, social support and work environment

b. Dependent Variable: Mental health

According to Table 4.7, the R value .921 is referring to the multiple correlation coefficient and the R^2 value is .730 which indicated the coefficient of determination. The model explains 73.0% of the variation in the dependent variable. The Durbin-Watson is used to assess autocorrelation, and the result reflected the residuals are negatively correlated.

Table 4. 8
Multiple Regression Analysis Table
ANOVA^a

		Sum of		Mean		
	Model	Squares	df	Square	F	Sig.
1	Regression	7.035	1	7.035	15.732	<.001 ^b
	Residual	183.345	410	.447		
	Total	190.380	411			

a. Dependent Variable: Mental health

b. Predictors: (Constant), job demands, job security, social support and work environment

As shown in Table 4.8, the overall regression model was statistically significant in predicting mental health among offshore O&G employees in Malaysia, $F(1, 410) = 15.732$, $p < .05$.

4.2.11 Measurement Model

The research model in this study was evaluated using SmartPLS Version 4.0 (Ringle et al., 2022). Following the two-stage analytical approach proposed by Anderson and Gerbing (1988), the analysis first assessed the measurement model to establish the reliability and validity of the constructs and subsequently evaluated the structural model to test the hypothesised relationships among variables. A bootstrapping procedure with 5,000 resamples was conducted to determine the statistical significance of path coefficients and indicator loadings. All constructs in this study were operationalised as multi-item reflective measures, as they are expected to exhibit inter-correlation, one-dimensionality, and internal consistency. The following subsections present the evaluation criteria used to assess the measurement model prior to testing the structural relationships.

4.2.11.1 Internal Consistency Reliability

The initial evaluation of the measurement model focused on assessing internal consistency reliability using two key indicators: Cronbach's alpha and composite reliability. As shown in Table 4.9, the Cronbach's alpha values for all constructs ranged from 0.767 to 0.993, exceeding the recommended threshold of 0.70 as proposed by Hair

et al. (2010). Although Cronbach's alpha remains a widely applied measure, it has been critiqued for its tendency to underestimate reliability, particularly when the assumption of tau-equivalence is not met (Hair et al., 2022). To address this limitation, McNeish (2018) and other scholars advocate the use of composite reliability, which provides a more precise estimation of internal consistency by incorporating the actual factor loadings of individual indicators on their respective latent constructs (Fornell & Larcker, 1981).

Composite reliability values exceeding 0.70 are generally considered indicative of satisfactory reliability (Hair et al., 2011). As reported in Table 4.9, the composite reliability values in this study ranged from 0.739 to 0.990, signifying that all constructs achieved acceptable to excellent levels of internal consistency. Collectively, these findings confirm that the measurement model satisfies the reliability requirements necessary for further structural equation modelling and hypothesis testing.

4.2.11.2 Indicator Reliability (Outer Loadings)

Following the assessment of internal consistency, indicator reliability was examined to determine the extent to which each item accurately represented its corresponding construct. As shown in Table 4.9, all indicator loadings demonstrated acceptable reliability, ranging from 0.598 to 0.992, thereby meeting the recommended threshold of 0.50 or higher as suggested by Byrne (2017). In addition, all constructs achieved Average Variance Extracted (AVE) values greater than 0.50, confirming adequate convergent validity in accordance with the criterion proposed by Fornell and Larcker (1981). These results indicate that the measurement items consistently represent their latent constructs and share sufficient common variance. Consequently, no indicators were removed from the model, as all met the established reliability and validity requirements for further structural analysis.

4.2.11.3 Convergent Validity

Convergent Validity refers to the degree to which specific indicators accurately represent the measured constructs, as opposed to indicators that measure different constructs (Urbach & Ahlemann, 2010). The Average Variance Extracted (AVE) is used to assess Convergent Validity. The AVE should have a value greater than 0.5,

indicating that it accounts for at least 50% of the variation in the given indicators (Hensler & Chin, 2010; Hair et al., 2017). The PLS Algorithm in SmartPLS 4.0 is employed to generate the Average Variance Extracted (AVE) value. Table 4.9 displays the AVE values for all the constructs.

Every construct had AVE values over 0.5. The lowest AVE value reported is for Mental Health State (0.556), Job Demands (JD1, 0.593), followed by Social Support (SS2, 0.715). The Job Security, Work Environment, and Job Satisfaction constructs have a higher AVE value indicating that they account for more than 80% of the overall variation. The results indicate that the measurement model exhibited sufficient convergent validity.

Table 4. 9
Results Summary for Reflective Measurement Model

Constructs	Indicators	Indicator	Convergent	Internal Consistency	
		Reliability	Validity	Reliability	
		Outer	AVE	Composite	Cronbach's
		Loadings		Reliability	Alpha
		>0.60	>0.50	>0.7	>0.7
Mental Health	A5	0.875	0.556	0.739	0.767
	A6	0.902			
	A7	0.291			
	A8	0.615			
	A9	0.846			
Job Demands	B1	0.923	0.593	0.878	0.815
	B3	0.786			
	B4	0.910			
	B5	0.271			
	B7	0.919	0.868	0.963	0.950
	B8	0.898			
	B9	0.939			
	B10	0.968			
	B12	0.992	0.983	0.991	0.982
	B13	0.991			
Job Security	C1	0.939	0.925	0.984	0.980
	C2	0.976			
	C3	0.966			
	C4	0.977			
	C5	0.951			
Social Support	D1	0.991	0.979	0.995	0.993

	D2	0.991			
	D3	0.990			
	D4	0.987			
	D6	0.086			
	D7	0.976	0.715	0.888	0.802
	D8	0.983			
	D9	0.966			
Work	E1	0.889	0.832	0.908	0.801
Environment	E4	0.935			
	E2	0.985	0.977	0.992	0.988
	E5	0.990			
	E6	0.991			
	E3	0.976	0.927	0.974	0.960
	E7	0.928			
	E8	0.983			
Job Satisfaction	F1	0.961	0.928	0.990	0.989
	F2	0.982			
	F3	0.988			
	F4	0.989			
	F5	0.987			
	F6	0.981			
	F7	0.945			
	F8	0.866			

Notes: AVE = Average Variance Extracted, CR = Composite Reliability

4.2.11.4 Discriminant Validity

Following the assessment of reliability, the model's discriminant validity was examined to ensure that constructs designed to measure theoretically distinct concepts were also empirically distinct. Discriminant validity assesses the extent to which measurement items intended for different constructs do not overlap excessively (Ramayah et al., 2018). In this study, the Heterotrait-Monotrait (HTMT) ratio of correlations, introduced by Henseler et al. (2015), was adopted as it is considered a more robust criterion than traditional methods such as the Fornell–Larcker criterion. As described by Hair et al. (2017), HTMT represents the ratio of between-construct correlations (heterotrait-heteromethod) to within-construct correlations (monotrait-heteromethod), providing a more precise estimate of discriminant validity.

Two complementary procedures were employed to assess discriminant validity. First, HTMT values were compared against the conservative threshold of 0.85, as recommended by Kline (2012) and Henseler et al. (2015). As presented in Table 4.9, all construct pairs exhibited HTMT values below the 0.85 cut-off, indicating satisfactory discriminant validity. Second, the statistical significance of HTMT values was tested using a bootstrapping procedure, consistent with the approach suggested by Henseler et al. (2015) and Hair et al. (2019). Discriminant validity is considered compromised when the upper limit of the 95% confidence interval includes the value 1.00. In this study, the confidence intervals for all HTMT estimates were below 1.00, further confirming the absence of discriminant validity concerns.

In conclusion, both the HTMT.85 threshold and the bootstrapped confidence interval results support the establishment of discriminant validity in the measurement model. When considered alongside the evidence of reliability and convergent validity, these findings confirm that the measurement model satisfies the necessary psychometric standards and is appropriate for subsequent structural model evaluation.

Table 4. 10
Discriminant Validity

Variables	JD1	JD2	JD3	JS	JS _c	MH	SS1	SS2	WE1	WE2	WE3
JD1											
JD2	0.26										
JD3	0.244	0.853									
JS	0.42	0.266	0.3								
JS_c	0.307	0.081	0.1	0.097							
MH	0.382	0.324	0.273	0.107	0.062						
SS1	0.327	0.217	0.35	0.463	0.387	0.083					
SS2	0.356	0.351	0.423	0.445	0.387	0.174	0.744				
WE1	0.378	0.348	0.419	0.476	0.435	0.1	0.579	0.656			
WE2	0.236	0.354	0.428	0.442	0.299	0.093	0.553	0.646	0.85		
WE3	0.205	0.339	0.422	0.446	0.289	0.14	0.546	0.638	1.01	0.78	

As shown in Table 4.9, all HTMT ratios were below the recommended threshold of 0.85 (Henseler et al., 2015; Kline, 2012), indicating satisfactory discriminant validity. The highest HTMT value observed was 0.85 between the *work environment* indicators, which remains within acceptable limits. These results confirm that all constructs are empirically distinct and appropriate for further structural model testing.

4.2.12 Structural Model

Following the confirmation of the measurement model's reliability and validity, the structural model was subsequently evaluated, representing the final phase of the PLS-SEM analysis. Structural model assessment in PLS-SEM focuses on estimating the strength and significance of path relationships among constructs, evaluating the model's predictive accuracy, and determining its explanatory power. This stage facilitates hypothesis testing and provides insights into the direction and magnitude of relationships among the latent variables.

In this study, the structural model evaluation consisted of several key analyses: (i) assessment of direct and indirect (mediated) effects to test the proposed hypotheses; (ii) examination of the coefficient of determination (R^2) to determine the proportion of variance explained in the endogenous constructs; (iii) evaluation of predictive relevance using the Stone–Geisser Q^2 statistic obtained through the blindfolding procedure; and (iv) assessment of overall model fit using the Standardized Root Mean Square Residual (SRMR) and other complementary fit indices. These analytical procedures were conducted in accordance with the methodological guidelines for PLS-SEM recommended by Hair et al. (2017, 2022), ensuring a comprehensive and rigorous evaluation of the structural model's performance.

4.2.12.1 Assessment Of The Structural Model For Collinearity Issues

Assessing collinearity is the initial step in evaluating the structural model in PLS-SEM, as multicollinearity among predictor constructs can distort path coefficient estimates and inflate standard errors. Before estimating the structural relationships among the latent variables, collinearity diagnostics were performed to confirm that the model was free from multicollinearity issues.

Collinearity was assessed using the full collinearity Variance Inflation Factor (VIF), which measures the extent of linear association among predictor constructs. Hair et al. (2011) suggest that VIF values exceeding 5.0 may indicate potential collinearity problems, while Kock (2015) and Diamantopoulos and Siguaw (2006) recommend a more conservative threshold of 3.3. In this study, the full collinearity VIF values ranged from 1.987 to 2.914, as shown in Table 4.11, indicating that all values fall well below both threshold limits. These findings confirm that multicollinearity is not a concern in

the structural model, thereby validating its appropriateness for subsequent path coefficient estimation and hypothesis testing.

Table 4. 11
Full Collinearity VIF Values for Latent Constructs

Construct	Full Collinearity VIF
Mental Health	2.822
Job Demands	2.914
Job Security	1.987
Social Support	2.301
Work Environment	2.103
Job Satisfaction	2.455

4.2.12.2 Assessing The Significance Of The Structural Model Relationships

To evaluate the proposed hypotheses, a bootstrapping procedure was employed in SmartPLS 4.0 to estimate the significance of the structural path coefficients, as summarised in Table 4.12. Bootstrapping in Partial Least Squares Structural Equation Modelling (PLS-SEM) is a non-parametric resampling technique that generates empirical sampling distributions by repeatedly drawing samples with replacement from the original dataset. This method allows for the estimation of standard errors and the computation of t-statistics for hypothesis testing (Hair et al., 2011).

In this study, 18 hypotheses were formulated to examine the relationships among the model's constructs. Bootstrapping was conducted using 1,000 subsamples, following Chin's (2010) recommendation for minimum resampling in PLS-SEM analysis. A one-tailed significance test was applied with a significance level of 0.05. The critical values for the one-tailed test at the 10%, 5%, and 1% significance levels were 1.28, 1.645, and 2.33, respectively (Ramayah et al., 2018).

As shown in Table 4.12, the standardised path coefficients in this study ranged from 0.001 to 0.232. According to Hair et al. (2017), path coefficients closer to ± 1 indicate strong relationships between constructs, while coefficients near 0 suggest weak or negligible relationships. The statistical significance of each path was determined by comparing the observed t-values against the corresponding critical values, allowing for the validation or rejection of each hypothesis.

4.2.12.3 Hypothesis Testing For Direct Effect

The structural model assessment was conducted to examine the direct effects of psychosocial risk factors (exogenous constructs) on employees' mental health (endogenous construct) using SmartPLS Version 4.0 (Ringle et al., 2022). A bootstrapping procedure with 1,000 resamples was applied to test the significance of the hypothesised relationships. Figure 4.1 illustrates the standardised path coefficients, while Figure 4.2 displays the corresponding t-values. The model encompassed multiple dimensions of job demands, job resources, and work environment constructs, with mental health (MH) as the dependent variable.

The results reveal that cognitive demands ($\beta = 0.391$) and sense of community ($\beta = 0.550$) exhibit the strongest positive relationships with mental health, suggesting that higher cognitive engagement and stronger communal bonds are associated with improved mental health among offshore O&G employees. Conversely, quantitative demands ($\beta = 0.200$), demands for responsibility ($\beta = 0.028$), and social relations ($\beta = 0.312$) demonstrate smaller positive effects, though their directions remain consistent with theoretical expectations.

Among the work environment variables, meaning of work shows a strong negative relationship with mental health ($\beta = -0.556$), indicating that lower perceptions of meaningful work are associated with reduced psychological well-being. This finding aligns with job strain theory, which posits that the absence of meaningful or purpose-driven tasks may undermine mental health outcomes. Job security ($\beta = -0.071$) also exhibits a negative relationship with mental health, implying that uncertainty regarding employment stability may impair employees' well-being, particularly within an offshore context characterised by automation, safety risks, and contract-based employment structures.

Regarding social support, assistance from supervisors and colleagues ($\beta = 0.225$) demonstrates a moderate positive effect on mental health, highlighting its buffering role in mitigating the adverse effects of job stressors. However, degree of freedom at work has a minimal positive influence ($\beta = 0.017$), indicating that autonomy contributes little to explaining mental health variance within this occupational group.

Overall, the model explains 20.1% of the variance in mental health ($R^2 = 0.201$), reflecting a modest yet acceptable level of explanatory power for behavioural research,

as suggested by Hair et al. (2017). This level of variance is considered adequate in social science studies involving complex human and organisational factors.

The bootstrapping results (1,000 subsamples) were used to assess the significance of the structural paths. Following the one-tailed test approach, the critical t-values for significance at the 10%, 5%, and 1% levels are 1.28, 1.645, and 2.33, respectively (Ramayah et al., 2018; Hair et al., 2017). The results are summarised in Table 4.12.

Table 4. 12

Path Coefficients for Job Stresses and Job Resources to Mental Health State

Hypothesis	Relationship	β	Std Error	t-values	p-values	Decision
1	Quantitative Demands → Mental Health State	0.228	0.082	3.238	0.001	Supported
2	Cognitive Demands → Mental Health State	-0.386	0.114	3.221	0.001	Supported
3	Demands for Responsibility → Mental Health State	0.150	0.121	1.072	0.142	Not supported
4	Job Security → Mental Health State	-0.071	0.072	1.826	0.034	Supported
5	Social Support → Mental Health State	-0.312	0.144	2.165	0.015	Supported
6	Social Relations → Mental Health State	0.460	0.138	2.823	0.002	Supported
7	Degree of Freedom → Mental Health State	0.162	0.138	0.733	0.232	Not supported
8	Sense of Community → Mental Health State	-0.414	0.306	1.814	0.035	Supported
9	Meaning of Work → Mental Health State	0.376	0.279	2.670	0.004	Supported

Note: β and t values are computed through the bootstrapping procedure with 1000 samples; **p<.01 (2.333), *p<.05 (1.645).

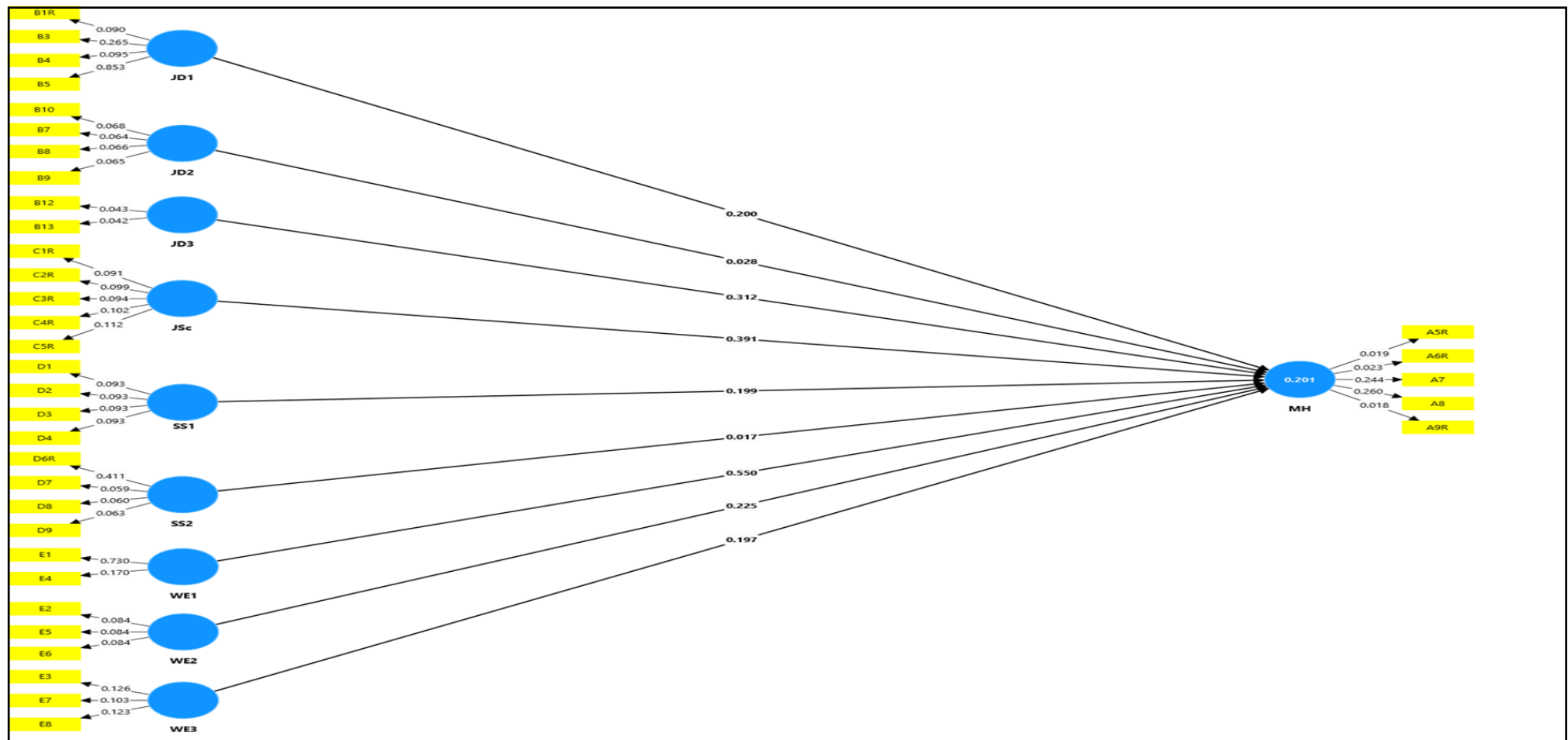


Figure 4. 1 Path Coefficients among independent and dependent variables

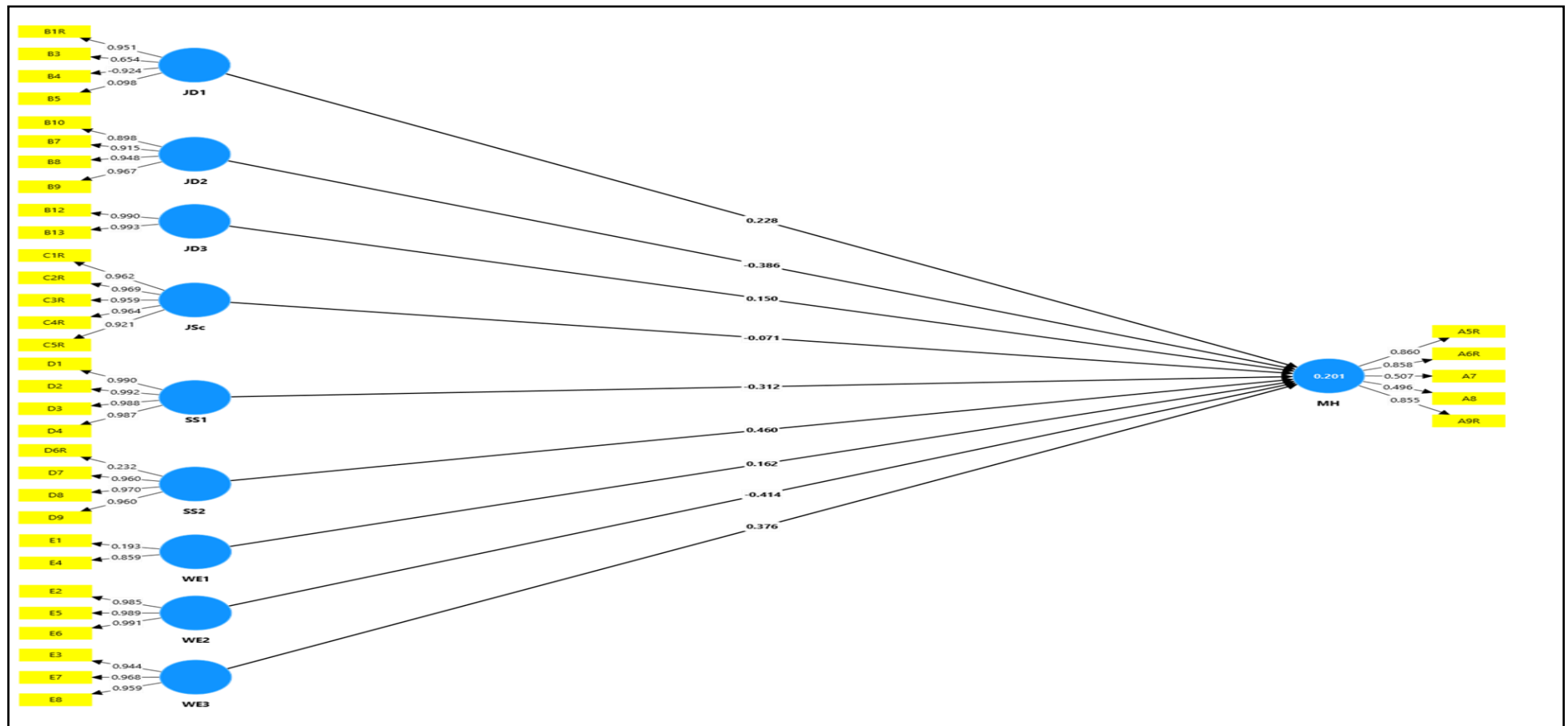


Figure 4. 2 t-values among independent and dependent variable

4.2.12.4 Hypothesis Testing For Mediation Paths

To assess the mediating role of job satisfaction in the relationship between psychosocial risk factors and mental health, the study applied the product of coefficients approach as outlined by MacKinnon et al. (2007). This method evaluates the significance of the indirect effects by calculating the product of the path coefficients along the mediated paths. A mediation effect is considered statistically significant if the corresponding p-value is less than 0.05 ($p < 0.05$). Figure 4.3 illustrates the hypothesised mediation pathways involving job satisfaction as the mediating variable. The empirical results of the mediation analysis, including indirect effects and significance values, are presented in Table 4.13.

Table 4. 13
Path Coefficient for Mediation Path between Psychosocial Risk Factors and Mental Health State

Hypothesis	Relationship	Std Error	P-value	Decision
10	Quantitative Demands → Job Satisfaction → Mental Health State	0.029	0.019	Supported
11	Cognitive Demands → Job Satisfaction → Mental Health State	0.026	0.273	Not supported
12	Demands for Responsibility → Job Satisfaction → Mental Health State	0.022	0.429	Not supported
13	Job Security → Job Satisfaction → Mental Health State	1.862	0.031	Supported
14	Social Support → Job Satisfaction → Mental Health State	1.791	0.037	Supported
15	Social Relations → Job Satisfaction → Mental Health State	1.130	0.129	Not supported
16	Degree of Freedom → Job Satisfaction → Mental Health State	0.350	0.363	Not supported
17	Sense of Community → Job Satisfaction →Mental Health State	0.767	0.222	Not supported
18	Meaning of Work → Job Satisfaction →Mental Health State	1.595	0.055	Not supported

Note: ** $p < .01$ (2.333), * $p < .05$ (1.645).

Three out of eight hypotheses were confirmed regarding the role of job satisfaction in mediating the correlation between psychosocial risk variables and

employees' mental health state, as shown in Table 4.13. More precisely, the study discovered that job satisfaction had a mediating role in the correlation between quantitative demands and mental health state ($p < 0.05$), the correlation between job security and mental health state ($p < 0.05$), and the correlation between social support and mental health state ($p < 0.05$). However, job satisfaction was not found to mediate the correlation between cognitive demands and mental health state ($p > 0.05$), the correlation between demands for responsibility and mental health state ($p > 0.05$), the correlation between social relations and mental health state ($p > 0.05$), the correlation between degree of freedom and mental health state ($p > 0.05$), the correlation between sense of community and mental health state ($p > 0.05$), and lastly the correlation between meaning of work and mental health state ($p > 0.05$). Thus, hypotheses 11, 12, 15, 16, 17, and 18 were rejected.

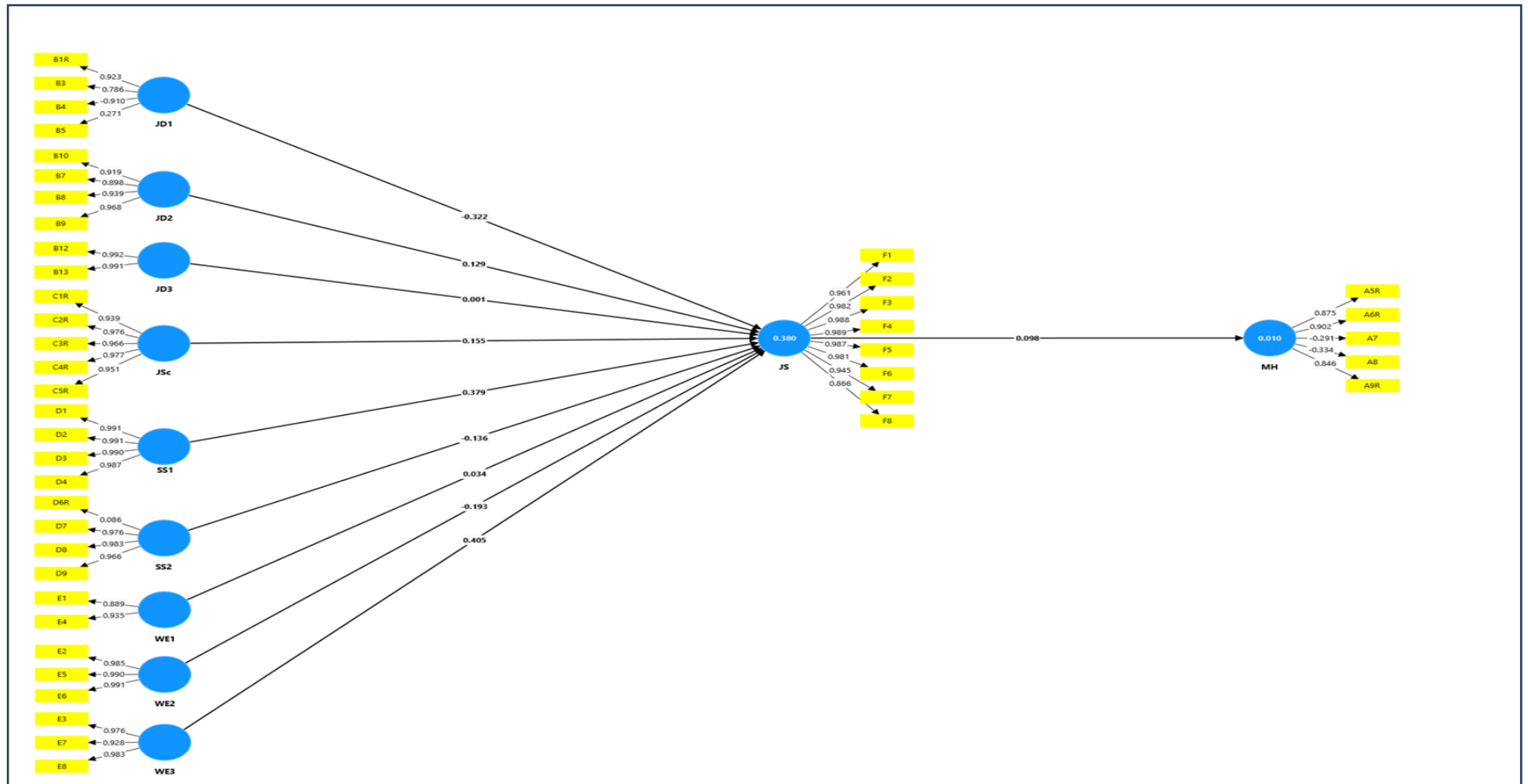


Figure 4. 3 Path Coefficients for Mediation Path

4.2.13 Variance Accounted For (VAF)

The VAF was calculated to assess the strength of the mediation (Hair et al., 2013). The path coefficients' indirect impacts were divided by the direct and indirect effects sum. The VAF analysis was conducted only on the significant mediated correlations for hypotheses 10,13 and 14. The findings are presented in Table 4.14.

Table 4. 14
Variance Accounted For (VAF)

Hypothesis	Relationship	Indirect Effect	Direct Effect	Total Effect	VAF	VAF (%)
10	Quantitative demands → Job Satisfaction → Mental Health State	0.019	0.009	0.028	0.114	11.4
13	Job Security → Job Satisfaction → Mental Health State	0.031	0.067	0.098	0.310	31.0
14	Social Support → Job Satisfaction → Mental Health State	0.037	0.077	0.114	0.343	34.3

According to Hair et al. (2013), a Variance Accounted For (VAF) value of 20% or more indicates the presence of a mediating effect in the relationship between latent constructs. In this study, job satisfaction was found to mediate 31.0% of the relationship between job security and mental health, and 34.3% of the relationship between social support and mental health. These values exceed the 20% threshold, suggesting partial mediation in both cases.

In contrast, job satisfaction accounted for only 11.4% of the relationship between cognitive demands and mental health, indicating a minimal mediating effect. As reported in Table 4.14, this value falls below the recommended threshold, implying that job satisfaction explains only a small portion of the variance in mental health within this path. Consequently, other unmeasured factors are likely to play a more substantial role in mediating the effect of cognitive demands on mental health.

Overall, the VAF results support the interpretation that job satisfaction functions as a meaningful mediator in specific pathways, particularly those involving job security

and social support, but its explanatory contribution is limited in the context of cognitive demands.

4.2.14 The Coefficient Of Determination (R^2)

The predictive accuracy of the structural model was evaluated using the coefficient of determination (R^2), which quantifies the proportion of variance in an endogenous construct explained by its associated exogenous variables. R^2 is a widely used indicator of model fit in PLS-SEM and reflects the collective explanatory power of the predictor constructs on a given outcome variable. The values of R^2 range from 0 to 1, with higher values indicating stronger predictive accuracy.

While acceptable thresholds for R^2 may vary across research contexts, Hair et al. (2017) suggest general benchmark values: 0.75 (substantial), 0.50 (moderate), and 0.25 (weak). In the current study, the R^2 values for the endogenous constructs, as presented in Table 4.15, range from 0.010 to 0.380. These results indicate low to moderate predictive accuracy, depending on the specific construct. Although some R^2 values are modest, they remain acceptable within the context of behavioural research, where models often include latent psychological constructs and complex interrelationships.

Table 4. 15
Rule of Thumb for R^2

R^2 value	Decision
0.23, 0.13 and 0.02	Substantial, moderate or weak levels of predictive accuracy
0.67, 0.33 and 0.19	Substantial, moderate or weak levels of predictive accuracy
0.75, 0.50 and 0.25	Substantial, moderate, or weak levels of predictive accuracy

Source: Hair et al., 2017; Chin, 1998; Cohen, 1988

4.2.15 Assessment of the Predictive Relevance (Q^2)

Following the evaluation of predictive accuracy through the coefficient of determination (R^2), the model's predictive relevance was assessed using the Stone–

Geisser Q^2 statistic (Stone, 1977). The Q^2 values were obtained through a predictive assessment procedure designed to estimate the model's capability to reproduce observed data points for the endogenous constructs (Hair et al., 2017). Traditionally, this evaluation employed the blindfolding technique, a cross-validation method that systematically omits and predicts data points to determine the predictive power of the model (Geisser, 1995).

However, in SmartPLS Version 4, the blindfolding procedure has been replaced with the more advanced PLSpredict algorithm, which provides a robust and practical means of assessing predictive relevance in PLS-SEM models. PLSpredict enhances predictive evaluation by generating prediction errors through holdout samples, thereby offering a more realistic representation of out-of-sample predictive performance (Yudistira et al., 2022).

In this study, the Q^2 values derived from the PLSpredict analysis ranged from 0.467 to 0.987, as shown in Table 4.15. Since all Q^2 values exceed zero, the results indicate that the structural model demonstrates medium to high predictive relevance across the endogenous constructs (Stone, 1977; Geisser, 1995; Hair et al., 2017). These findings provide strong empirical evidence that the model possesses substantial predictive capability and effectively captures the variance in the latent outcomes under investigation.

Table 4. 16
Predictive Relevancy

Endogenous variables	Q^2	R^2
Job Satisfaction	0.467	0.380
Mental Health State	0.987	0.010

4.2.16 Goodness Of Fit (GoF)

The Goodness of Fit (GoF) has been formulated as a comprehensive metric to assess the adequacy of model fit for PLS-SEM. Nevertheless, due to the GoF's ability to accurately differentiate between valid and invalid models and its restricted application to specific model configurations, researchers should refrain from using it to measure goodness of fit. When employing PLS-SEM, it is crucial to acknowledge that the concept of fit carries distinct connotations in the realms of CB-SEM and PLS-SEM

(Hair, et al., 2017; Rigdon et al., 2017). (PLS-SEM) examines the difference between the actual (for manifest variables) or estimated (for latent variables) values of the dependent variables and the values predicted by the specific model being studied (Hair et al., 2019; Henseler et al., 2014). Although other model fit metrics for PLS-SEM have been suggested by researchers (Schuberth et al., 2018; Tenenhaus et al., 2005), their ability to accurately detect incorrectly stated models is severely restricted. Consequently, researchers that utilize PLS-SEM to evaluate the quality of a model depend on different metrics that evaluate the model's ability to make predictions (Shmueli et al., 2016; Shmueli et al., 2019) both inside the sample and outside of it (Hair, 2020).

Hence, this study uses Standardized Root Mean Square Residual (SRMR) to calculate the GoF. SRMR quantifies the average difference between the observed correlations in the data and the correlations anticipated by the model used in this study. Lower values demonstrate a more accurate match with commonly agreed acceptable thresholds. Table 4.17 is the interpretation of the SRMR value:

Table 4. 17
SRMR Value Interpretation

SRMR Value	Description
Below 0.10	Good Fit
Between 0.10 and 0.08	Acceptable fit (conservative approach)
Above 0.08	Potential model misspecification, requiring investigation

Source: Byrne, 1998; Diamantopoulos and Siguaw, 2000

The SRMR value in this study is 0.069 below 0.10, hence can be concluded that the model is a good fit for this study.

4.2.17 Summary Of Hypothesis Testing

The evaluation of hypotheses in this study was based on the analysis of path coefficients and corresponding t-values obtained from the structural model assessment. A hypothesis was considered supported if the path coefficient was statistically significant at the 0.05 level or lower and exhibited the expected direction (e.g., positive or negative, as theoretically predicted). Table 4.18 provides a summary of the

hypothesis testing results, indicating which relationships were supported based on the strength and significance of the estimated paths.

Table 4. 18
Summary of Hypothesis Testing

No	Hypothesis Statement	Decision
H1	There is a significant relationship between quantitative demands and employees' mental health state.	Supported
H2	There is a direct significant relationship between cognitive demands and employees' mental health.	Supported
H3	There is a direct significant relationship between demands for responsibility and employees' mental health state.	Not supported
H4	There is a direct significant relationship between job security and employees' mental health state.	Supported
H5	There is a direct significant relationship between social support and employees' mental health state.	Supported
H6	There is a direct significant relationship between social relations and employees' mental health state.	Supported
H7	There is a direct significant relationship between the degree of freedom at work and employees' mental health state.	Not supported
H8	There is a direct significant relationship between a sense of community and employees' mental health state.	Supported
H9	There is a direct significant relationship between the meaning of work and employees' mental health state.	Supported
H10	Job satisfaction will mediate the relationship between quantitative demands and employees' mental health state	Supported
H11	Job satisfaction will mediate the relationship between cognitive demands and employees' mental health state	Not supported
H12	Job satisfaction will mediate the relationship between demands for responsibility and employees' mental health state	Not supported

H13	Job satisfaction will mediate the relationship between job security and employees' mental health state	Supported
H14	Job satisfaction will mediate the relationship between social support and employees' mental health state	Supported
H15	Job satisfaction will mediate the relationship between social relations and employees' mental health state	Not supported
H16	Job satisfaction will mediate the relationship between the degree of freedom at work and employees' mental health state	Not supported
H17	Job satisfaction will mediate the relationship between a sense of community and employees' mental health state.	Not supported
H18	Job satisfaction will mediate the relationship between the meaning of work and employees' mental health state.	Not supported

4.3 Qualitative Analysis

The qualitative findings were based on in-depth interviews with selected informants who met the study's criteria. These included: (1) holding a managerial or higher role in the Human Resource, Safety, Health and Environment (SHE), or Engineering departments; (2) being at least 18 years old; and (3) having worked offshore for a minimum of five (5) years. This analysis was conducted to address Research Objectives 1 and 5, namely: 1) to explore how mental health is supported in the offshore O&G industry, and 2) to understand how job satisfaction influences employee well-being. The results are discussed in the following section.

4.3.1 In-depth Interview

For this phase of the study, interviews were conducted with managers from the Human Resource (HR), Safety, Health and Environment (SHE), and Engineering & Operations (EO) departments. The information obtained from these informants also served as part of the study's triangulation strategy to verify findings related to mental

health issues among offshore O&G employees. A total of 17 informants participated in the interviews. The informants' recruitment was based on the data saturation principle. Table 4.19 provides an overview of the expert informants involved in this phase.

Table 4. 19
Informants Demographic Profile

Informants ID	Department	Position level	Gender	Age range (years)	Offshore Experience (Years)
INF01	SHE	Manager	Female	25 – 29	5
INF02	SHE	Manager	Male	30 – 34	6
INF03	EO	Manager	Male	30 – 34	5
INF04	HR	Manager	Female	40 – 44	10
INF05	EO	Engineer cum Safety Leader	Male	35 – 39	7
INF06	EO	Senior Engineer cum Team Leader	Male	35 – 39	8
INF07	EO	Senior Manager	Male	40 – 44	12
INF08	HR	Manager	Female	35 – 39	9
INF09	EO	Manager	Male	35 – 39	7
INF10	HR	Manager	Male	40 – 44	10
INF11	HR	Manager	Female	45 – 49	11
INF12	HR	General Manager	Male	45 – 49	16
INF 13	EO	Engineer	Male	35 – 39	10
INF 14	EO	Head of Department	Male	40 – 44	13
INF 15	EO	Top Management	Male	50 – 54	18
INF 16	HR	Top Management	Male	45 – 49	15
INF 17	HR	Senior General Manager	Female	45 – 49	12

In-depth interviews were conducted as part of the qualitative phase of this study. A total of 17 individual interview sessions were held, each lasting between 45 and 75 minutes, depending on the informant's availability and the depth of responses. The scheduling of interviews was arranged through mutual agreement between the researcher and each informant to accommodate their offshore work schedules. All interviews were conducted remotely via Microsoft Teams and Google Meet, as several informants were based in offshore or remote locations during the data collection period. Minor delays were encountered in scheduling some sessions due to unforeseen circumstances, including changes in offshore operations and last-minute duty reassignments. Despite these challenges, all planned interviews were successfully completed.

4.3.2 Thematic Analysis

The thematic analysis revealed a single overarching theme: Organizational Learning, which captures how offshore O&G organizations internalize, adapt, and institutionalize practices related to mental health and job satisfaction through both formal systems and informal processes. From the coding process, two main categories were constructed under this theme which are Rules and Regulations, and Socialization. These two categories highlight the structural and interpersonal pathways of knowledge transfer. Rules and Regulations include the codes enacted (implemented policies and protocols) and ordained (top-down directives pending full integration). Socialization encompasses the role of leader in modelling behavior and two types of communication which consist of formal (briefings and campaigns) and informal (peer dialogue and mentoring).

In addition, four codes were identified that fall under the broader classification of Ordained Rules and Regulations, further expanding the operational dimension of Organizational Learning. The category of Mental Health Benefits includes codes such as insurance coverage for therapy, access to external mental health services, and reimbursement policies, reflecting the organization's institutional commitment to supporting mental well-being through financial and external service mechanisms. Departmental guidelines pertain to the formal implementation of mental health practices within departments and are represented by codes such as SHE procedures, mental health response protocols, and supervisory guidance documents, which serve to translate high-

level policy into actionable practice. Contractual Clauses capture the legal and normative embedding of mental health within employment arrangements, as reflected in codes including mental health-related terms in employment contracts, implied responsibilities, and legal references.

Lastly, the category of Medical and Safety Assessments highlights how mental health considerations are integrated into operational risk management, comprising codes such as pre-employment medical screenings, fitness-for-duty assessments, and safety-critical psychological evaluations. Collectively, these categories exemplify how mental health provisions are formalized through mandated policies and regulatory structures, demonstrating the organization's strategic alignment of mental health with compliance, safety, and legal obligations. The illustration of the thematic analysis is as follow:

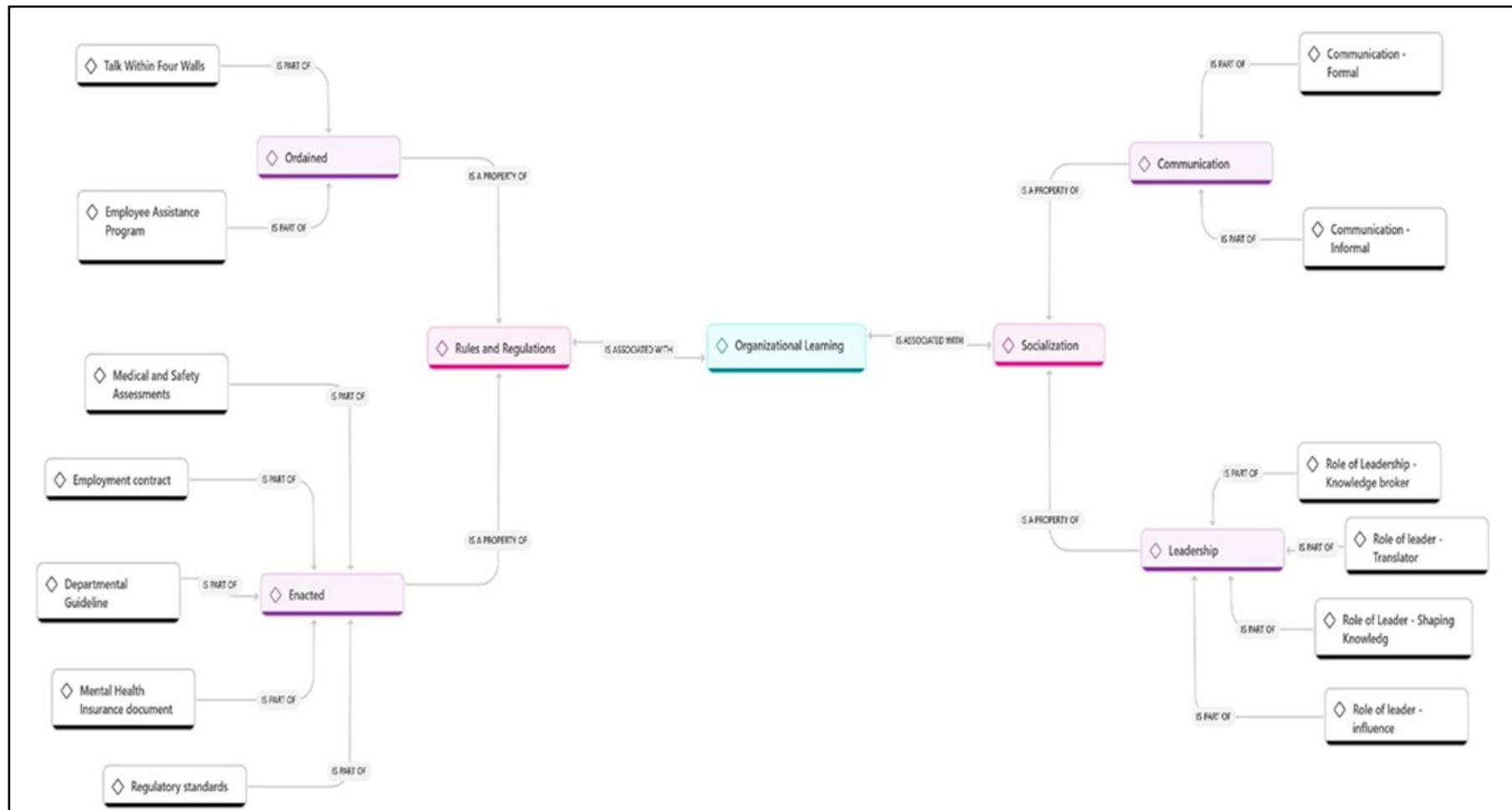


Figure 4. 4 Finding of the Qualitative Data

4.3.2.1 Rules And Regulations

In navigating the structured world of organizations, employees quickly learn that not all rules are created equal. Some are printed, signed, and formally posted, while others are absorbed through observation, passed along informally, or embedded in workplace culture. This study found that participants made a clear distinction between rules and regulations, each functioning differently in shaping everyday behaviour. Rules were described as informal yet widely understood. Often unwritten, these guidelines were not necessarily introduced by management but instead emerged from collective practice, team norms, and peer expectations. They operated through social enforcement, lacking formal penalties but remaining influential in maintaining workplace order and signalling acceptable behaviour.

These informal rules were also contextual, varying across sites, teams, or supervisors. While technically optional under certain conditions, they were still expected to be followed due to shared understandings of professionalism and team cohesion. In contrast, regulations were viewed as formal, rigid, and authoritative. Issued by external bodies or higher management, regulations carried explicit requirements and consequences for non-compliance. Terminology such as "mandatory," "compliance," and "penalty" reflected their binding nature. Regulations were typically associated with domains such as occupational safety, procedural documentation, and legal reporting obligations. Unlike informal rules, they were codified, monitored, and enforceable through internal disciplinary actions or external audits.

An important insight from the interviews was the recognition that rules and regulations did not exist in isolation. Instead, they operated as an interdependent system that sometimes reinforced, and at other times subtly contradicted one another. Formal guidelines served as legal and procedural anchors, while informal rules allowed for real-time flexibility and responsiveness. For example, although regulations might mandate specific rest periods, informal expectations shaped how those periods were actually observed, depending on workload, team dynamics, or implicit managerial expectations.

This coexistence created a dual system of governance. Written regulations provided a clear framework for accountability, yet in practice, the unwritten rules often had greater influence over daily decisions and conduct. Employees were continuously negotiating between the two which balancing formal compliance with social acceptability. Ultimately, the findings illustrated a dynamic and nuanced regulatory

environment in which formal and informal systems complemented one another. Rather than being redundant, these systems filled each other's gaps, jointly contributing to a more complete and adaptable form of organizational order.

A) Enacted

In the offshore O&G industry, where employees operate in high-risk environments and perform safety-critical tasks, swift adaptation to changing operational conditions is essential. As such, access to formal regulations is not only a matter of compliance but also a necessary component of operational safety and decision-making. These regulations are intended to guide best practices, support employee welfare, and foster a culture of accountability. Among the documents formally enacted within companies are those outlining health benefits, including provisions for physical and mental health support.

However, the analysis revealed that in the studied organizations, mental health provisions were not centrally located within a single, consolidated policy document. Instead, such provisions were dispersed across various documents and often referenced indirectly. For example, mental health coverage was typically embedded within insurance-related materials rather than the company handbook or official policy documents. Mental health was framed as a medical condition requiring clinical or occupational intervention, but without explicit articulation within core organizational policies. Participants consistently confirmed the fragmented nature of these provisions. One HR Manager explained:

“We do not have a formal policy that specifically outlines how to manage or support mental health issues in the workplace, but we do offer benefits under our corporate insurance that cover therapy sessions... However, this is not something that’s explicitly stated in our internal HR policy or employee handbook...There is no structured mental health framework or guideline to follow internally.”

(INF 04, Manager HR, Kuala Lumpur)

Similarly, another manager highlighted the economic barrier to access, despite coverage being technically available:

“The company will cover the costs under our corporate insurance plan, including mental health treatment, but only to a certain extent... mental health services, especially ongoing therapy or psychiatric consultations are quite expensive and not fully reimbursed... many employees are hesitant to go for treatment, even when they need it. The process of claiming can also be complicated or unclear, and not everyone is comfortable disclosing mental health concerns. So, while the benefit technically exists, in practice it’s underutilized. There’s still a kind of stigma and uncertainty around accessing it.”

(INF 09, Manager Upstream Technology, Terengganu)

In addition to medical benefits, the presence of departmental guidelines emerged as a key mechanism shaping how mental health practices were operationalized across offshore oil and gas organizations. Although not legally binding, these guidelines functioned as a practical extension of company norms and were often regarded by employees as a reference point for expected behavior and managerial response in situations where formal policy was absent or ambiguous. Participants consistently emphasized that guidelines filled the procedural void left by the absence of a dedicated mental health policy.

From a conceptual standpoint, guidelines can be understood as adaptive instruments as they are typically shaped by institutional memory, regulatory influence e.g., OSHA, and localized organizational culture. They do not prescribe behavior with the force of law but instead offer structured flexibility, allowing organizations to respond to issues in a context-sensitive manner. In high-risk sectors like O&G, this flexibility is crucial: mental health concerns may arise in unpredictable ways, requiring managers and supervisors to exercise discretion while still adhering to a broader framework of occupational safety and well-being.

Several participants noted that mental health-related guidance was available at the departmental level, particularly within Safety, Health, and Environment (SHE) divisions. These documents were not always company-wide, nor formally integrated into the employee policy handbook, but they provided crucial directions to frontline supervisors and safety managers. Informants indicated that such guidelines included references on how to identify warning signs of psychological distress, steps to refer

employees to internal or external support, and how to respond sensitively to crisis situations.

“... there is a section in the Safety, Health, and Environment (SHE) Department that specifically addresses employee mental wellbeing. It’s not a policy, but we do have something written down, guidelines or a standard operating procedure that outlines steps to take if an employee shows signs of mental distress or reports a psychological issue.. it’s not formalized at the corporate level”

(INF 07, Senior Manager, Production Delivery, Sabah)

This assertion was supported by additional HR Manager who emphasized that such guidelines were often influenced by regulatory references like OSHA, albeit without being elevated to formal company policy:

“I can say we only have written guidelines. We don’t have a standalone policy. We follow OSHA... we put that in our guidelines. It’s not a policy because a policy is mandatory. Our guidelines are based on practice, and different companies have different ways of dealing with employee mental health.”

(INF 11, Manager HR, Kuala Lumpur)

Based on the above information, it reflects how mental health provisions in the offshore O&G sector are often guided more by external compliance frameworks such as the OSHA than by internally developed organizational mandates. Rather than institutionalizing mental health through formal, mandatory policy instruments, companies appear to rely on departmental guidelines that are shaped by practice and precedent. These documents tend to be interpretive in nature, borrowing regulatory language without carrying the enforceability of formal policy.

This approach exemplifies a broader pattern within the categories of Ordained Rules and Regulations, where mental health is acknowledged in principle but remains underdeveloped in practice. The reliance on OSHA as a reference point indicates that companies are aware of their legal responsibilities but stop short of internalizing these into binding policies. Guidelines are treated as flexible tools that responsive to

operational needs and cultural context; however, it is lacking the authority and accountability mechanisms that policies would provide. The implication is a strategic balancing act: organizations aim to demonstrate compliance and due diligence while preserving operational discretion. This results in an uneven implementation landscape across companies, where some departments may adapt mental health provisions more rigorously than others, depending on their interpretation of regulatory obligations and perceived organizational priorities.

Ultimately, this reliance on external standards without formal internal codification reveals a gap in governance. Mental health is treated as a conditional responsibility, acknowledged when legally required, but not embedded as a consistent organizational value. Within the high-risk context of offshore work, this represents a significant limitation, as it leaves the management of psychosocial risks to informal or semi-formal processes, potentially undermining both employee protection and organizational resilience.

One informant highlighted that while no formal mental health policy existed, certain references were embedded in the employment contract:

“So far, there is no written policy specific to mental health. What we have are what we call written clauses, certain terms in the employment agreement that touch on mental health-related issues... I’ve worked in two different O&G companies, and in both, there wasn’t any official mental health policy... They exist, but employees are usually unaware unless they read the fine print or face a situation where it becomes relevant.”

(INF 13, Engineer and Safety Leader, Sarawak)

This response reveals how companies may opt for legal minimalism by acknowledging mental health obligations only to the extent necessary to comply with employment law or mitigate liability. The presence of these clauses in employment agreements signals that mental health is not entirely absent from organizational discourse but is approached cautiously, without full policy integration. Moreover, the passive nature of these inclusions (i.e. not discussed, not contextualized) limits their

practical utility for employees, reinforcing the reactive and fragmented approach to psychosocial governance.

Another informant confirmed this pattern by noting:

“From my experience, there hasn’t been a proper document that outlines how the company deals with mental health. What we did have were brief clauses in the contract we signed when we joined. These clauses weren’t highlighted, and most of us didn’t pay much attention to them because they were vague, just general references to employee health or workplace safety. It’s not like a handbook or a policy that tells you what to do or what support is available if you’re struggling mentally.”

(INF 06, Process Safety Engineer, Terengganu)

This account adds further clarity to the practical obscurity of mental health clauses in contractual documents. The clauses may exist technically, but their invisibility in day-to-day organizational practice renders them ineffective as tools for employee support. It also suggests that the burden of understanding and activating these provisions falls on the employee which undermines the principle of proactive employer responsibility in occupational mental health.

In addition, these narratives illustrate that contractual clauses serve as symbolic acknowledgments rather than operational instruments. They reflect an underlying organizational logic that mental health, while increasingly recognized, is not yet prioritized enough to be embedded into formalized, accessible frameworks. Instead, it is managed peripherally, often left to be interpreted situationally by legal departments, supervisors, or HR personnel.

One HR general manager elaborated on how their company adapts regulatory standards to fit organizational needs:

“In my current company, we use OSHA as the basis for our safety rules. OSHA includes mental health, although not in depth. The Act is our best guideline. We adjust it to suit our company and industry and include it in the clauses when employees sign their contracts.”

(INF 12, General Manager HR, Johor Bahru)

Finally, medical and safety assessments were also noted as a mechanism for indirectly managing mental health. These assessments were typically conducted before employment and during high-risk operational transitions. While largely focused on physical health, some companies were beginning to incorporate mental health considerations, particularly during onboard medical checks or operational risk reviews.

As one SHE manager noted:

“Before joining a company, we typically undergo an interview and a standard medical check-up to assess our physical health. However, these procedures fail to capture our mental health status. Mental well-being is rarely screened or discussed, even though it significantly affects job performance and long-term employee resilience. This gap leaves a blind spot in employee onboarding processes, where psychological readiness is just as critical as physical fitness especially in high-pressure industries like oil and gas.”

(INF 01, Manager SHE, Johor Bahru)

Another safety leader added:

“We already have a standard procedure, and if we want to change it, we have to override it. For safety, we conduct a risk assessment for the tools and duties, especially for mental health. We also do mental health assessments during the medical onboarding process.”

(INF 03, Team Leader and Safety Engineer, Terengganu)

In sum, while the offshore O&G companies examined demonstrated a growing awareness of mental health, their approaches remain fragmented. Mental health-related content was found across various documents, including insurance coverage, departmental guidelines, contractual clauses, and medical assessments. However, none of the companies had a comprehensive, standalone mental health policy. This fragmented approach suggests that while organizational learning is occurring, the operationalization of mental health remains largely reactive, decentralized, and shaped by external regulatory references rather than internally defined strategies.

B) Ordained

Within the category of ordained, the analysis identified mental health practices that, while not formally codified, were nonetheless institutionalized within specific organizations. Ordained practices refer to non-policy-based approaches crafted and practiced internally by organizations, often driven by leadership discretion, cultural values, and internal norms rather than external mandates. These initiatives were typically unwritten but operational, reflecting how some O&G companies engaged with employee mental health in a context-specific and informal manner.

A prominent example of such practices is the provision of internal mental health support programs, which existed in various forms across organizations. Though the names and structures differed, the core objective remained consistent which is to provide confidential and accessible support mechanisms for employees experiencing psychological distress. Programs mentioned included the Employee Assistance Program (EAP) and Talk Within Four Walls, each developed independently and maintained internally without formal policy backing. As one HR manager described:

“We have had our own internal program for mental health since before the COVID-19 pandemic. It’s not officially called a policy, but it’s there. The program runs quietly where employees can approach someone if they need help. Sometimes it’s under the HR unit, sometimes we bring in professionals. Each department may run it slightly differently, but the intention is to support staff in a way that doesn’t draw too much attention.”

(INF 17, Senior General Manager HR, Kuala Lumpur)

Another HR practitioner elaborated on the EAP model used in their company:

“Our Employee Assistance Program has been in place for years. It’s not heavily promoted, but employees know about it. If someone is facing stress or personal issues, they can reach out confidentially. We’ve engaged an external consultant who comes in monthly, and employees can make appointments through HR. It’s part of our mental health effort, but it’s never been written down as a formal mental health policy.”

(INF 08, Manager, HR, Kuala Lumpur)

A third informant highlighted a company-initiated support space under a different name:

“We don’t call it counselling, but we have this thing called ‘Talk Within Four Walls’. It’s basically a closed-door session where employees can speak freely, either with HR or their supervisor, depending on their preference. It’s meant to be informal and low pressure. We created it as an outlet during the MCO (Movement Control Order) and decided to keep it going after that because the response was good.”

(INF 10, Manager, HR, Johor Bahru)

These examples demonstrate how Ordained programs reflect organizational learning and responsiveness, often shaped by practical needs and evolving from past experiences, for example during the pandemic. However, the informal nature of such programs means their visibility and consistency are limited. Employees may be unaware of them unless directly informed, and the scope of services offered can vary significantly depending on department or location.

In contrast, not all organizations demonstrated this level of internal engagement. Out of the 17 informants, three explicitly confirmed that their organizations did not provide any structured mental health assistance or internal support programs. In these settings, mental health was treated as an individual matter, with no organizational scaffolding to facilitate access to care or early intervention. One Senior Manager of Upstream and Operations commented:

“We don’t have any internal mental health program or anything like that. If someone is having a hard time mentally, they would probably have to go to the clinic on their own or maybe talk to a colleague. There’s no system in place, not even a point of contact for such issues.”

(INF 09, Manager, Upstream Technology, Terengganu)

Another informant emphasized the total absence of formal or informal support:

“As far as I know, there’s no mental health support in the company, not formally or informally. We don’t have EAPs, no counselling, no sessions. Maybe HR has some ideas, but nothing has ever been communicated to us. If people are struggling, it’s mostly up to them to manage.”

(INF 13, Engineer and Safety Leader, Sarawak)

These contrasting accounts reveal that while ordained programs do exist, their adoption is neither systematic nor universal across the offshore O&G sector. Their implementation is contingent on internal champions, resource availability, and perceived organizational priorities. The absence of structured programs in some organizations raises concerns about inequitable access to psychosocial support and highlights the limitations of relying on informal or discretionary mechanisms in high-risk, high-stress work environments.

In sum, ordained practices offer evidence of emerging organizational awareness and informal governance concerning mental health, but they also reflect the broader inconsistency and fragmentation that characterize mental health provision in the industry. Without formal integration into policy or organizational frameworks, these programs remain vulnerable to discontinuity, underutilization, and lack of accountability.

4.3.2.2 Socialization

Socialization, in the context of this study, emerged as a central mechanism through which mental health-related knowledge, values, and behaviors were communicated and reinforced across offshore O&G organizations. It functions as an embedded, relational process that supports employee adaptation, cultivates belonging, and enhances psychological safety. The findings highlight how socialization, is shaped by leadership practices and communication styles. It was not only instrumental in guiding work behavior but also in shaping employees' awareness, acceptance, and engagement with mental health provisions. In this study findings, there are two codes: 1) the role of leader, and 2) the types of communication (informal and formal).

The findings offer rich insight into the role of leadership in shaping knowledge transmission, compliance behavior, and cultural attitudes towards mental health in the offshore O&G working environment. Leaders were widely regarded as key enablers of organizational socialization. Their influence extended beyond task supervision to shaping how mental health was understood, prioritized, and discussed in the workplace. Supervisors and department heads played a dual role acting as gatekeepers of information and as behavioral models. Their openness, responsiveness, and willingness to discuss mental well-being signalled to employees whether psychological concerns could be expressed without stigma.

“It starts with the manager. If the manager is someone who checks in, makes time to listen, or even just mentions mental health during meetings, people feel safer. That tone matters a lot in our kind of work”.

(INF 05, Engineer cum Safety Leader, Terengganu)

“Our department makes it clear that if anyone is struggling, they can approach him (leader) directly. He is open about his own challenges too, which really makes a difference. It sets the culture for the whole team.”

(INF 03, Team Leader and Safety Engineer, Terengganu)

Within the theme of Organizational Learning, the category of Socialization revealed the critical influence of leadership behaviour on shaping the openness of mental health discourse in the workplace. Leadership behaviour operated along a spectrum, either enabling or restricting such conversations. When leaders demonstrated proactive engagement, they fostered an environment in which mental health discussions were normalized and embedded into routine workplace interactions.

This openness cultivated a culture of psychological safety, allowing employees to voice concerns without fear of stigma or adverse consequences. Conversely, where leadership was perceived as disengaged or indifferent, mental health was deprioritized, reinforcing a culture of silence in which issues remained unaddressed, and employees were less inclined to seek assistance. These findings underscore the role of leadership not only in modelling acceptable communication practices but also in influencing the extent to which mental health becomes a visible and legitimate component of organizational dialogue.

Moreover, other informant from the SHE leaders act as translators of regulatory content, making abstract legislative frameworks like OSHA accessible to employees in the field. The COVID-19 epidemic has intensified the pre-existing burnout among several offshore O&G professionals.

Here, leadership acts as a knowledge broker, selectively highlighting what is relevant and operationally meaningful. It also bridges the gap between formal policy and practical understanding, apart from assisting socialize employees into a safety culture, where mental health is viewed as a legitimate workplace hazard. As mental health issues are not a joking problem among employees nowadays, especially in the era of transition from COVID-19 to post-COVID-19, the leader should threat all the employees genuinely whenever they say they are suffering from mental health issues. The informant has addressed this:

“...the new generation of leaders is becoming more aware that when an employee says they are not mentally well, it should be taken seriously...There’s a shift happening leaders now are expected to show empathy and respond appropriately. It’s part of being a responsible supervisor... Leaders need to understand that and not question the legitimacy of such concerns.”

(INF 07, Senior Manager Production Delivery, Sabah)

One of the HR managers illustrates how leadership, particularly through the HR function, leverages formal learning systems as a top-down mechanism to socialize employees around mental health awareness. By making the e-learning compulsory, leaders institutionalize knowledge acquisition and ensure a baseline level of engagement with mental health content across all departments. The reference to enforcement through testing and quizzes signals a compliance-oriented leadership style, where mental health is positioned not only as a personal concern but as an organizational requirement.

This approach reflects a structured form of leadership influence: rather than relying solely on informal culture or interpersonal support, HR leadership embeds mental health literacy into the organization’s learning infrastructure. It also demonstrates that leadership plays a pedagogical role, shaping how employees come to know and interact with mental health expectations through codified processes.

While this method promotes consistency, it also raises questions about depth of understanding versus task completion which suggests that leadership-driven awareness may be procedural rather than transformative unless paired with interpersonal reinforcement (e.g., through supervisors or team leads).

“In a company, to ensure all employees read the documents, HR will enforce one e-learning, forcing staff to do e-learning. For example, in terms of mental health, everyone will have to do e-learning. The staff will be aware if there is enforcement because they need to read to take the test and quizzes.”

(INF 14, Head of Department, Engineering Operation, Kuala Lumpur)

Additionally, in offshore O&G operations, communication serves as a critical social mechanism for navigating isolation, stress, and team-based interdependence. The data strongly indicate that both formal communication systems such as memos, official briefings and digital platforms, and informal interpersonal exchanges such as peer check-ins, and casual conversations, play a central role in shaping how mental health is perceived, acknowledged, and addressed across hierarchical levels. Informal communication emerged as a powerful conduit for emotional support and early detection of distress. Many informants emphasized the significance of casual check-ins and empathic questioning, particularly in offshore settings where employees live and work together for extended periods, often cut off from familial and social networks.

“For me, mental health is everyone's responsibility. We cannot wait for the person to say that they are not okay before we care for them. We need to ask them – ‘Are you okay?’ ‘Do you need any help?’. These kinds of things (mental health issues) are sometimes silent bombs because we do not see the symptoms.”

(INF 07, Senior Manager Production Delivery, Sabah)

“For example, in terms of peer support, friends can ask him if he is okay or not or if he has any problem to share with us. Sometimes, we feel that it interferes with people's personal matters and is not important.

Nevertheless, psychologically, if we feel that someone cares about us, we will feel that we are needed in that work environment.”

(INF 10, Manager Human Resources, Johor Bahru)

These reflections suggest that non-hierarchical, emotionally intelligent communication is foundational to building a psychologically safe work environment. In a male-dominated and often stoic culture like offshore O&G, peer-initiated conversations can serve as low-pressure entry points for employees to express vulnerability. However, there were also accounts that pointed to barriers. Cultural norms around masculinity and emotional restraint were seen to inhibit openness:

“Yes, peer support is important because when we work in an offshore setting, we are far away from our family members, ... When we work in an environment where most of the employees are males, males usually have a small amount of ego, we are embarrassed to ask our friends about their condition.”

(INF 02, Safety Engineer, Terengganu)

This quote underscores how social norms and gendered expectations influence informal communication, and why organizational leadership must model openness to help break down stigma and normalize mental health conversations.

In contrast, formal communication was structured, top-down, and often technology-mediated. Management relied on scheduled meetings, official emails, and increasingly, digital messaging platforms like WhatsApp to transmit information rapidly and efficiently. While not explicitly designed for mental health, these platforms served as primary channels for reminders, policy updates, and task-based coordination, indirectly contributing to psychosocial clarity and consistency.

“We have created a WhatsApp group for all of our staff based on their departments. With these groups, it is easier to convey information more quickly and effectively because, in this era, everyone will use mobile phones, right?”

(INF 08, Manager Human Resources, Kuala Lumpur)

“We will use two methods, starting with an email to each focal person, and we will give time for us to get a response from the team. Next, we will spread information in the WhatsApp group as a reminder to the team leader again.”

(INF 11, Manager HR, Kuala Lumpur)

These formal systems enhance information consistency and speed, especially in geographically dispersed offshore operations. However, they are not substitutes for personal engagement. As noted by one senior leader:

“When employees can communicate with colleagues face-to-face, it will give them positive vibes. Why do I say that? Because when these employees communicate face-to-face, the emotions and feelings are easier to be expressed than when we communicate online.”

(INF 12, General Manager HR, Johor Bahru)

This insight reinforces the importance of multi-modal communication strategies where digital tools enable operational efficiency; however face-to-face interactions remain essential for emotional expression and connection.

4.4 Triangulation Of The Data

In this study, triangulation was used to enhance the trustworthiness of the findings by examining a single phenomenon which is mental health support within offshore O&G organizations through multiple data sources. This included gathering insights from informants across different departments (such as Human Resources, Safety and Health, and Operations), job levels, and organizational contexts. The use of triangulation enabled a more layered understanding of how mental health is perceived, communicated, and acted upon within the workplace. It allowed the researcher to identify common patterns as well as inconsistencies across responses, helping to capture the complexity of organizational practices while reducing the risk of relying on a single perspective.

Therefore, this method is used to check on the listed research objectives in this study with other sets of input or data, which are 1) To explore the relationship between psychosocial factors and employees' mental health state in the offshore O&G industry (RO2), 2) To determine the most significant psychosocial factors influencing the mental health state of offshore O&G employees (RO3), and 3) To ascertain the mediating effect of job satisfaction towards the relationship between psychosocial factors and mental health state in the offshore O&G industry employees (RO4)

4.4.1 RO2: To Explore The Relationship Between Psychosocial Factors And Employees' Mental Health State In The Offshore O&G Industry

The study aims to investigate the correlation between psychosocial factors and the mental health of offshore O&G employees. Triangulated evidence from qualitative interviews and document analysis substantiates that the work environment and social support are significant psychosocial factors impacting employees' mental health.

The offshore work environment was consistently described by informants as both emotionally and physically demanding, with the psychological burden intensified by the unique structural and operational conditions of offshore life. These conditions are shaped by high operational risks, the absence of a clear work-life boundary due to the 24/7 nature of deployment, and the long stretches of physical separation from family and support systems. Informants across departments ranging from engineering to human resources converged on the view that the cumulative impact of isolation, monotony, and confinement significantly impairs mental well-being over time. Unlike onshore settings where employees can disengage from their job roles at the end of the day, offshore employees are continuously immersed in their work environment, with minimal opportunities for personal space or psychological decompression.

“When you are offshore, you are away from everything, your normal routine. You can't just take a break or go outside to clear your head. The only thing you have is your work. That kind of isolation... it gets to your mental health after a while. And because you're supposed to be strong or tough, nobody talks about it.”

(INF 07, Senior Manager, Production Delivery, Sabah)

“The pressure is high, and the space is confined. You don’t go home after work; you stay in that environment 24/7. There’s no real break, and everyone’s watching each other all the time. Even when you’re resting, you’re still in the same place, surrounded by the same faces. That changes how you think and feel. It can be very claustrophobic and mentally tiring, especially after a few weeks.”

(INF 16, Top Management Upstream Development, Sarawak)

The narratives indicate a significant psychosocial phenomenon: the offshore environment exacerbates stress through isolation and fatigue while simultaneously inhibiting the open expression of distress, influenced by masculine, high-performance work cultures. The implicit expectation to endure difficulties, as reported by multiple informants, leads to the underreporting of mental health concerns and perpetuates a cycle of silence and internalization.

The document analysis confirmed that company-issued Safety, Health, and Environment (SHE) manuals recognized psychological hazards, including stress and fatigue; however, mental health was largely regarded as a secondary issue within the wider framework of occupational safety. Risk mitigation strategies emphasize fatigue management and operational readiness, rather than prioritizing mental health prevention or psychological support. No evidence was identified regarding comprehensive and proactive mental health interventions specifically designed to address the unique challenges associated with offshore deployment, including structured counselling services, rotational debriefing programs, or mental health literacy training.

The lack of a dedicated mental health policy indicates a reactive institutional approach, wherein support is provided solely in response to visible crisis events such as accidents, and critical incidents instead of being integrated into regular offshore operations. The disparity between the actual experiences of offshore employees and the portrayal of mental health in organizational documents reveals a significant deficiency in policy execution. It underscores the necessity for formal mechanisms that acknowledge mental health as essential to offshore safety and performance.

Alongside environmental and structural stressors, social support emerged as a key protective factor for offshore employees’ mental health, particularly in the absence of family, recreational outlets, or access to professional psychological services. Informants emphasized that social support especially from peers and immediate

supervisors' plays a critical role in buffering the emotional toll associated with offshore deployments. The isolated and enclosed nature of offshore platforms intensifies the need for human connection, with colleagues often becoming surrogate family members and first-line emotional responders.

This form of support was largely informal, characterized by regular check-ins, empathetic conversations, and mutual understanding among team members who share similar stressors and routines. Although not always labelled as "mental health support" by the informants themselves, these interactions were described as emotionally grounding and instrumental in preventing psychological deterioration over time.

“For example, in terms of peer support, friends can ask him if he is okay or not or if he has any problem to share with us. Sometimes, we feel that it interferes with people’s personal matters and is not important. Nevertheless, psychologically, if we feel that someone cares about us, we will feel that we are needed in that work environment. That sense of being needed helps us cope, especially when we are far from home and dealing with pressure.”

(INF 10, Manager, Human Resources, Johor Bahru)

“Yes, peer support is important because when we work in an offshore setting, we are far away from our family members, so the people closest to these employees are their colleagues. If someone is too quiet or looks like they are not themselves, usually a friend or someone from the team will notice and check in. Sometimes, just being able to share small things for example stories, jokes, and frustrations. This can make a big difference. It creates a kind of family environment, even though it’s work.”

(INF 02, Safety Engineer, Terengganu)

These reflections underscore how offshore employees often rely on a culture of mutual observation and informal care to maintain emotional stability. Supportive peer dynamics appear to act as a substitute for more formal psychological interventions, particularly in crisis prevention or in offering a sense of belonging during high-stress cycles. While these peer-based interactions are valuable, their informal nature makes

them inconsistent and highly dependent on individual personalities and team dynamics, raising concerns about sustainability and equity of support.

Document analysis supported these narratives to a limited extent. While formal organizational policies did not contain explicit guidelines on peer support or mental health interventions, indirect promotion of social support was evident through team-building programs, crew engagement sessions, and leadership communications encouraging cohesion. However, such efforts were typically framed within operational goals such as productivity, morale, or safety compliance rather than within a mental health framework. This again highlights a policy-practice gap: while social support functions as an essential psychological resource offshore, it is not institutionally framed or supported as a formal component of employee well-being.

4.4.2 RO3: To Determine The Most Significant Psychosocial Factors Influencing The Mental Health State Of Offshore O&G Employees

The findings for Research Objective 3 indicate that the work environment and social support are the most significant psychosocial factors influencing the mental health of offshore oil and gas employees. The quantitative results show that these factors have the strongest relationships with mental health outcomes compared to other variables in the model. The qualitative findings further support this by showing how leadership practices, communication, and peer relationships shape employees' daily experiences and ability to cope with offshore working conditions.

In relation to the work environment, informants consistently highlighted the role of leadership and open communication in shaping their psychological experience at work.

“We have all the safety equipment. But mentally, it’s about whether you're allowed to voice your concerns, whether they take you seriously.”

(INF16, Top Management, Upstream Department, Sarawak)

“When leaders are open and communicate clearly, we feel more confident and less stressed. If communication is poor, it creates tension even if everything else is in place.”

(INF07, Senior Manager, Production Delivery, Sabah)

These findings suggest that the work environment extends beyond physical safety conditions to include psychological safety, where leadership behaviour and open communication directly influence employees' confidence and stress levels. Similarly, social support emerged as a key resource, with informants describing how peer relationships help them cope with the demands of offshore work.

“Out there, your crew becomes your family. When someone checks in and says, ‘you okay, bro?’, it makes a difference.”

(INF09, Manager, Upstream Department, Terengganu)

“We depend on each other a lot offshore. When things get stressful, having teammates who understand what you're going through helps you get through the day.”

(INF12, General Manager, HR, Johor Bahru)

These responses indicate that social support plays a key role in helping employees manage the pressures of offshore work, particularly in isolated environments where peer relationships become an important source of emotional and practical support.

Overall, both work environment and social support function as key resources that shape how employees experience and respond to offshore working conditions. Their influence goes beyond immediate working conditions by affecting employees' sense of support, confidence, and ability to cope with stress, which in turn contributes to their overall mental well-being.

4.4.3 RO4: To Examine The Mediating Role Of Job Satisfaction In The Relationship Between Psychosocial Factors And Mental Health State Of Offshore O&G Industry Employee

Research Objective 4 examines the mediating role of job satisfaction in the relationship between psychosocial factors and employees' mental health, focusing on job stresses (job demands and job security) and job resources (social support and work environment). The SmartPLS results indicate that job satisfaction significantly mediates these relationships. Both job demands and job security influence mental health

indirectly through job satisfaction, suggesting that their impact is partly shaped by how employees perceive and evaluate their work. Similarly, social support and work environment show significant indirect effects on mental health via job satisfaction, while also maintaining direct relationships. This pattern indicates partial mediation, where job satisfaction serves as an important mechanism linking workplace conditions to mental health, while the direct effects highlight that work conditions also influence mental health independently. Overall, employees' mental health is shaped by both their exposure to work conditions and their subjective evaluation of those conditions.

These quantitative results further clarified by the qualitative findings, which provide insight into how job satisfaction operates in daily offshore O&G work. Informants consistently described satisfaction as shaping their ability to cope with demanding conditions. For instance, expectations around communication and leadership have shifted, particularly after the COVID-19 period:

“We don’t work remotely offshore, but the mindset has shifted. People expect more clarity, empathy, and communication from management now.”

(INF13, Engineer and Safety Leader, Sarawak)

This is further reflected in how employees link supportive management to their sense of satisfaction and well-being:

“When the management listens and supports us, even though rotations feel manageable. But if that support is missing, the pressure becomes harder to deal with.”

(INF08, HR Manager, Kuala Lumpur)

Job demands such as long working hours and physical strain were widely acknowledged. However, their impact was not uniform, as it depended on how employees perceived their work environment:

“The work is tough, physically and mentally. But if you're appreciated and supported, you can cope. If not, it breaks you down.”

(INF04, Manager HR, Kuala Lumpur)

This variation is also reflected in how employees interpret demanding conditions in relation to available support:

“Long hours are part of the job offshore; we already accept that. What makes the difference is how the company treats us. If the environment is fair and supportive, the workload feels manageable.”

(INF11, HR Manager, Sarawak)

Job security emerged as another important factor, particularly among contract-based employees, where uncertainty affects both satisfaction and mental well-being:

“Sometimes you work 12 hours a day, give your best, but you're still unsure if you'll be rehired next cycle. That uncertainty eats at your peace of mind.”

(INF05, Engineer cum Safety Leader, Johor Bahru)

This concern is also reflected in how employees link contract uncertainty to their emotional state and work motivation:

“Even when you perform well, there's no guarantee for the next contract. It makes it hard to stay fully focused because part of you is always thinking about what happens next.”

(INF09, Manager, Upstream Technology, Terengganu)

At the same time, social support was described as a key coping resource within the offshore environment:

“Out there, your crew becomes your family. When someone checks in and says, ‘you okay, bro?’, it makes a difference.”

(INF09, Manager, Upstream Technology, Terengganu)

This sense of peer support is also reflected in how employees rely on each other to manage stress during long rotations:

“We depend on each other a lot offshore. When things get stressful, having teammates who understand what you're going through helps you get through the day.”

(INF12, General Manager, HR, Terengganu)

The work environment, particularly leadership and openness in communication, also shapes employees' sense of satisfaction:

“We have all the safety equipment. But mentally, it's about whether you're allowed to voice your concerns, whether they take you seriously.”

(INF16, Top Management, Upstream Department, Sarawak)

This is further reflected in how employees associate transparent leadership with their level of comfort and trust at work:

“When leaders are open and communicate clearly, we feel more confident and less stressed. If communication is poor, it creates tension even if everything else is in place.”

(INF07, Senior Engineer, Sabah)

Furthermore, the qualitative findings suggest that job satisfaction is not simply an outcome, but an active process through which employees interpret and respond to workplace conditions. When employees feel recognized, supported, and heard, they are better able to manage job pressures. When these elements are lacking, the same conditions are more likely to be experienced as stressful and harmful.

In conclusion, both quantitative and qualitative findings point to the same direction. Job satisfaction partially mediates the relationship between psychosocial factors and mental health. This means that workplace conditions influence mental health both directly and through employees' level of satisfaction, highlighting the importance of addressing both structural and perceptual aspects of the work environment in offshore O&G settings.

4.4.4 RO5: To Understand The Impact Of Job Satisfaction On The Mental Health State Of Offshore O&G Employees

The fifth research objective aimed to understand the impact of job satisfaction on the mental health state of offshore O&G employees. The quantitative findings showed that job satisfaction played a meaningful role in explaining the relationship between selected psychosocial factors and mental health. Specifically, job satisfaction accounted for 11.4% in relation to job demands, 31.0% in relation to job security, and 34.3% in relation to social support. These results indicate that job satisfaction does influence employees' mental health, although the strength of its influence differs across the psychosocial factors examined.

The finding related to job demands showed that job satisfaction accounted for 11.4% of the relationship with the mental health state of offshore O&G employees. Although this value was lower compared to job security and social support, it still indicates that work pressure, long working hours, and heavy operational responsibilities can influence how satisfied employees feel with their job. The qualitative findings supported this result, as participants explained that excessive workload and continuous pressure could reduce their level of satisfaction and affect their emotional condition.

For example, one participant stated,

“When the workload is too much, of course it affects how we feel. Sometimes we finish the shift physically tired, but mentally we still think about the next task. It can reduce the satisfaction because we feel there is no proper break.”

(INF01, Manager Safety Health and Environment, JB)

Another participant shared,

“Offshore work is already demanding. We know that before joining. But when the task keeps increasing and manpower is limited, that is when people start feeling pressured and less satisfied with the job.”

(INF 05, Engineer cum Safety Leader, Terengganu)

These views suggest that job demands contribute to mental strain through reduced job satisfaction, particularly when employees feel that workload is not matched with sufficient rest, manpower, or organisational support.

However, the relatively lower quantitative value for job demands may also suggest that offshore employees have normalised demanding working conditions as part of their occupational reality. Many offshore employees understand that the nature of the industry involves long shifts, strict safety procedures, technical responsibilities, and exposure to challenging work environments. As a result, job demands may not affect job satisfaction and mental health as strongly as factors that are linked to stability and support. This was reflected in the qualitative responses, where participants acknowledged that pressure is expected in offshore work, but it becomes more difficult to manage when the demands are excessive or when support systems are weak. Therefore, the qualitative findings help explain why job demands showed a smaller but still relevant influence in the quantitative analysis.

In contrast, job security demonstrated a stronger contribution, with job satisfaction accounting for 31.0% of its relationship with mental health. This finding shows that employees' sense of employment stability has an important influence on their satisfaction and psychological well-being. The qualitative data supported this result by showing that job security was closely associated with peace of mind, financial stability, and future certainty.

One participant explained,

“When we know the job is stable, we can focus better at work. But when there are rumours about contract cuts or project ending, people start to worry. It affects the mind, even when we are still offshore.”

(INF03, Team leader & Safety Engineer, Terengganu)

Another participant stated,

“Job security is very important because most of us have family commitments. If we are not sure about our position, it affects our satisfaction and also our mental condition.”

(INF16, Top Management, Upstream Development, Sarawak)

These statements show that employment uncertainty does not only affect employees' career expectations, but also their emotional state and ability to remain focused while working offshore.

The stronger quantitative value for job security is understandable because offshore O&G employees often carry significant financial and family responsibilities. Uncertainty about contract renewal, restructuring, project continuity, or retrenchment can create continuous psychological pressure. When employees feel secure in their employment, they are more likely to experience satisfaction with their job, which then contributes to a better mental health state. The qualitative findings therefore strengthen the quantitative result by showing that job security is not merely an administrative or employment issue. Instead, it is closely tied to employees' emotional stability, family obligations, and long-term confidence in their future.

Social support recorded the strongest contribution, with job satisfaction accounting for 34.3% of its relationship with the mental health state of offshore O&G employees. This indicates that support from supervisors, colleagues, and the wider work team plays a major role in shaping employees' job satisfaction and mental health. The qualitative findings were consistent with this result. Participants repeatedly described the importance of having supportive supervisors and reliable colleagues while working offshore. One participant stated, "When the supervisor understands the team, it makes a big difference. Even when the work is stressful, we feel better because we know someone is listening and supporting us." (INF16, Top Management, Upstream Development, Sarawak). Another participant explained, "Offshore, your colleagues become like your second family. If the team is supportive, the work becomes easier to handle. Without support, the same workload can feel much heavier." (INF12, General Manager, HR, JB). These responses show that social support helps employees cope with stress, isolation, and work pressure in the offshore environment.

The strong role of social support can be explained by the isolated and confined nature of offshore work. Employees are physically separated from their families and normal social environment for extended periods. As a result, the workplace becomes their main source of interaction, emotional support, and practical assistance. "When supervisors communicate clearly, show concern, and respond fairly to employees' needs, employees tend to feel valued and satisfied" (INF02, Safety Engineer, Terengganu). Similarly, "when colleagues provide cooperation and emotional support, work pressure becomes easier to manage" (INF14, Head of Department, Global

Business Operation, KL). This explains why social support recorded the highest quantitative contribution among the three psychosocial factors. The qualitative findings confirm that offshore employees do not experience mental health issues only as an individual matter, but also as a social and organisational issue shaped by the quality of relationships at work.

Overall, the integration of quantitative and qualitative findings shows a consistent pattern. Job satisfaction acts as an important mechanism through which psychosocial factors influence the mental health state of offshore O&G employees. The quantitative findings showed that social support and job security had stronger contributions than job demands, while the qualitative findings explained why this pattern occurred. Employees appeared to place greater importance on relational support and employment stability because these factors directly affected their emotional security, sense of belonging, and confidence in the future. Job demands remained relevant, but their effect was comparatively lower because demanding work is often accepted as part of offshore employment.

4.5 Summary Of The Findings

The figure brings together the quantitative and qualitative findings within an extended Job Demands–Resources (JD-R) framework. It shows how organizational conditions and individual psychosocial factors work together in shaping the mental health of offshore O&G employees. From the qualitative strand, organizational learning was identified as a key underlying factor influencing employees' work experiences. This is reflected through two main aspects: rules and regulations, which include both formal (ordained) and practice-based (enacted) elements, and socialization processes, represented by leadership and communication. These components describe how organizational expectations are set and how they are carried out in day-to-day operations.

The quantitative findings capture psychosocial factors through job stress and job resources. Job stress includes job demands, covering quantitative, cognitive, and responsibility-related pressures, as well as job security. Job resources consist of social support and work environment, including autonomy at work, sense of community, and meaning of work. These reflect the main conditions faced by employees in the offshore setting. The model shows that both job stress and job resources influence job

satisfaction, which acts as a mediating factor in the relationship with mental health. At the same time, there are also direct effects between psychosocial factors and mental health, indicating that job satisfaction does not fully explain these relationships.

The link between the two sets of findings is addressed at the interpretation stage. The qualitative results help to explain how and why the relationships observed in the quantitative analysis occur. For example, leadership practices and communication patterns shape how employees deal with job demands and make use of available support, which then affects their level of job satisfaction and mental health.

Overall, the figure provides a clear summary of the study's findings by connecting organizational context, work conditions, and mental health outcomes in a single framework. It shows how the two sets of data support each other and gives a fuller picture of the issues faced by offshore employees.

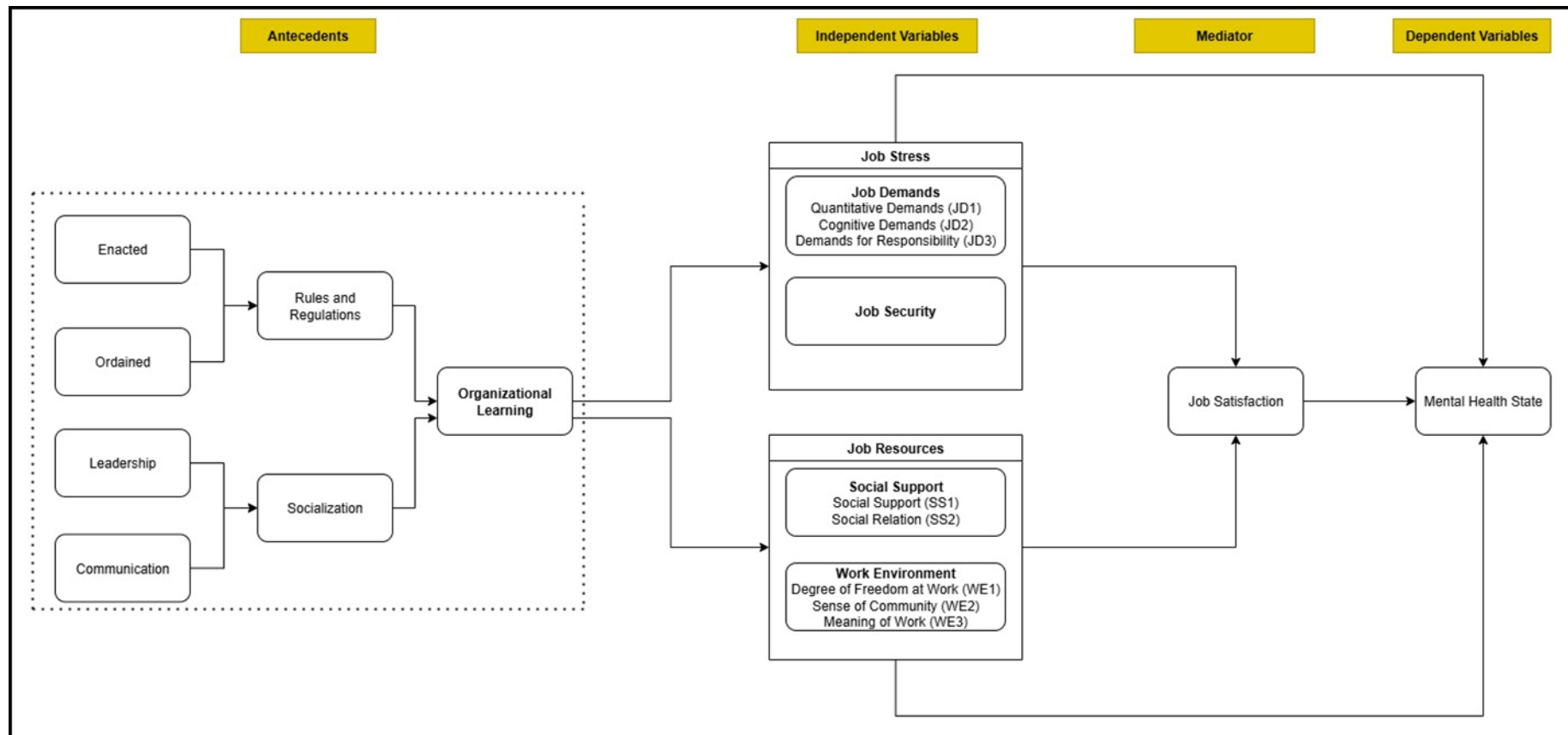


Figure 4. 5 Summary of findings from Qualitative Data and Quantitative Data

4.6 Chapter Summary

This chapter conducted an analysis of the data obtained from the study and thereafter reported the findings. There are two parts of data analysis involving quantitative analysis and qualitative analysis. The sequential procedure of quantitative analysis started with the input of data into SPSS 29, followed by data cleaning, and then, the analysis was conducted using PLS-SEM. The qualitative analysis was done using Atlas.ti software. A theme has been developed which is Organizational learning. The development of the theme is being used for triangulation purpose.

The triangulated findings from quantitative and qualitative data indicate that mental health support in Malaysia's offshore O&G industry is fragmented, inconsistently implemented, and largely reactive, with no formal comprehensive policies in place. Mental health is typically addressed indirectly through departmental guidelines or insurance coverage, with limited communication, accessibility, and integration into occupational safety strategies. Psychosocial factors, particularly the demanding offshore work environment and limited formal social support, have a substantial impact on employees' mental health, with informal peer relationships serving as a protective yet inconsistent resource.

The evidence confirms that job satisfaction mediates the relationship between psychosocial stressors and mental health, where recognition, transparent communication, and inclusive leadership can mitigate stress and enhance resilience, while low satisfaction intensifies psychological strain. In sum, the findings highlight a policy and practice gap and emphasise the need for offshore organisations to integrate structured, proactive mental health strategies into core operational and safety frameworks.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter presents and interprets the findings of the study in relation to its research questions and objectives. It begins with a synthesis of the key empirical results, integrating both quantitative and qualitative insights to provide a coherent understanding of the study outcomes. The discussion then elaborates on the theoretical implications, linking the findings to existing frameworks such as the Job Demands–Resources (JD-R) model and related psychosocial theories. Practical implications for organisational policy and workplace practices within the offshore O&G industry are also explored. The chapter concludes by addressing the study’s limitations and offering recommendations for future research to advance understanding in this field.

5.2 Recapitulation Of The Study

This study set out to examine the influence of psychosocial factors on employees’ mental health in the offshore O&G industry in Malaysia, with a particular focus on the mediating role of job satisfaction. Prompted by the growing prevalence of mental health concerns, especially since the onset of the COVID-19 pandemic, the study aimed to generate empirical evidence on how offshore working conditions interact with psychosocial dynamics to shape mental well-being. Five research objectives guided this investigation: (1) to examine the organizational mental health provisions implemented for offshore O&G employees and their influence on employees’ mental health state and job satisfaction; (2) to examine the relationship between psychosocial factors and mental health state of offshore O&G employees; (3) to determine the most significant psychosocial factors influencing the mental health state of offshore O&G employees; (4) to examine the mediating role of job satisfaction in the relationship between psychosocial factors and the mental health state of offshore O&G employees; and (5) to examine the impact of job satisfaction on the mental health state of offshore O&G employees.

To address these objectives, a mixed-methods approach was employed. The quantitative component involved 364 offshore employees at executive level and below, who completed a self-administered questionnaire. The data collection takes time in four months from the date of receiving the research ethical clearance from Universiti Teknologi Mara. Meanwhile, the qualitative phase consisted of in-depth interviews with 17 managerial-level informants from departments such as Safety, Health and Environment (SHE), Human Resources (HR), and Engineering and Operation (EO). Quantitative data were analysed using SPSS and SmartPLS, while qualitative data were thematically coded using Atlas.ti. This methodological integration allowed for a comprehensive exploration of both measurable patterns and contextual interpretations related to mental health and workplace experiences in offshore environments.

The findings show that although mental health is increasingly recognized as an organizational concern, a standardized and comprehensive mental health policy is not consistently implemented across the offshore oil and gas sector. In practice, many organizations rely primarily on the Occupational Safety and Health Act 1994, with implementation varying according to operational requirements.

The analysis further indicates that several psychosocial factors, particularly high job demands, job insecurity, and limited social support, are associated with poorer mental health outcomes among offshore employees. The results also demonstrate that job satisfaction partially mediates the relationship between psychosocial factors and employees' mental health. This suggests that higher levels of job satisfaction may reduce some of the negative psychological effects associated with demanding offshore working conditions. These findings are consistent with the Job Demands–Resources model, which proposes that job demands may increase psychological strain while job resources can help mitigate their negative effects. In this study, job satisfaction appears to function as a mechanism through which workplace conditions influence employees' mental health.

Overall, the study provides empirical evidence on how workplace conditions and job satisfaction interact to influence employees' mental health within the offshore O&G industry. The findings offer direction for strengthening workplace mental health practices in offshore operational settings.

5.3 Summary Of The Study's Findings

Overall, the findings show that the mental health of offshore O&G employees is influenced by both workplace conditions and their level of job satisfaction. Although mental health is recognized as important within the offshore sector, the way it is managed is not consistent across organizations. In many cases, companies rely on existing safety frameworks, such as the Occupational Safety and Health Act 1994, rather than having a specific and structured approach to mental health. As a result, how mental health is addressed depends largely on how each organization applies these guidelines in practice.

The findings also indicate that several work-related factors, particularly high job demands, job insecurity, and limited social support, are linked to poorer mental health. These conditions are closely tied to the nature of offshore work, which involves long hours, safety risks, and long periods away from family. When these pressures are not balanced with sufficient support, the impact on employees becomes more noticeable.

At the same time, job satisfaction plays an important role in shaping how employees deal with these conditions. Employees who are more satisfied with their job tend to cope better, even when the work is demanding. In contrast, those with lower satisfaction appear more affected by the same conditions. The findings also show that job satisfaction partly explains how workplace conditions influence mental health, meaning that it affects how employees respond to their work environment.

Hence, the findings suggest that improving mental health in offshore O&G settings is not only about reducing job demands, but also about how organizations support their employees on a daily basis. Without a more consistent approach, efforts to address mental health may remain uneven across organizations.

5.4 Discussion

This section discusses the direct relationships between job stress dimensions and employees' mental health, as well as between job resource dimensions and employees' mental health. It also examines the mediating role of job satisfaction in the relationship between job stressors, job resources, and mental health outcomes. The discussion integrates both statistical evidence and theoretical perspectives to explain how different

psychosocial factors contribute to variations in mental health among offshore O&G employees.

5.4.1 RO1: To Examine The Mental Health Provision Exercised In The Offshore O&G Industry Employees

The findings indicate that mental health provision within Malaysia's offshore O&G industry is present but varies across organisations. While all companies operate under the Occupational Safety and Health Act 1994, the absence of explicit provisions on mental health has resulted in differences in how support is implemented. As discussed in Chapter 2, OSHA 1994 primarily addresses physical safety, with limited attention to psychosocial risk management (Salleh et al., 2023; Nordin & Yahya, 2022). Consequently, organisations tend to interpret mental health responsibilities independently, leading to inconsistent practices across the industry.

A key pattern observed is that mental health provision is shaped by operational context. High-risk offshore environments, particularly drilling and extraction platforms, are more likely to implement structured interventions such as fatigue monitoring systems, formal awareness programmes, and regulated rest cycles. This reflects the higher exposure to physical danger and psychological strain in such settings. In contrast, lower-risk operations tend to rely on informal mechanisms such as peer interaction and supervisory support. This finding supports earlier literature which emphasises that offshore conditions, including isolation, extended work rotations, and hazardous environments, require context-specific mental health strategies (Fazli et al., 2023; Aris et al., 2022).

Organisational capacity further influences the level of provision. Larger and internationally affiliated organisations tend to adopt more comprehensive and structured mental health systems, often aligned with global standards. In comparison, smaller or local operators rely more heavily on informal or resource-limited approaches. The availability of organisational resources significantly affects the implementation of mental health programmes (Di Nota et al., 2021). As a result, employees across different organisations may experience varying levels of access to support.

Another important observation is the strong emphasis on awareness-driven initiatives. Many organisations conduct campaigns, safety briefings, and short-term programmes aimed at improving mental health awareness. While these initiatives

contribute to reducing stigma and encouraging open discussion, they do not consistently lead to sustained or structured support systems. This aligns with previous studies which indicate that awareness efforts, although beneficial, are insufficient without formal integration into organisational policies and procedures (Fleming et al., 2024; Kertesen, 2022).

At the same time, there are indications of gradual progress. Some organisations have begun incorporating mental health into their operational frameworks through internal guidelines, structured materials, and designated support mechanisms. This reflects a broader shift towards recognising mental health as part of occupational safety, consistent with international developments such as ISO 45003 and industry practices (Lee et al., 2024).

However, the absence of standardised industry-wide protocols remains a critical gap. Without clear and enforceable guidelines, mental health provision continues to depend on organisational discretion, resulting in uneven implementation across the sector. This reinforces the argument that mental health management in offshore industries remains fragmented in the absence of strong regulatory direction.

5.4.2 RO2: To Examine The Relationship Between Psychosocial Factors And Employees' Mental Health State In The Offshore O&G Industry

The findings show that psychosocial factors are associated with employees' mental health, although the relationships are generally weak. This is consistent with the Job Demands–Resources (JD-R) model which explains that employee well-being is influenced by the interaction of multiple job demands and job resources (Bakker & Demerouti, 2007).

The relatively weak strength of these relationships suggests that mental health outcomes in offshore environments are not driven by a single factor but by the combined effect of multiple workplace conditions. Employees are exposed to overlapping demands, including workload, environmental risks, and social dynamics, which interact to shape their psychological well-being. This supports earlier findings that psychosocial risks operate cumulatively rather than independently (Lim & Jamil, 2022).

Among the factors examined, work environment and social support demonstrate more consistent contributions to mental health. A supportive work environment helps reduce exposure to stressors, while social support provides emotional and practical

assistance that enables employees to cope with challenges. These findings align with the JD-R perspective that job resources play a protective role in maintaining employee well-being, particularly in high-risk and demanding work settings.

In contrast, job security shows a negative relationship with mental health, indicating that uncertainty regarding employment may contribute to psychological strain. However, the relatively weak strength of this relationship suggests that employees in offshore settings may have developed coping mechanisms or adapted to such uncertainties over time.

5.4.3 RO3: To Determine The Most Significant Psychosocial Factors That Affect The Mental Health State In The Offshore O&G Industry

The analysis identifies the work environment as the most significant factor influencing employees' mental health. Compared to other psychosocial variables, it demonstrates the strongest effect in the model, indicating that environmental and organisational conditions play a central role in shaping psychological well-being in offshore settings.

From a conceptual perspective, the work environment represents a core job resource within the Job Demands–Resources (JD-R) model. It encompasses not only physical safety conditions but also organisational support, clarity of procedures, and the overall sense of community at work. In offshore operations, where employees spend extended periods in confined and high-risk environments, these elements are continuously experienced rather than occasional. As a result, the work environment exerts a sustained influence on employees' psychological state.

The strength of the work environment can be explained through its dual function. First, it directly reduces exposure to stressors by providing safer, more organised, and predictable working conditions. Second, it enhances employees' coping capacity by fostering a sense of support, belonging, and stability. These two functions operate simultaneously, making the work environment both a protective factor and an enabling condition for resilience.

In contrast, other psychosocial factors demonstrate weaker effects. Job demands, although inherently high in offshore settings, may become normalised over time. Employees who are regularly exposed to heavy workloads and operational pressure may develop adaptive coping strategies, reducing the perceived impact of these

demands on mental health. Similarly, job security shows a weaker influence, possibly because employment uncertainty is already anticipated within the industry, limiting its additional psychological effect.

Social support, while positively associated with mental health, demonstrates a smaller effect compared to the work environment. This suggests that interpersonal relationships, although important, may not fully compensate for broader structural and environmental conditions. Employees may benefit from peer support, but if the overall work environment is inadequate, its positive impact remains limited.

Another explanation for the dominance of the work environment is its collective and structural nature. Unlike individual-level factors such as job satisfaction or interpersonal support, the work environment reflects organisational systems that affect all employees simultaneously. Improvements in the work environment therefore have a broader and more consistent impact across the workforce, strengthening its overall influence on mental health outcomes.

These findings highlight the importance of environmental and organisational conditions in determining psychological outcomes in high-risk industries (Carroll et al., 2022; Åhlin et al., 2023). In such contexts, the work environment serves as the foundation upon which other psychosocial factors operate.

Overall, the findings suggest that interventions aimed at improving mental health in offshore settings should prioritise the work environment. Enhancing safety conditions, strengthening organisational support systems, and fostering a positive workplace culture are likely to produce more substantial and sustained improvements in employee well-being compared to focusing on individual-level factors alone.

5.4.4 RO4: To Examine The Mediating Role Of Job Satisfaction In The Relationship Between Psychosocial Factors And Mental Health State In The Offshore O&G Industry Employees

The findings show that job satisfaction partially mediates the relationship between psychosocial factors and mental health. This indicates that workplace conditions influence mental health both directly and indirectly through employees' level of satisfaction. The result is consistent with the Job Demands–Resources (JD-R) model, which proposes that job resources contribute to well-being through both direct pathways and motivational processes (Bakker & Demerouti, 2007).

From a mechanism perspective, job satisfaction functions as a cognitive–emotional filter through which employees interpret their work environment. When employees report higher satisfaction, they are more likely to perceive job demands as manageable and meaningful, rather than as overwhelming stressors. This positive appraisal reduces the intensity of psychological strain and supports emotional stability. In offshore settings, where employees are exposed to prolonged isolation and demanding work conditions, such internal evaluation becomes particularly important in shaping mental health outcomes.

However, the mediation effect is only partial. This indicates that psychosocial factors, particularly elements such as work environment and job demands, continue to exert a direct influence on mental health regardless of employees' level of satisfaction. In other words, even when employees are satisfied with their jobs, adverse working conditions may still contribute to psychological strain. This finding suggests that job satisfaction cannot fully compensate for structural or environmental limitations.

This partial mediation can be explained by the nature of offshore work. Certain stressors, such as physical isolation, safety risks, and extended rotations, are inherent to the job and cannot be easily reinterpreted or mitigated through positive perception alone. As a result, while job satisfaction improves employees' ability to cope, it does not eliminate the direct effects of these stressors on mental health.

The findings also indicate that job satisfaction plays a supporting rather than dominant role within the broader psychosocial framework. It enhances resilience and helps buffer the impact of workplace challenges, but it operates alongside, rather than replacing, external job conditions. This aligns with earlier findings discussed in Chapter 2, where job satisfaction was identified as a complementary mechanism that strengthens the relationship between job resources and well-being, rather than acting as a standalone determinant (Monterrosa-Castro et al., 2023).

Overall, the results suggest that improving job satisfaction alone is insufficient to achieve optimal mental health outcomes. Organisations must address both the structural aspects of the work environment and the psychological experience of employees. A dual approach that combines improvements in job resources with strategies to enhance job satisfaction is therefore necessary to achieve more sustainable outcomes in offshore settings.

5.4.5 RO5: To Justify The Impact Of Job Satisfaction On The Mental Health State Of Offshore O&G Industry Employees

The findings confirm that job satisfaction has a direct and positive effect on employees' mental health. This indicates that employees who experience higher levels of satisfaction are more likely to report better psychological well-being, even within the demanding conditions of offshore work. This relationship is consistent with the Job Demands–Resources (JD-R) model, which positions job satisfaction as a key outcome of job resources and a driver of positive well-being (Bakker & Demerouti, 2007).

From a mechanism perspective, job satisfaction operates as an internal psychological resource that shapes how employees experience and respond to their work environment. Employees who are satisfied with their roles tend to develop more positive cognitive evaluations of their work, including a stronger sense of purpose, achievement, and value. These positive evaluations help stabilise emotional responses and reduce vulnerability to stress.

In offshore settings, where employees face prolonged isolation, strict routines, and limited external support, job satisfaction plays a particularly important role. It provides a form of psychological anchoring, allowing employees to maintain motivation and emotional balance despite challenging conditions. Employees who feel satisfied are more likely to remain engaged, demonstrate resilience, and sustain a positive outlook over extended work rotation.

The direct effect of job satisfaction on mental health can also be explained through its influence on emotional regulation. Higher satisfaction is associated with increased positive affect and reduced negative emotional responses. This helps employees manage stress more effectively and prevents the accumulation of psychological strain. In contrast, low job satisfaction may lead to disengagement, frustration, and negative perceptions of work, which can intensify mental health challenges.

However, the findings also indicate that job satisfaction does not operate independently of workplace conditions. While it contributes positively to mental health, its effect is supportive rather than dominant. External factors such as work environment, job demands, and organisational support continue to exert a direct influence. This suggests that job satisfaction enhances employees' capacity to cope, but does not replace the need for supportive work conditions.

These findings are consistent with earlier literature discussed in Chapter 2, which highlights the role of job satisfaction in promoting psychological well-being while emphasising that its effects are influenced by broader workplace conditions (Karadas & Duran, 2022). In this study, job satisfaction strengthens employees' resilience, but its effectiveness depends on the quality of the surrounding work environment.

Overall, the results suggest that improving job satisfaction is an important strategy for enhancing mental health, particularly in offshore settings. However, it should be implemented alongside efforts to improve organisational and environmental conditions. A combined approach that addresses both internal psychological resources and external workplace factors is necessary to achieve sustained improvements in employee well-being.

5.5 Research Implications

This study advances the theoretical development of organisational psychology and occupational health literature by extending the Job Demands–Resources (JD-R) model within the context of high-risk offshore oil and gas (O&G) operations. The findings demonstrate that mental health outcomes in such environments are not driven by a single psychosocial factor, but rather emerge from the interaction of multiple job demands and job resources, as reflected in the generally weak yet significant relationships identified in RO2. This supports and extends the JD-R model by showing that, in extreme work settings, psychosocial variables operate cumulatively rather than independently.

A key theoretical contribution lies in identifying the work environment as the most influential determinant of mental health (RO3). Unlike other psychosocial variables, the work environment functions as a continuous and collective condition that shapes employees' daily experiences, including safety, organisational structure, and sense of support. This highlights its dual role within the JD-R framework, where it not only reduces exposure to stressors but also enhances employees' capacity to cope, thereby reinforcing its position as a dominant job resource in offshore settings.

In addition, this study provides a more refined understanding of job satisfaction as both a direct predictor (RO5) and a partial mediating mechanism (RO4). The findings show that job satisfaction operates as an internal psychological resource that influences

how employees interpret and respond to workplace conditions. Through this mechanism, employees with higher satisfaction are more likely to perceive job demands as manageable and maintain emotional stability. However, the partial mediation effect indicates that job satisfaction does not fully buffer the impact of structural stressors, such as isolation, hazardous conditions, and extended work rotations. This finding is theoretically significant, as it demonstrates that in high-risk environments, internal psychological resources alone are insufficient without supportive external conditions.

Furthermore, the study contributes to theoretical refinement by highlighting the simultaneous operation of direct and indirect pathways in shaping mental health outcomes. While traditional applications of the JD-R model often emphasise buffering effects, this study shows that structural workplace conditions continue to exert a direct influence regardless of employees' psychological state. This suggests that the JD-R model requires contextual sensitivity when applied to extreme work environments, where certain job demands cannot be easily mitigated through individual-level resources. Overall, the study enriches existing theory by emphasising the interdependence between environmental structures and psychological processes in determining mental health outcomes.

From a practical perspective, this study provides targeted and evidence-based insights for offshore O&G organisations, particularly in strengthening mental health management strategies. The findings clearly indicate that the work environment should be the primary focus of intervention, as it has the strongest and most consistent influence on employees' mental health (RO3). Improving the work environment involves not only enhancing physical safety conditions but also strengthening organisational support systems, ensuring clarity in operational procedures, and fostering a stable and structured work setting. Given the continuous exposure of offshore employees to confined and high-risk environments, improvements at this level are likely to produce broad and sustained benefits across the workforce.

At the same time, the findings highlight the importance of job satisfaction as a supporting mechanism that enhances employees' ability to cope with workplace challenges (RO4 and RO5). Job satisfaction contributes to mental health by shaping employees' perceptions, emotional responses, and overall engagement with their work. Employees who are satisfied are more resilient, better able to regulate stress, and more likely to maintain positive psychological functioning. However, the study also shows that job satisfaction alone is insufficient to offset adverse working conditions,

reinforcing the need for organisations to address both structural and psychological dimensions simultaneously.

The study further reveals that current mental health provision within the offshore O&G industry remains uneven and largely organisation-dependent (RO1). Many organisations rely on awareness-based initiatives such as campaigns and briefings, which, while beneficial in reducing stigma, do not consistently translate into structured and sustained support systems. This indicates a gap between policy intention and actual implementation, where mental health is recognised but not fully institutionalised within organisational practices.

In addition, the findings highlight the need for stronger alignment between organisational practices and national regulatory frameworks, particularly under the Occupational Safety and Health Act 1994. The absence of explicit mental health provisions within the current regulatory structure contributes to inconsistent implementation across organisations. While initiatives such as ICOP 2023 and SOCSO programmes provide support, their impact remains limited without systematic enforcement and integration into operational protocols.

Overall, this study underscores the importance of adopting a dual and integrated approach to mental health management in offshore settings. Organisations must simultaneously improve structural workplace conditions and strengthen internal psychological resources through job satisfaction. This approach should be supported by leadership commitment, formalised policies, continuous monitoring, and integration within existing health and safety systems. By doing so, organisations can move from reactive and fragmented practices towards more consistent, proactive, and sustainable mental health management, ultimately enhancing workforce resilience and operational performance.

5.6 Study Limitations

This study provides meaningful insights into the relationship between psychosocial factors and mental health among offshore oil and gas (O&G) employees in Malaysia. Nonetheless, several limitations should be acknowledged to properly interpret the findings.

To begin with, this study adopts a cross-sectional research design, which restricts the ability to establish causal relationships between psychosocial factors and

mental health outcomes. While significant associations are identified, the direction of influence cannot be firmly determined. For instance, although job satisfaction is found to influence mental health, it is equally plausible that individuals with better mental health may report higher levels of job satisfaction. In addition, offshore work is characterised by rotational cycles and prolonged exposure to demanding environments, which may lead to fluctuations in psychological well-being over time. The cross-sectional approach captures only a single snapshot of this evolving process.

Building on this, although the study employs a mixed-method approach, the integration of quantitative and qualitative findings remains largely interpretive. While both strands of data complement each other, the absence of a structured integration technique limits the extent to which both datasets are systematically connected. As a result, the explanatory depth of the combined findings may not be fully maximised.

Another limitation relates to the scope of variables included in the study. The research focuses on job demands, job security, social support, and work environment, guided by the Job Demands–Resources (JD-R) model. Although these variables capture key dimensions of offshore work, other relevant factors such as leadership practices, organisational culture, individual coping strategies, and personality traits were not examined. This constrains the model’s ability to fully explain the complexity of mental health outcomes.

In a similar vein, the study is conducted within the Malaysian offshore O&G industry, which may limit the generalisability of the findings. Variations in regulatory frameworks, organisational practices, and workforce structures across different countries may lead to different patterns of mental health outcomes, thereby restricting the broader applicability of the results.

Moreover, the reliance on self-reported data introduces the possibility of response bias, including social desirability and common method variance. In high-risk and male-dominated environments such as offshore platforms, employees may be less inclined to disclose psychological distress due to stigma or perceived professional expectations. Although measures such as anonymity were implemented, the influence of such bias cannot be completely ruled out.

Finally, the study does not explicitly differentiate between specific offshore roles and operational contexts. Given that different job functions may involve varying levels of risk and psychosocial exposure, the absence of a more detailed comparison may limit the precision of the findings across diverse operational settings.

5.7 Recommendation for Future Research

In light of the limitations identified, several directions for future research are proposed to extend and strengthen the current study. Future studies may consider using longitudinal designs to examine how employees' mental health changes over time, particularly across multiple offshore rotations. This would provide a clearer picture of how prolonged exposure to psychosocial factors affects mental health.

Future research could also improve the integration of mixed-method findings by using more structured approaches, such as joint displays or meta-inference. In addition, expanding the model to include factors such as leadership practices, organisational culture, and individual coping strategies may provide a more complete understanding of mental health in offshore settings. Comparative studies across countries or industries may also help test whether the findings are consistent in different contexts. Finally, using multiple data sources, such as supervisor input or organisational records, could help reduce reliance on self-reported data and improve reliability.

From a practical and policy perspective, future research could look further into how psychosocial risk management can be strengthened in offshore O&G organisations, especially through closer alignment with the Occupational Safety and Health Act 1994 and the PRisMA Guidelines 2024. Although OSHA 1994 sets out the general responsibility of employers to protect workers' safety, health, and welfare, future studies may examine how this responsibility is actually translated into workplace practices that address psychosocial risks.

Future research may also explore the extent to which offshore O&G companies have adopted the PRisMA Guidelines 2024 in managing work-related stress, mental health awareness, early identification of psychosocial risks, reporting procedures, and employee support systems. This is important because offshore safety practices have traditionally focused on physical hazards, while psychosocial risks may receive less direct attention. Further studies in this area can help provide stronger evidence for developing sector-specific guidance on psychosocial risk management in offshore O&G operations.

Since the work environment was found to be the most influential factor, organisations should focus on improving leadership practices and communication as one of the variables. Managers should be encouraged to communicate openly, listen to employees' concerns, and respond in a way that builds trust. Simple actions such as

regular check-ins and clear communication channels can make a difference, especially in offshore settings where employees may feel isolated.

The findings also show that social support remains an important area for future research in offshore work settings. Future researchers may look further into how peer support, mentoring, supervisor support, and support from significant others affect employees' stress and well-being. Since offshore employees spend long periods away from home, future studies may also examine how support from spouses, partners, family members, and close friends helps them manage isolation, work pressure, and emotional strain during offshore rotations. This can give a clearer understanding of which forms of social support are most helpful for protecting mental health among offshore employees.

Future research may further examine how mental health support can be integrated into existing safety practices in offshore O&G organisations, rather than being treated as a separate workplace concern. In particular, future studies could explore the effectiveness of counselling services, mental health awareness initiatives, and early stress-identification mechanisms in supporting employees' psychological well-being. These areas are relevant to the PRisMA Guidelines 2024, which emphasise the management of psychosocial risks through prevention, support, and follow-up actions. Further research in this area would provide clearer evidence on how mental health support can be embedded within occupational safety practices, especially in high-risk work environments such as offshore O&G operations.

5.8 Conclusion

This study examined how psychosocial factors relate to mental health among offshore O&G employees in Malaysia, with job satisfaction considered as a mediating factor. Drawing on the Job Demands–Resources (JD-R) model, the study provides empirical evidence on how workplace conditions shape employees' psychological well-being in a high-risk and isolated work setting.

The findings suggest that mental health in offshore environments is shaped by several psychosocial factors working together, rather than being driven by a single factor. Although the relationships identified are generally modest, they remain meaningful and reflect the reality of offshore work, where multiple conditions are experienced at the same time. Among the factors examined, the work environment

shows the strongest influence, indicating that organisational structure, safety conditions, and the overall working context play a central role in shaping employees' mental health.

The results also show that job satisfaction has a direct relationship with mental health and, at the same time, acts as a partial mediator between workplace factors and psychological outcomes. This suggests that employees who are more satisfied with their jobs tend to manage workplace pressures more effectively. However, the partial nature of this effect indicates that job satisfaction on its own cannot fully reduce the impact of demanding work conditions. Structural aspects of the workplace continue to play an important role.

Another point that emerges from this study is the variation in how mental health support is implemented across organisations. While some companies have introduced awareness programmes and support initiatives, these are not always embedded within formal and consistent systems. In many cases, the approach remains dependent on organisational priorities rather than guided by a standard framework.

Overall, the findings point to the need for a balanced approach. Improving the work environment, strengthening organisational systems, and supporting employees' job satisfaction should be addressed together rather than in isolation. Focusing on only one aspect is unlikely to produce lasting improvements in mental health outcomes.

In closing, this study adds to current understanding by offering a context-specific view of mental health in offshore O&G settings. It shows that both workplace conditions and individual experiences need to be considered when addressing psychological well-being. The findings also provide a practical basis for organisations and policymakers to strengthen existing approaches. Mental health should be treated as part of everyday operational practice, as it directly relates to workforce stability and overall performance in high-risk environments.

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APPENDICES

APPENDIX 1

Details Included In The Survey

Variables	List of Categories	References
Section A		
Age	20 and below 21-30 31-40 41-50 51-60	Iqbal, A. (2010). An empirical assessment of demographic factors, organizational ranks, and organizational commitment. <i>International Journal of Business and Management</i> , 5(3), 16.
Gender Identity	Male Female	
Educational Level	SRP/PMR SPM Diploma Bachelor’s degree Master’s Degree PhD	
Length of tenure	< 1 year 1-5 years > 5 years	
Location of Workplace	Onshore Offshore	
Work Schedule	Regular Schedule Occasional Assignments	
Work Shift	Day Shift only Night Shift only Rotating shift (Day and Night) Not Applicable	
Work Location	Kelantan Terengganu Pahang Sabah Sarawak Others	
Section B		
Mental health state (15 items)	Dependent variable 7-point scale	Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. <i>Scandinavian journal of public health</i> , 38(3_suppl), 8-24.
Section C		
Work Environment (8 items)	Independent variable 5-point scale	Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B.

		(2010). The second version of the Copenhagen Psychosocial Questionnaire. <i>Scandinavian journal of public health</i> , 38(3 suppl), 8-24.
Section D Social Support (13 items)	Independent variable 7-point scale	Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. <i>Scandinavian journal of public health</i> , 38(3 suppl), 8-24
Section E Job Demands (17 items)	Independent variable 5-point scale	Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. <i>Scandinavian journal of public health</i> , 38(3 suppl), 8-24
Section F Job Security (6 items)	Independent variable 7-point scale	Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. <i>Scandinavian journal of public health</i> , 38(3 suppl), 8-24
Section G Job satisfaction (12 items)	Independent variable 5-point scale	Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. (2010). The second version of the Copenhagen Psychosocial Questionnaire. <i>Scandinavian journal of public health</i> , 38(3 suppl), 8-24

APPENDIX 2

Demographic Profile

1. Gender / *Jantina*
☐ Male/ *Lelaki* ☐ Female/ *Perempuan*

2. Educational Level / *Tahap Pendidikan*

☐ SRP/PMR ☐ SPM ☐ Diploma/ <i>Diploma</i>	☐ bachelor's degree/ <i>Sarjana Muda</i> ☐ Master's Degree/ <i>Sarjana</i> ☐ PhD/ <i>PhD</i>
--	---

3. Age/ *Umur*

☐ 18-28	☐ 29-39	☐	☐
☐ 40-50	☐ 51-61	☐	☐

4. Length of Services in offshore/ *Tempoh Perkhidmatan di Offshore*

☐ Less than 1 year/ kurang dari 1 tahun	☐ 6 years – 10 years/ 6tahun - 10tahun
☐ 1 year – 5 years/ 1tahun – 5 tahun	☐ More than 10 years/ Lebih dari 10 tahun

5. Location of Workplace / *Tempat bekerja*
☐ Offshore/ Luar persisir ☐ Onshore / darat

6. Work Shift

☐ Day Shift Only/ <i>Shif siang sahaja</i>	☐ Night Shift Only/ <i>Shif malam sahaja</i>
☐ Rotating Shift (Day and Night Shift) / <i>Penggiliran Shift (Siang dan Malam)</i>	☐ Not Applicable/ <i>Tidak berkaitan</i>

APPENDIX 3

Item Constituting To Mental Health State

Mental Health State	
1	I am an extremely nervous person
2	I felt so down in the dumps that nothing could cheer me up
3	I felt so calm and peaceful
4	I am a happy person
5	I felt downhearted and blue

Adapted from COPSQ Third Edition (2003)

APPENDIX 4

Item Constituting To Job Demands

Job Demands	
1	I have workload unevenly distributed so it piles up
2	I can take it easy and still do my work
3	I have to do overtime
4	I have too little to do at work
5	My work demand is good at producing innovative ideas
6	I have to make decisions of significant importance at my workplace
7	I have to deal with complex problems at my workplace
8	My work requires a broad knowledge
9	My work affects the well-being of others
1	My work plan will cause financial losses if I make mistakes in my work

Adapted from COPSOQ Third Edition (2003)

APPENDIX 5

Item Constituting To Job Security

Job Security	
1	I am worried about becoming unemployed
2	I am worried that modern technology is making me redundant
3	I am worried about being transferred to another job against my will
4	I am worried about giving up my job for health reasons
5	I am worried about it being difficult for me to find another job if I became unemployed

APPENDIX 6

Item Constituting To Social Support

Social Support	
1	I often get help and support from my colleagues
2	My colleagues are willing to listen to my work-related problems
3	I often get help and support from my immediate superior
4	My immediate superior is often willing to listen to my work-related problems.
6	I always being isolated from my colleagues
7	I can talk with my colleagues while working
8	I am part of my group in my work
9	I always received good cooperation from my colleagues

APPENDIX 7

Item Constituting To Work Environment

Work Environment	
1	I can decide when to take a break
2	Employees and management get along well in the organization
3	My organization creates a fun working environment for employees
4	The organization offers a work-life balance environment for the employees
5	My organization creates a comfortable working environment
6	I feel like I am part of the team – I share its mission, values, effort, and goal
7	I find it easy to build a relaxed atmosphere in my working environment
8	The working environment provided can motivate me to work better

APPENDIX 8

Item Constituting To Job Satisfaction

Job Satisfaction	
1	I am pleased with my physical working conditions
2	I am pleased with the way my department is running
3	I am pleased with the people I am working with
4	I am pleased with my work prospects
5	I am pleased with the way my abilities are used
6	I am pleased with the interest and skills involved in my job
7	Everything is taken into consideration in my job
8	I am pleased with my usual take-home pay

APPENDIX 9

Research Ethics Approval Letter

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MARA

Pejabat
Timbalan Naib Canselor
(Pencayadiklanan dan Inovasi)

Reference : 600-TNCPI (5/1/6)
Our reference : REC/05/2023 (PG/MR/168)
Date : 22 May 2023

Dr Nur Zafifa binti Kamarunzaman
(Nur Dalilah binti Mohd Rani – 2021520049)
Faculty of Administrative Science & Policy Studies
UiTM Negeri Sembilan Branch
Seremban Campus, Persiaran Seremban Tiga/1
Seremban 3, 70300 Seremban
NEGERI SEMBILAN

Dear Dr Nur Zafifa,

APPROVAL LETTER - UiTM RESEARCH ETHICS COMMITTEE

Thank you for submitting your research proposal to the Research Ethics Committee (REC). After considering your application, the Committee approved your proposal titled "Investigation of the Mediating Role of Job Satisfaction in the Effects of Job Demands and Job Resources on Mental Health State among Offshore Oil and Gas Employees" in Kelantan, Terengganu, Sabah and Sarawak.

Details of the approval are as follows:

Ref. number:	REC/05/2023 (PG/MR/168)
Approval Period:	22 May 2023 until 31 December 2023
Authorised personnel:	1. Dr Nur Zafifa binti Kamarunzaman 2. Nur Dalilah binti Mohd Rani

The UiTM Research Ethics Committee operates in accordance to the ICH Good Clinical Practice Guidelines, Malaysian Good Clinical Practice Guidelines and the Declaration of Helsinki. The approval of this project is conditional upon your continuing compliance with these guidelines and declaration.

We draw to your attention the requirement that a report on this research, must be submitted every 12 months from the date of the approval or on the completion of the project, whichever occurs first. Failure to submit reports will result in withdrawal of consent for the project to proceed. Amendments, if any, to the study documents are to be submitted to the REC for approval.

If you require further information, please contact the REC Secretariat at 03-55448069/03-55442794 or email at recsecretariat@uitm.edu.my.

Yours sincerely,

EMERITUS PROFESSOR DATO' DR RAYMOND AZMAN ALI
Chairman
UiTM Research Ethics Committee

c.c.: Dean, Faculty of Administrative Science & Policy Studies, UiTM

Universiti Teknologi MARA
Arau, Bangunan Wawasan
40450 Shah Alam, Selangor, MALAYSIA
Tel: (+603) 5544 2034/2255
Faks: (+603) 5544 2070



APPENDIX 10

Translation Of Questionnaire By Experts

26 November 2024

Tuan Sarifah Aini Binti Syed Ahmad
Akademi Pengajian Bahasa
Universiti Teknologi MARA (UiTM)
Cawangan Negeri Sembilan
Kampus Seremban
Persiaran Seremban Tiga/1, Seremban 3
70300 Seremban,
Negeri Sembilan

Nur Dalilah binti Mohd Rani
Student ID: 2021520049
Faculty of Administrative Science and Policy Study
Universiti Teknologi MARA (UiTM)
40450 Shah Alam
Selangor

TRANSLATION OF DOCUMENT

I am writing to formally approve the translation of the document has been conducted in accordance with the formal language requirements necessary for our research purposes. I have ensured that the translation maintains the integrity and accuracy of the original content. The translation also has adhered to the highest standards of formal language.

With my experience in teaching English as Second Language in UiTM for 27 years, supervising undergraduate and postgraduate students ,and conducting various research, I believe that I have used my expertise and experience to translate the document according to your need.

Please feel free to contact me if you have any questions or require further information.

Thank you.

Sincerely,



Tuan Sarifah Aini Binti Syed Ahmad (PhD)

APPENDIX 11

Survey Instrument Validated By Experts

SURVEY INSTRUMENT VALIDATION RATING SCALE

Instruction: Please indicate your degree of agreement or disagreement on the statements provided below by encircling the number which corresponds to your best to your judgement.

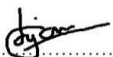
1 – Strongly Disagree 2 – Disagree 3 – Moderately Agree 4 – Agree 5 – Strongly Agree

No	Criteria	1	2	3	4	5
1	The items in the instrument are relevant to answer the objectives of the study	1	2	3	4	5
2	The items in the instrument can provide a comprehensive understanding of the constructs being measured	1	2	3	4	5
3	The instruments have an appropriate sample of items for the construct being measured	1	2	3	4	5
4	The items and their alternatives are neither too narrow nor limited in its content	1	2	3	4	5
5	The items in the instrument are stated clearly	1	2	3	4	5
6	The items on the instrument can elicit responses which are stable, definite, consistent and not conflicting.	1	2	3	4	5
7	The terms adapted in the scale are culturally appropriate	1	2	3	4	5
8	The layout or format of the instrument is technically sound	1	2	3	4	5
9	The responses on the scale show a reasonable range of variation	1	2	3	4	5
10	The instrument is of an appropriate length, neither too short nor too long, to allow participants to answer it within a specified time	1	2	3	4	5
11	The instrument is interesting such that participants will be induced to respond to it and accomplish it fully	1	2	3	4	5
12	The instrument as a whole could answer the basic purpose for which it is designed	1	2	3	4	5
13	The instrument is culturally acceptable when administered in the local setting	1	2	3	4	5

Comments and Suggestions:

Overall, it looks good and able to understand by the respondents. Please address the suggestion as given to

strengthen the questionnaire. Please also re-look about the formatting (such as italic etc)


 Dr Nurul Liyana Mohd Kamil
 Senior Lecturer
 Faculty of Business and Economics,
 Universiti Malaya

Signature and Name

APPENDIX 12

Survey Instrument Validation By Experts

SURVEY INSTRUMENT VALIDATION RATING SCALE

Instruction: Please indicate your degree of agreement or disagreement on the statements provided below by encircling the number which corresponds to your best to your judgement.

1 – Strongly Disagree 2 – Disagree 3 – Moderately Agree 4 – Agree 5 – Strongly Agree

No	Criteria	1	2	3	4	5
1	The items in the instrument are relevant to answer the objectives of the study	1	2	3	4	5
2	The items in the instrument can provide a comprehensive understanding of the constructs being measured	1	2	3	4	5
3	The instruments have an appropriate sample of items for the construct being measured	1	2	3	4	5
4	The items and their alternatives are neither too narrow nor limited in its content	1	2	3	4	5
5	The items in the instrument are stated clearly	1	2	3	4	5
6	The items on the instrument can elicit responses which are stable, definite, consistent and not conflicting	1	2	3	4	5
7	The terms adapted in the scale are culturally appropriate	1	2	3	4	5
8	The layout or format of the instrument is technically sound	1	2	3	4	5
9	The responses on the scale show a reasonable range of variation	1	2	3	4	5
10	The instrument is of an appropriate length, neither too short nor too long, to allow participants to answer it within a specified time	1	2	3	4	5
11	The instrument is interesting such that participants will be induced to respond to it and accomplish it fully	1	2	3	4	5
12	The instrument as a whole could answer the basic purpose for which it is designed	1	2	3	4	5
13	The instrument is culturally acceptable when administered in the local setting	1	2	3	4	5

Comments and Suggestions:

The content of face validity are acceptable.
Can proceed for pilot test.



Signature and Name

Fatmahan Zahid Halim (Phd)

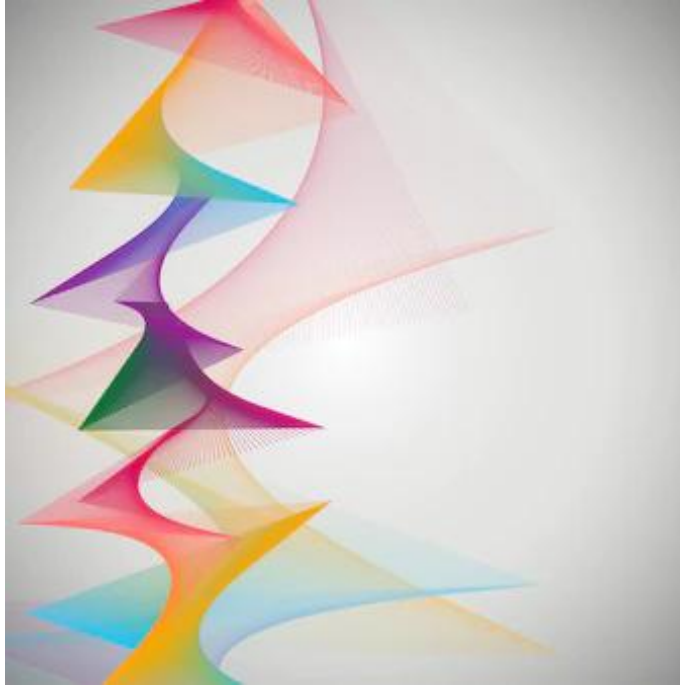
APPENDIX 13

Rephrasing Item

Part	Items
Part A (Mental Health State)	1. It appears that I am more susceptible/prone to getting sick than others. 2. I expect my health to get worse 3. I am an extremely nervous person 4. I felt so down in the dumps that nothing could cheer me up 5. I felt downhearted and blue 6. I feel tired
Part B (Job Demands)	1. I have workload unevenly distributed. 2. I could injure other people if I make mistakes at work
Part C (Job Security)	1. I am worried about becoming unemployed 2. I am worried that modern technology is making me redundant 3. I am worried about being transferred to another job against my will 4. I am worried about it being difficult for me to find another job if I became unemployed 5. I am worried about giving up my job for health reasons
Part D (Social Support)	1. I always being isolated from my colleagues
Part F (Job Satisfaction)	1. I have found it difficult to be happy 2. I have not had the time to relax or enjoy myself 3. I have felt harassed 4. I have lacked initiatives

APPENDIX 14

Quantitative Protocol



Title of Research	Investigation of The Mediating Role of Job Satisfaction in The Effects of Job Demands and Job Resources on Mental Health State among Offshore Oil and Gas Employees
Research Objective	1. To identify the current state of mental health among O&G employees 2. To assess the mental health provision exercised in the O&G industry. 3. To assess the relationship between psychosocial factors and employees' mental health state in the O&G industry. 4. To determine the most significant psychosocial factors that affect the mental health state in the O&G industry. 5. To ascertain the mediating effect of job satisfaction towards the relationship between psychosocial factors and mental health state in O&G industry
Research Methodology	This study will used quantitative method, where data will be collected cross-sectionally among the respondents via a self-administered survey. For data analysis and hypothesis testing, data will be analyzed using the Statistical Package for Social Science (SPSS) software for Windows and partial least square analysis using SmartPLS.
Target Group	412 Offshore Employees (Kelantan, Terengganu, Sabah, and Sarawak)
Period of Study	April 2021 to December 2023
Period of Data Collection	May 2023 to September 2023
Group Member	Nur Dalilah Mohd Rani
Institutional	Faculty of Administrative Science and Policy Studies; Universiti Teknologi MARA (UiTM), Shah Alam Campus
Contact Method	Mobile Phone: 013-6879307 (Nur Dalilah) Email: 2021520049@student.uitm.edu.my or uitmpsychosocialstudies@gmail.com
Possible Benefits	Participation in this research will not incur any cost to you. Please note that no compensation will be provided for your participation in the study.
Confidentiality	The University's Research Ethical Committee has granted ethical clearance for this study. Rest assured that the investigators will maintain the confidentiality of your information, which will not be disclosed to the public unless it is required by law.

Dear respondents,

I am Nur Dalilah Mohd Rani, a Doctorate of Degree (PhD) student at Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA (UiTM), Shah Alam Campus. I am conducting research titled "Investigation of The Mediating Role of Job Satisfaction in The Effects of Job Demands and Job Resources on Mental Health State among Offshore Oil and Gas Employees". I am now inviting you to participate in this study.

The data will be collected using an online survey, which takes around 10 minutes of your time. All data collected is stipulated under the UiTM Research Ethical Committee (REC) Guidelines. The data collected will be deemed private and confidential and used for academic purposes only.

Please do not hesitate to contact me at 0136879307 or email 2021520049@student.uitm.edu.my @ uitmpsychosocialstudies@gmail.com if you need any more information.

Kepada responden,

Nama saya ialah Nur Dalilah Mohd Rani, calon Doktor Falsafah di Fakulti Sains Pentadbiran dan Pengajian Polisi, Universiti Teknologi MARA (UiTM), Kampus Shah Alam. Saya sedang menjalankan kajian bertajuk "Investigation of The Mediating Role of Job Satisfaction in The Effects of Job Demands and Job Resources on Mental Health State among Offshore Oil and Gas Employees". Saya dengan ini menjemput anda menyertai kajian ini.

Data akan dikumpul menggunakan tinjauan dalam talian dan akan mengambil masa kira-kira 10 minit dari masa anda. Semua data yang dikumpul adalah tertakluk di bawah Garis Panduan Jawatankuasa Etika Penyelidikan UiTM. Data yang dikumpulkan dianggap sebagai peribadi dan sulit, dan akan digunakan untuk tujuan akademik sahaja.

Jika anda memerlukan sebarang maklumat lanjut, sila hubungi saya di talian 0136879307 atau e-mel saya di 2021520049@student.uitm.edu.my atau uitmpsychosocialstudies@gmail.com. Terima kasih atas masa dan pertimbangan anda dalam perkara ini.

Yours sincerely/ Yang benar,



*Nur Dalilah Mohd Rani
Calon Doktor Falsafah (PhD)
Fakulti Sains Pentadbiran & Pengajian Polisi
Kampus Shah Alam
Universiti Teknologi MARA*

Part A: Profile of Respondents
Bahagian A: Maklumat Diri

Instruction: Please tick (✓) in the box provided. CHOOSE ONLY ONE OPTION
Arahan: Sila tandakan (✓) di dalam kotak yang disediakan. PILIH HANYA SATU PILIHAN

1. Gender / *Jantina*

☐

Male/ *Lelaki*

☐

Female/ *Perempuan*

2. Educational Level / *Tahap Pendidikan*

☐

SRP/PMR

☐

bachelor's degree/ *Sarjana Muda*

☐

SPM

☐

Master's Degree/ *Sarjana*

☐

Diploma/ *Diploma*

☐

PhD/ *PhD*

3. Age/ *Umur*

☐

18-28

☐

29-39

☐

40-50

☐

51-61

4. Length of Services in offshore/ *Tempoh Perkhidmatan di Offshore*

☐

Less than 1 year/
kurang dari 1 tahun

☐

6 years – 10 years/ 6tahun 10tahun

☐

1 year – 5 years/
1 tahun – 5 tahun

☐

More than 10 years/ Lebih dari 10
tahun

5. Location of Workplace / *Tempat bekerja*

☐

Offshore/ Luar persisir

☐

Onshore / darat

1. Work Shifts / *Shif Kerja*

☐

Day Shifts Only/ *Shif siang sahaja*

☐

Night Shifts Only/ *Shif malam sahaja*

☐

Rotating Shifts (Day and Night Shifts) /
Penggiliran Shit (Siang dan Malam)

☐

Not Applicable/ *Tidak*

2. Work Location/ Lokasi Kerja

☐

Kelantan

☐

Selangor

☐

Terengganu

☐

Sarawak

☐

Kuala Lumpur

☐

Sabah

PART B: LIKERT SCALES QUESTIONS

SECTION A: MENTAL HEALTH STATE

Seksyen A: Keadaan Kesihatan Mental

The following statement are about mental health state. Please indicate the degree to which the following statements reflect your mental health state by selecting the appropriate rating on the scale provided for each question.

Pernyataan berikut adalah mengenai keadaan kesihatan mental. Sila nyatakan sejauh mana pernyataan berikut menggambarkan keadaan kesihatan mental anda dengan memilih penilaian yang sesuai pada skala yang disediakan untuk setiap soalan.

Strongly Disagree	Disagree	More or Less Disagree	Neutral	More or Less Agree	Agree	Strongly agree
<i>Sangat tidak bersetuju</i>	<i>Tidak bersetuju</i>	<i>Sedikit sebanyak tidak setuju</i>	<i>Neutral</i>	<i>Sedikit sebanyak setuju</i>	<i>Bersetuju</i>	<i>Sangat bersetuju</i>
1	2	3	4	5	6	7

No	Items Butiran	Scale Skala						
A1	I am an extremely nervous person <i>Saya seorang yang sangat gementar</i>	1	2	3	4	5	6	7
A2	I felt so down in the dumps that nothing could cheer me up <i>Saya berasa sangat sedih sehingga tiada apa yang dapat mengembirakan saya</i>	1	2	3	4	5	6	7
A3	I felt so calm and peaceful <i>Saya berasa begitu tenang dan damai</i>	1	2	3	4	5	6	7
A4	I am a happy person <i>Saya seorang yang gembira</i>	1	2	3	4	5	6	7
A5	I felt downhearted and blue <i>Saya berasa tawar hati dan sedih</i>	1	2	3	4	5	6	7

SECTION B: JOB DEMANDS

Seksyen B: Tuntutan Pekerjaan

The following statement are about job demands. Please circle the extent to which statement below according to the scale for each question.

Pernyataan berikut adalah mengenai tuntutan pekerjaan. Sila bulatkan kenyataan di bawah mengikut skala untuk setiap soalan.

Strongly Disagree <i>Sangat tidak setuju</i>	Disagree <i>Tidak setuju</i>	Neutral <i>Neutral</i>	Agree <i>Setuju</i>	Strongly Agree <i>Sangat setuju</i>
1	2	3	4	5

No	Items <i>Butiran</i>	Scale <i>Skala</i>				
B1	I have workload unevenly distributed, so it piles up <i>Saya mempunyai beban kerja yang tidak sekata.</i>	1	2	3	4	5
B2	I can take it easy and still do my work. <i>Saya boleh bertenang dan masih melakukan kerja saya</i>	1	2	3	4	5
B3	I have to do overtime <i>Saya perlu melakukan kerja lebih masa</i>	1	2	3	4	5
B4	I have too little things to do at work <i>Saya mempunyai terlalu sedikit perkara untuk dilakukan di tempat kerja</i>	1	2	3	4	5
B5	My work demand is good at producing innovative ideas <i>Permintaan kerja saya menghasilkan idea yang inovatif</i>	1	2	3	4	5
B6	I have to make importance decisions at my workplace <i>Saya perlu membuat keputusan yang penting di tempat kerja saya</i>	1	2	3	4	5
B7	I have to deal with difficult problems at my workplace <i>Saya perlu menghadapi masalah sukar di tempat kerja saya</i>	1	2	3	4	5
B8	My work requires a wide knowledge	1	2	3	4	5

	<i>Kerja saya memerlukan pengetahuan yang luas</i>					
B9	My work affects the well-being of others <i>Kerja saya menjejaskan kesejahteraan orang lain</i>	1	2	3	4	5
B10	It will cause financial losses if I make mistakes in my work <i>Perancangan kerja saya akan menyebabkan kerugian kewangan jika saya melakukan kesilapan dalam kerja saya</i>	1	2	3	4	5

SECTION C: JOB SECURITY

Seksyen C: Keselamatan Kerja

The following statement are about job security. Please circle the extent to which statement below according to the scale for each question.

Pernyataan berikut adalah mengenai keselamatan kerja. Sila bulatkan kenyataan di bawah mengikut skala untuk setiap soalan.

Strongly Disagree	Disagree	More or Less Disagree	Neutral	More or Less Agree	Agree	Strongly agree
<i>Sangat tidak bersetuju</i>	<i>Tidak bersetuju</i>	<i>Sedikit sebanyak tidak setuju</i>	<i>Neutral</i>	<i>Sedikit sebanyak setuju</i>	<i>Bersetuju</i>	<i>Sangat bersetuju</i>
1	2	3	4	5	6	7

No	Items Butiran	Scale Skala						
C1	I am worried about becoming unemployed <i>Saya bimbang menjadi penganggur</i>	1	2	3	4	5	6	7
C2	I am worried that modern technology is making me redundant <i>Saya bimbang teknologi moden menjadikan saya kurang diperlukan</i>	1	2	3	4	5	6	7
C3	I am worried about being transferred to another job against my will <i>Saya bimbang untuk dipindahkan ke pekerjaan lain di luar kehendak saya</i>	1	2	3	4	5	6	7

C4	I am worried about it being difficult for me to find another job if I became unemployed <i>Saya bimbang untuk mencari pekerjaan lain sekiranya saya menganggur</i>	1	2	3	4	5	6	7
C5	I am worried about giving up my job for health reasons <i>Saya bimbang untuk berhenti kerja atas sebab kesihatan</i>	1	2	3	4	5	6	7

SECTION D: SOCIAL SUPPORT

Seksyen D: Sokongan Sosial

The following statement are about social support. Please circle the extent to which statement below according to the scale for each question.

Pernyataan berikut adalah mengenai sokongan sosial. Sila bulatkan kenyataan di bawah mengikut skala untuk setiap soalan.

Strongly Disagree <i>Sangat tidak setuju</i>	Disagree <i>Tidak setuju</i>	Neutral <i>Neutral</i>	Agree <i>Setuju</i>	Strongly Agree <i>Sangat setuju</i>
1	2	3	4	5

No	Items <i>Butiran</i>	Scale <i>Skala</i>				
D1	I often get help and support from my colleagues <i>Saya sering mendapat bantuan dan sokongan daripada rakan sekerja saya</i>	1	2	3	4	5
D2	My colleagues are willing to listen to my work-related problems <i>Rakan sekerja saya sedia mendengar masalah berkaitan kerja saya</i>	1	2	3	4	5
D3	I often get help and support from my immediate superior <i>Saya sering mendapat bantuan dan sokongan daripada pegawai atasan terdekat saya</i>	1	2	3	4	5
D4	My immediate superior is often					

	willing to listen to my work-related problems <i>Pegawai atasan terdekat saya selalunya bersedia mendengar masalah berkaitan kerja saya</i>	1	2	3	4	5
D5	I always being isolated from my colleague <i>Saya sentiasa terasing daripada rakan sekerja saya</i>	1	2	3	4	5
D6	I can talk with my colleagues while working <i>Saya boleh bercakap dengan rakan sekerja saya semasa bekerja</i>	1	2	3	4	5
D7	I am part of my group in my work <i>Saya adalah sebahagian daripada kumpulan saya dalam kerja saya</i>	1	2	3	4	5
D8	I always received good cooperation from my colleagues <i>Saya sentiasa mendapat kerjasama yang baik daripada rakan sekerja</i>	1	2	3	4	5

SECTION E: WORK ENVIRONMENT

Seksyen E: Persekitaran Kerja

The following statement are about work environment. Please circle the extent to which statement below according to the scale for each question.

Pernyataan berikut adalah mengenai persekitaran kerja. Sila bulatkan kenyataan di bawah mengikut skala untuk setiap soalan.

Strongly Disagree	Disagree	More or Less Disagree	Neutral	More or Less Agree	Agree	Strongly agree
<i>Sangat tidak bersetuju</i>	<i>Tidak bersetuju</i>	<i>Sedikit sebanyak tidak setuju</i>	<i>Neutral</i>	<i>Sedikit sebanyak setuju</i>	<i>Bersetuju</i>	<i>Sangat bersetuju</i>
1	2	3	4	5	6	7

No	Items <i>Butiran</i>	Scale <i>Skala</i>						
E1	I can decide when to take a break <i>Saya boleh memutuskan bila untuk</i>	1	2	3	4	5	6	7

	<i>berehat</i>							
E2	Employees and management get along well in the organization <i>Kakitangan dan pengurusan bergaul dengan baik dalam organisasi</i>	1	2	3	4	5	6	7
E3	My organization creates a fun working environment for employees <i>Organisasi saya mewujudkan persekitaran kerja yang menyeronokkan untuk pekerja</i>	1	2	3	4	5	6	7
E4	The organization offers a work-life balance environment for the employees <i>Organisasi menawarkan persekitaran kerja dan kehidupan seimbang untuk pekerja</i>	1	2	3	4	5	6	7
E5	My organization creates a comfortable working environment <i>Organisasi saya mewujudkan persekitaran kerja yang selesa</i>	1	2	3	4	5	6	7
E6	I feel like I am part of the team – I share its mission, values, effort, and goal <i>Saya berasa seperti saya sebahagian daripada pasukan - berkongsi misi, nilai, usaha dan matlamatnya</i>	1	2	3	4	5	6	7
E7	I find it easy to build a relaxed atmosphere in my working environment <i>Saya mendapati mudah untuk membina suasana santai dalam persekitaran kerja saya</i>	1	2	3	4	5	6	7
E8	The working environment provided can motivate me to work better <i>Persekitaran kerja yang disediakan boleh mendorong saya untuk bekerja dengan lebih baik</i>	1	2	3	4	5	6	7

SECTION F: JOB SATISFACTION

Seksyen F: Kepuasan Kerja

The following statement are about job satisfaction. Please circle the extent to which statement below according to the scale for each question.

Pernyataan berikut adalah mengenai kepuasan kerja. Sila bulatkan kenyataan di bawah mengikut skala untuk setiap soalan.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<i>Sangat tidak setuju</i>	<i>Tidak setuju</i>	<i>Neutral</i>	<i>Setuju</i>	<i>Sangat setuju</i>
1	2	3	4	5

No	Items Butiran	Scale Skala				
F1	I am pleased with my physical working conditions <i>Saya berpuas hati dengan keadaan kerja fizikal saya</i>	1	2	3	4	5
F2	I am pleased with the way my department is running <i>Saya berpuas hati dengan cara jabatan saya beroperasi</i>	1	2	3	4	5
F3	I am pleased with the people I am working with <i>Saya gembira dengan orang yang bekerja dengan saya</i>	1	2	3	4	5
F4	I am pleased with my work prospects <i>Saya gembira dengan prospek pekerjaan saya</i>	1	2	3	4	5
F5	I am pleased with the way my abilities are used <i>Saya berpuas hati dengan cara penggunaan kebolehan saya</i>	1	2	3	4	5
F6	I am pleased with the interest and skills involved in my job <i>Saya berpuas hati dengan minat dan kemahiran yang terlibat dalam kerja saya</i>	1	2	3	4	5
F7	Everything is taken into consideration in my job <i>Semuanya diambil kira dalam pekerjaan saya</i>	1	2	3	4	5
F8	I am pleased with my usual take-home pay	1	2	3	4	5

	<i>Saya berpuas hati dengan gaji saya yang biasa dibawa pulang</i>					
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APPENDIX 15
Qualitative Research Protocol



**QUALITATIVE
RESEARCH PROTOCOL**



Dear respondents,

My name is Nur Dalilah Mohd Rani, a Doctorate of Degree (PhD) student at Faculty of Administrative Science & Policy Studies, Universiti Teknologi MARA (UiTM), Seremban Campus. I am currently conducting research titled "Investigation of The Mediating Role of Job Satisfaction in The Effects of Job Demands and Job Resources on Mental Health State among Offshore Oil and Gas Employees". I am hereby inviting you to participate in this study.

The data will be collected using virtual interview session, which takes about an hour of your time. All data collected are stipulated under the UiTM Research Ethical Committee (REC) Guidelines. The data collected will be deemed as private and confidential, and used for academic purposes only.

If you require any further information, please do not hesitate to contact me at 0136879307 or email me at 2021520049@student.uitm.edu.my or uitmpsychosocialstudies@gmail.com. Thank you for your time and consideration in this matter.

Kepada responden,

Nama saya ialah Nur Dalilah Mohd Rani, pelajar PhD di Fakulti Sains Pentadbiran dan Pengajian Polisi, Universiti Teknologi MARA (UiTM), Kampus Seremban. Saya sedang menjalankan kajian bertajuk "Investigation of The Mediating Role of Job Satisfaction in The Effects of Job Demands and Job Resources on Mental Health State among Offshore Oil and Gas Employees". Saya dengan ini menjemput anda menyertai kajian ini.

Data akan dikumpul menggunakan sesi temubual dalam talian dan akan mengambil masa kira-kira sejam dari masa anda. Semua data yang dikumpul adalah tertakluk di bawah Garis Panduan Jawatankuasa Etika Penyelidikan UiTM. Data yang dikumpulkan dianggap sebagai peribadi dan sulit, dan akan digunakan untuk tujuan akademik sahaja.

Jika anda memerlukan sebarang maklumat lanjut, sila hubungi saya di talian 0136879307 atau e-mel saya di 2021520049@student.uitm.edu.my atau uitmpsychosocialstudies@gmail.com. Terima kasih atas masa dan pertimbangan anda dalam perkara ini.

Yours sincerely/ Yang benar,



*Nur Dalilah Mohd Rani
Calon Doktor Falsafah (PhD)
Fakulti Sains Pentadbiran & Pengajian Polisi
Kampus Shah Alam
Universiti Teknologi MARA*

Title of Research	Investigation of The Mediating Role of Job Satisfaction in The Effects of Job Demands and Job Resources on Mental Health State among Offshore Oil and Gas Employees
Research Objective	1.To identify the current state of mental health among O&G employees 2.To assess the mental health provision exercised in the O&G industry; 3.To assess the relationship between psychosocial factors and employees' mental health state in the O&G industry; 4.To determine the most significant psychosocial factors that affect the mental health state in the O&G industry; 5.To ascertain the mediating effect of job satisfaction towards the relationship between psychosocial factors and mental health state in O&G industry
Research Methodology	This study will used qualitative method, where data will be collected via interview session conducted with Manager of Safety, Health and Environment and Manager of Human Resource. For the purpose of data analysis and hypothesis testing, data will be analyzed using the Atlas.ti. .
Target Group	Five to Six Manager to attend the interview session separately
Period of Study	April 2021 to December 2023
Period of Data Collection	May 2023 to September 2023
Group Members	Nur Dalilah Mohd Rani
Institutional	Faculty of Administrative Science and Policy Studies; Universiti Teknologi MARA (UiTM), Shah Alam Campus
Contact Method	Mobile Phone: 013-6879307 (Nur Dalilah) Email: 2021520049@student.uitm.edu.my or uitmpsychosocialstudies@gmail.com
Possible Benefits	Participation in this research will not incur any cost to you. Please note that there will be no compensation provided for your participation in the study.
Confidentiality	The University's Research Ethical Committee has granted ethical clearance for this study. Rest assured that the investigators will maintain the confidentiality of your information, which will not be disclosed to the public unless it is required by law. If you have any questions about this research of your rights as a participant, please contact Nur Dalilah at 013-6879307.

1. As we know, working in offshore would involve different working schedule such as different work shift, mind if you share on this issue.
2. Can you share your thought about job demands in the O&G industry?
3. How are the job demands in O&G industry before and after the COVID-19?
4. How the company help the employees to cope with challenges at workplace?
5. Can you share what are the company's intervention to keep the employees feel safe in their workplace?
6. How well does the company communicate news and important information to the employee? Can you share your experience?
7. How did your company encourage social interaction between remote offshore and the onshore team?
8. Every year (early of the year), does the company communicate with the employee on the performance-based goals? How the company identify/ assign performance-based goals to the employee? **What is the perception of the employees with this practice?**
9. Working in offshore would have a cultural difference and communication gaps, how the team leader or the management handle it?
10. What type of social support given by the company towards the offshore employee?
11. Does the company encourage the feedback from the employees? **Would you mind sharing on what kind of feedback that the employees give? What will you do once you have gotten the feedback?**
12. How did the employees create a good working environment? **Would you mind sharing it?**
13. Can you share about your employee's job satisfaction level? What are the factors that contribute to the level you have describe?
14. Do you think tenure play important role in job satisfaction? What is your opinion on the job tenure in your company? **How did the company provide sufficient opportunities in term of personal growth and professional growth for employees?**

APPENDIX 16

Proof Of Member Checking



NUR DALILAH MOHD RANI <dalilah790@gmail.com>

Verification of Interview Transcription Documents

2 messages

NUR DALILAH MOHD RANI <

PM

To:

Dear ,

Following up on our earlier discussion, please find attached the transcribed documents for your review.

Kindly check and advise if there are any additional details required in the transcription to support the data analysis. Please feel free to inform the researcher accordingly.

Thank you for your time and cooperation.

Regards,

Nur Dalilah Mohd Rani
UiTM Shah Alam



Transcribing R1 - Shahazyqah Taufek.docx
35K

at 1:35 PM

Dear ,

Thank you for the submission. I have reviewed the transcription documents, and they are in order. No further additions are required at this stage.

Regards,
Shahazyqah

APPENDIX 17

Missing Value

Univariate Statistics							
	N	Mean	Std. Deviation	Missing Count	Missing %	No. of Extrem Low	Hig
NO	412	206.50	119.078	0	.0	0	
GENDER	412	1.19	.390	0	.0	.	
EDULEVEL	412	2.32	.825	0	.0	0	
AGE	412	1.70	.549	0	.0	0	
LENGTHOFSERVI CES	412	3.04	.762	0	.0	0	
LOCATIONWORK PLACE	412	1.00	.000	0	.0	.	
WORKSHIFT	412	1.36	.703	0	.0	.	
WORKLOCATION	412	2.70	1.645	0	.0	0	
A1	412	2.14	1.312	0	.0	0	
A2	412	5.75	1.227	0	.0	.	
A3	412	2.88	1.343	0	.0	0	
A4	412	5.65	1.217	0	.0	27	
A5	412	3.01	1.407	0	.0	0	
A6	412	2.90	1.362	0	.0	0	
A7	412	5.72	1.334	0	.0	21	
A8	412	5.83	1.226	0	.0	19	
A9	412	2.91	1.353	0	.0	0	
A10	412	3.43	1.893	0	.0	0	
A11	412	4.93	1.690	0	.0	18	
A12	412	4.79	1.138	0	.0	8	
A13	412	4.96	1.032	0	.0	32	
A14	412	4.99	1.017	0	.0	31	
B1	412	3.18	.970	0	.0	0	
B2	412	2.69	.923	0	.0	0	
B3	412	2.73	.893	0	.0	0	
B4	412	3.38	.865	0	.0	5	
B5	412	2.14	.652	0	.0	.	
B6	412	3.70	.617	0	.0	5	
B7	412	3.71	.636	0	.0	.	
B8	412	3.76	.607	0	.0	.	
B9	412	3.80	.567	0	.0	.	
B10	412	3.83	.530	0	.0	.	
B11	412	3.81	.552	0	.0	.	

B12	412	3.80	.543	0	.0	.	
B13	412	3.80	.552	0	.0	.	
B14	412	3.84	.514	0	.0	.	
B15	412	3.84	.514	0	.0	.	
B16	412	3.82	.534	0	.0	.	
B17	412	3.83	.533	0	.0	.	
C1	412	5.87	1.137	0	.0	.	
C2	412	5.95	1.074	0	.0	25	
C3	412	5.91	1.097	0	.0	29	
C4	412	5.97	1.065	0	.0	25	
C5	412	5.97	1.016	0	.0	23	
C6	412	5.99	1.022	0	.0	23	
D1	412	4.16	.734	0	.0	14	
D2	412	4.17	.737	0	.0	14	
D3	412	4.16	.735	0	.0	13	
D4	412	4.17	.730	0	.0	12	
D5	412	4.14	.751	0	.0	14	
D6	412	2.25	1.136	0	.0	0	
D7	412	4.10	.714	0	.0	13	
D8	412	4.09	.719	0	.0	12	
D9	412	4.08	.740	0	.0	.	
D10	412	4.08	.729	0	.0	.	
D11	412	4.09	.723	0	.0	.	
D12	412	4.09	.730	0	.0	.	
D13	412	4.09	.722	0	.0	.	
E1	412	5.23	1.743	0	.0	15	
E2	412	5.86	.950	0	.0	9	
E3	412	5.85	.948	0	.0	7	
E4	412	5.86	.937	0	.0	7	
E5	412	5.86	.934	0	.0	8	
E6	412	5.87	.934	0	.0	7	
E7	412	5.70	1.203	0	.0	33	
E8	412	5.86	.946	0	.0	9	
F1	412	4.14	.832	0	.0	23	
F2	412	4.15	.826	0	.0	23	
F3	412	4.13	.833	0	.0	22	
F4	412	4.14	.838	0	.0	22	
F5	412	4.13	.851	0	.0	26	
F6	412	4.14	.857	0	.0	26	

F7	412	4.15	.866	0	.0	25	
F8	412	4.18	.923	0	.0	31	
F9	412	3.63	1.246	0	.0	0	
F10	412	3.62	1.231	0	.0	0	
F11	412	3.65	1.220	0	.0	29	
F12	412	3.63	1.231	0	.0	0	
A1R	412	5.86	1.312	0	.0	45	
A3R	412	5.12	1.343	0	.0	52	
A5R	412	4.99	1.407	0	.0	3	
A6R	412	5.10	1.362	0	.0	3	
A10R	412	4.57	1.893	0	.0	0	
A9R	412	5.09	1.353	0	.0	4	
A12R	412	3.21	1.138	0	.0	0	
A13R	412	3.04	1.032	0	.0	0	
A14R	412	3.01	1.017	0	.0	0	
C1R	412	2.13	1.137	0	.0	.	
C2R	412	2.05	1.074	0	.0	0	
C3R	412	2.09	1.097	0	.0	0	
C4R	412	2.03	1.065	0	.0	0	
C5R	412	2.03	1.016	0	.0	0	
C6R	412	2.01	1.022	0	.0	0	
D6R	412	3.75	1.136	0	.0	0	
F9R	412	2.37	1.246	0	.0	0	
F10R	412	2.38	1.231	0	.0	0	
F11R	412	2.35	1.220	0	.0	0	
F12R	412	2.37	1.231	0	.0	0	
B1R	412	2.82	.970	0	.0	0	
B3R	412	3.27	.893	0	.0	0	
B4R	412	2.62	.865	0	.0	0	
B5R	412	3.86	.652	0	.0	.	
B7R	412	2.29	.636	0	.0	.	
B8R	412	2.24	.607	0	.0	.	
B9R	412	2.20	.567	0	.0	.	
B10R	412	2.17	.530	0	.0	.	
B11R	412	2.19	.552	0	.0	.	
B12R	412	2.20	.543	0	.0	.	
B13R	412	2.20	.552	0	.0	.	

APPENDIX 19

Common Method Bias

Component	Total Variance Explained			Extraction Sums of Squared Loadings		
	Total	Initial Eigenvalues % of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	20.761	30.531	30.531	20.761	30.531	30.531
2	8.875	13.052	43.583			
3	7.464	10.977	54.560			
4	4.560	6.705	61.266			
5	4.341	6.384	67.650			
6	3.342	4.914	72.564			
7	3.052	4.488	77.052			
8	2.084	3.065	80.117			
9	1.996	2.935	83.052			
10	1.641	2.413	85.465			
11	1.043	1.533	86.998			
12	.959	1.411	88.409			
13	.819	1.204	89.613			
14	.708	1.041	90.655			
15	.677	.996	91.651			
16	.546	.804	92.454			
17	.504	.741	93.195			
18	.457	.672	93.867			
19	.346	.508	94.375			
20	.329	.484	94.859			
21	.262	.385	95.244			
22	.251	.370	95.614			
23	.243	.357	95.971			
24	.223	.327	96.298			
25	.208	.306	96.604			
26	.193	.283	96.887			
27	.176	.259	97.146			
28	.155	.229	97.375			
29	.143	.211	97.585			
30	.140	.206	97.791			
31	.131	.192	97.983			
32	.110	.162	98.145			
33	.099	.145	98.290			
34	.096	.142	98.432			
35	.088	.130	98.562			
36	.082	.121	98.682			
37	.079	.116	98.798			
38	.068	.100	98.898			
39	.062	.092	98.989			
40	.061	.090	99.079			
41	.055	.080	99.159			
42	.054	.079	99.238			

43	.049	.071	99.310			
44	.042	.062	99.371			
45	.041	.060	99.432			
46	.039	.057	99.489			
47	.037	.054	99.544			
48	.029	.043	99.587			
49	.029	.042	99.629			
50	.028	.041	99.670			
51	.026	.039	99.709			
52	.025	.036	99.745			
53	.022	.032	99.777			
54	.018	.027	99.804			
55	.018	.026	99.830			
56	.017	.025	99.856			
57	.016	.024	99.880			
58	.014	.021	99.900			
59	.013	.019	99.919			
60	.011	.016	99.935			
61	.010	.015	99.950			
62	.008	.012	99.962			
63	.007	.011	99.973			
64	.005	.008	99.981			
65	.005	.007	99.988			
66	.004	.006	99.994			
67	.004	.006	100.000			
68	1.714E-16	2.521E-16	100.000			

Extraction Method: Principal Component Analysis.

AUTHOR'S PROFILE



Nur Dalilah Mohd Rani received her Bachelor of Administrative Science (Hons.) in 2014, and an Executive Master of Administrative Science in 2017. All her academic qualifications were conferred by Universiti Teknologi MARA (UiTM), Malaysia.

She is currently attached to City University Malaysia, where she is actively involved in research management, institutional collaborations, and consultancy projects under the Research Management Centre (RMC). Previously, she served at the Ministry of Health Malaysia (Kementerian Kesihatan Malaysia), contributing to research coordination, policy analysis, and programme development related to public health initiatives.

Her research interests encompass organisational behaviour, occupational health, and psychosocial risk factors, with a particular focus on the mental health and well-being of offshore oil and gas employees. Her work aims to bridge research and policy by advancing evidence-based practices that enhance employee well-being and organisational effectiveness in high-demand work environments.

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- Rani, N. D. M., Kamarunzaman, N. Z., & Liu, J. (2022). Pattern of Psychosocial Challenges among Oil and Gas Employees: A systematic review. *Environment-Behaviour Proceedings Journal*, 7(20), 431–438. <https://doi.org/10.21834/ebpj.v7i20.3491>
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