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Implications of the Offshore Oil & Gas Working Environment on Mental Health and Performance of Workers

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المستخلص

تهدف هذه الدراسة إلى بحث الآثار المحتملة لموقع العمل على العلاقة بين المخاطر النفسية الاجتماعية في بيئة عمل صناعة البترول والغاز واضطرابات الصحة النفسية والأداء للعاملين. تم استخدام الأساليب الكمية والأساليب الاستنتاجية، و شمل مجتمع الدراسة العاملين المصريين في قطاع البترول والغاز، حيث تضمنت عينة الدراسة (409) مشارك. تم تحليل البيانات باستخدام التحليل الوصفي، وتحليل الارتباط، واختبار "t" للعينات المستقلة، ونمذجة المعادلات الهيكلية (SEM). أشارت النتائج إلى وجود مستويات عالية من المخاطر النفسية والاجتماعية في بيئة عمل البترول والغاز، حيث كانت للعزلة والبعد والظروف المعيشية السيئة أعلى المستويات بشكل ملحوظ. كذلك أظهرت ادوات فحص الاكتئاب والتوتر والقلق لدى عينة الدراسة وجود مستويات متوسطة من اضطرابات الصحة النفسية وأشارت أغلب الاجابات إلى صعوبات في التغلب على تلك الاضطرابات. كما أظهرت النتائج مستوى متوسط للأداء مع انخفاض ملحوظ في جوانب الأداء السياقي لعينة الدراسة. خلصت الدراسة إلى أن الأداء في صناعة البترول والغاز البحرية ليس نمطاً وظيفياً بالكامل بل يمكن أن يتأثر ببيئة العمل، حيث يوجد تأثيراً معدلاً لمكان الموقع على مستويات اضطرابات الصحة النفسية لدى العاملين و ينتج عنه الإضرار بمستويات أدائهم، مما قد يؤدي في النهاية إلى الإضرار بمصالح واستدامة هذا القطاع الحيوي.

Abstract

This study aimed to investigate the potential effect of the site location on the relationship between the Oil and Gas working environment's psychosocial hazards, mental health disorders and workers' Performance. Quantitative methods and deductive approaches have been used. The study's population was Egyptian Oil & Gas workers, and the study sample included 409 participants. The collected data were statistically analyzed using descriptive analysis, correlation analysis, independent samples t-test, and Structural Equation Modelling (SEM). The results indicated a high levels of psychosocial hazards in the Oil & Gas working environment, where isolation, remoteness and adverse living conditions significantly depicted the highest levels. The presence of mental health disorders was confirmed by screening Depression, Stress and Anxiety among the study sample, where most responses indicated difficulties in their abilities to overcome. Further, the results showed an average level of performance with a noticeably low levels in contextual performance aspects. The study concluded that performance in the offshore Oil & Gas industry is not entirely a functional pattern but can also be influenced by the working environment,

where the moderating effect of the site location of the Oil & Gas working environment on workers' mental health disorders could eventually compromise their performance levels, ultimately harming the interest and sustainability of this vital sector.

Key Words: Offshore, Industry, Working Environment, Moderating, Performance, Workers

1- Introduction

The Oil & Gas industry is currently one of the most contributing sectors to the sustainability of the global economy since oil and gas have become primary energy sources for the development of almost all industries, communities, and transportation means across the world, as per the International Labour Organization (ILO, 2022a).

In Egypt, the Oil & Gas sector has grown to be one of the most vital sectors contributing to the Egyptian economy. Currently, the sector's operations are deflecting deep waters in the Mediterranean to explore new areas to increase the gas production rate needed to boost the country's economy and satisfy the world's energy demand (EgyPS, 2022). However, research revealed that the unique working environment conditions associated with overseas offshore Oil & Gas operations could bring up additional stressors on workers (Okoro & Godwin, 2019).

Given the fact that performance in the Oil & Gas industry is considered imperative value, especially for a sector that significantly involves multiple essential and vital aspects for the sustainability of world economies (Thorbecke, 2019), there would be serious concerns knowing that the characteristics and nature of work may contribute to the prevalence of mental health issues among the workforce according to the World Health Organization (WHO, 2005). In this regard, the ILO revealed that offshore oil and gas exploration and production operations entail remote and isolated locations of most offshore installations, imposing physical and psychological barriers between workers and their social support network. The problem is that such a working environment might harm the worker's mental well-being, while research has proved that mental illness negatively affects people's behaviour at work (ILO, 2022b).

These concerns are agreed upon by the US National Offshore Petroleum Environmental Management Authority (NOPSEMA), referring to the Oil & Gas environment as hazardous, isolated, labour-intensive, and stressfully demanding, where workers confront a unique combination of stressors besides their challenging routine work activities (NOPSEMA, 2021). As per the WHO, psychosocial hazards can be found in almost all industries, but some workers get exposed to them more significantly than others because of what, where, and how they perform their work (WHO, 2022a).

2- Literature Review

The term "working environment" refers to integrating internal and external factors of the surroundings and circumstances associated with the workplace in which a person carries on his work activities. The workplace encompasses the working environment where workers execute their duties (Ajala, 2012). Working in an oil and gas field entails long working hours with less time

for rest, a high load of work, and stressful day and night shift schedules when rotation patterns are affected or constrained by transport schedules. Additionally, several other perceived risks associated with the nature of offshore jobs, such as the proximity of the living and working environments, do not offer privacy nor separation from the working environments.

2.1 Psychosocial Hazards of the Oil & Gas Working Environment

Psychosocial hazards are work-related factors that can cause harm to people psychologically, socially, and physically; they can be categorized into three levels: individual, job, and organization. The psychosocial hazards at each level can interact, increasing the psychosocial risks in the workplace (NOPSEMA, 2021). The ILO has referred to the psychosocial hazards of the working environment as the interactions between the characteristics of work, its organization, management, and environmental elements on the one hand, with the needed skills and capacity of employees on the other hand. Those interactions might harm workers' health to certain degrees based on their perceptions and experiences (ILO, 2016).

2.2 Mental Health Components in the Working Environment.

In the context of work, mental health can be analyzed based on considering two fundamental components; the first is associated with the individuals themselves and is referred to as the "Personal Factors", while the second is related to the work aspects they perform and is described as the "Organizational Factors". This was revealed by Ouellet et al. (2013), who further explained that personal factors involve the distinctive characteristics of each person, such as age, gender, health condition, personality, and social life. Some people have coping mechanisms that enable them to manage stress, gain self-awareness, and overcome obstacles to adaptation. At the same time, their positive emotions reduce their likelihood of experiencing mental issues. Nevertheless, organizational factors could positively or negatively impact employees' mental health. While motivation and appreciation might be favourable, a worker's mental health may deteriorate if he lacks the desire or passion for his job. One of the most significant factors is enforcing policies that maintain the workers' perception of administrative fairness and the equitable distribution of work based on each worker's skills and capabilities (Ouellet et al., 2013).

2.2.1 Work-related Mental Health Disorders

Research has indicated the presence of mental health disorders among workers in specific harsh working environments as a consequence of interactions with particular psychosocial hazards in their workplaces. Reddy et al. (2020), Dodia & Parashar (2020), and Dohrmann et al. (2020) provided evidence to support this claim on the negative effect of intense work schedules on individuals' mental health. However, according to the World Health Organization (WHO), mental health has been one of the most neglected aspects of public health worldwide. As a result of being underestimated or misunderstood, sustaining mental health becomes challenging for many people (WHO, 2022b). In its comprehensive report on transforming mental health for all, the WHO, (2022a) raised serious concerns regarding the existence of around one in eight persons worldwide experiencing a mental illness silently. Although this is a significant number of individuals all over, the majority of social and health systems in most world societies have ignored mental health and

thus failed to provide individuals in these societies with the sufficient attention and adequate assistance they need.

The Chartered Institute for Personnel and Development (CIPD) revealed that this is a hidden risk since most workers would not report nor admit their mental health problems as a matter of concern for losing their jobs (CIPD, 2018). According to the World Health Organization (WHO), Stress, Anxiety, and Depression are currently the most prevalent mental health disorders globally (WHO, 2022a). However, operators of the Oil & Gas industry still do not pay adequate attention to such significant risk-contributing factors Beck & Lenhardt (2019).

2.3 Impact of Mental Health Disorders on Economies

Research has demonstrated that mental health is a crucial factor for the sustainability of the global economy. This finding was supported by Palumbo et al. (2020), who explained that psychosocial factors related to the working environment could harm the workers' mental well-being and lead to increased absenteeism to the degree that induces a considerable adverse effect on the operational costs, which according to the EU-OSHA, (2014), entails high expenses for both companies and society. This claim was backed up by the WHO, which stated that the implications of work-related Anxiety and Depression are thought to cause the global economy an annual cost of 1 trillion dollars due to decreased productivity (WHO, 2022c). It can be observed that the negative impact of mental health disorders on the global economy comes from the consequence of work-loss time; according to WHO (2022d), 12 billion workdays are lost every year because of Stress, Anxiety and Depression, which constitutes an economic problem that imposes a significant need for improving the current global policies measures to address the potential work-related causes of mental health disorders.

In the USA, for example, the prevalence of depression as a mental health problem among employees and workers costs the US economy around \$51 billion yearly due to reduced productivity and absence from work. This, in addition to another \$26 billion, results from the cost of clinical treatment to an enormous number of diagnosed cases (MHA, 2022).

The UK-HSE analysis estimated a work-loss time of up to 32.5 million working days might have been lost in the financial year 2019/20 due to work-related illness. Among those days lost, an approximated 17.9 million working days specifically resulted from work-related Stress, Anxiety and Depression (HSE, 2020). In 2020/21, Figure (1) demonstrates that Stress, Depression, or Anxiety mainly accounted for 50% of all lost work days in the UK due to chronic cases of work-related illness.

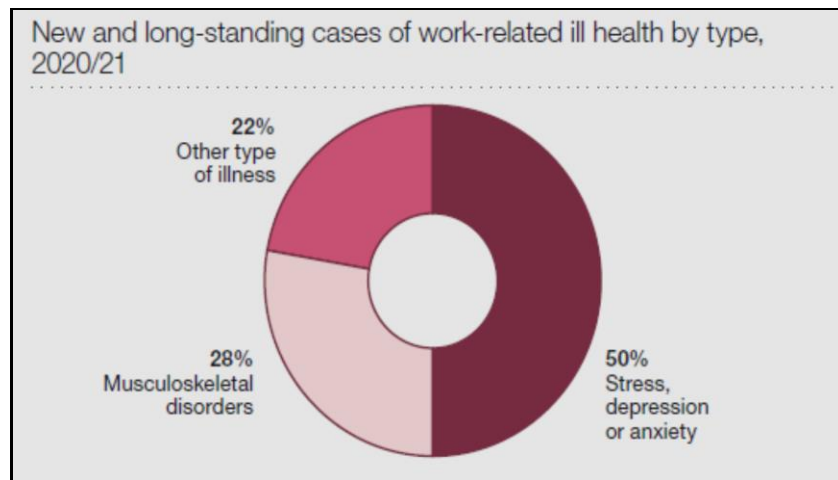


Figure (1): Causes of Lost Days of Work
Source: HSE, (2021)

2.4 Workers' Performance

Previous studies have shown that an organization's success depends on employee performance. According to Behn (2003), it is impossible to characterize or measure performance consistently because various classifications have different definitions. According to the researchers' interpretations, many factors affect an employee's performance. Abun (2021) asserted that one might draw connections between people's emotions and behaviour, implying an association between work performance and the working environment.

Although it is confirmed that different cultures might respond variably to the same working environment conditions due to several factors, it is indicated that the workplace environment generally impacts how adequately workers perform their work-related tasks. Leadership, commitment, and knowledge sharing are critical components when evaluating employees' performance levels and directly and indirectly link to their productivity (Gadot, 2007). In addition, competition and production, efficiency and effectiveness are other components of performance, and training is a means to improve an individual's performance.

Griffin et al. (2000), indicated two distinct forms of behaviour directly that play significant roles in the entire evaluation of individual work-related Performance, viewed as the "Task performance" and the "Contextual performance". The workers' behaviour is more likely to predict their contextual Performance, which is more consistently similar and comparable across different disciplines and jobs. On the other hand, their cognitive abilities are more likely to be a predecessor to task performance, which is very specific and more likely to be evaluated under a pre-determined job role that differs across professions and job prospects (Borman & Motowidlo, 1997).

2.4.1 Dimensions of the Contextual Performance

According to the performance theory revealed by Griffin et al. (2000), two distinct forms of behaviour directly play a role in the entire evaluation of an individual's work-related Performance; "Task performance" and "Contextual performance". Task performance is intimately linked to the

professional core of the company, whether through the execution of its technical processes or the upkeep of its functionality. Contextual Performance shapes the organizational, social, and psychological environment that drives task-related activities or processes, thus contributing to performance. According to Borman and Motowidlo (1997), critical distinctions exist between task and contextual performance. Task performance practices and activities often differ across professions and job prospects since they are considerably specific and more prone to be measured according to a prescribed job role where the cognitive capacity of each worker is more likely to be a precursor of task performance.

In contrast, contextual performance is similar and comparable across different disciplines where workers' behaviour is more prone to be a precursor of their contextual Performance. As a result, contextual performance explains a form of employee behaviour that is primarily impacted by the degree of motivational control of employees, which is significantly related to a combination of prosocial and citizenship organizational behaviour (Griffin et al., 2000). Those are regarded as positive social behaviours carried out to preserve the integrity of work and the welfare of others. As per Carlos & Rodrigues (2015), contextual performance has five main dimensions that are more widely addressed by research when assessing the contextual performance of workers as follows;

- The persistent effort to accomplish the work tasks effectively, discipline, perseverance, and giving extra effort at work when needed;
- Volunteer to undertake work tasks even when not formally associated with the job, giving constructive suggestions, and maintain personal development and growth;
- Assistance and collaboration with others, which included supporting co-workers, using corporate tolerance, being a positive person and being socially responsible;
- Adherence to workplace policies, rules and values; working as a part of a team; being attentive to meet deadlines and expressing moral responsibility;
- Actively promoting, supporting, and upholding organizational objectives combines worker's loyalty to the company and firm concern regarding the organization's goals.

2.5 Effect of Mental Health Disorders on Worker's Performance

According to Alomari & Okasheh (2017), every organization's main objective is to boost workers' performance to increase productivity, which results in higher profits. The working environment is a critical element that affects how motivated people are and how well they perform.

Bhawsar et al. (2014), and Ouellet & Gratton (2013) revealed that Mental health problems in the workplace might adversely impact everyone, not just the individual but also the sustainability of the organizations for which he works due to the subsequent effect of decreased performance and productivity. This is in context with the study of Proper et al. (2019), who ascertained evidence confirming mental health wellness is profound to performance outcomes since the connection between employees' mental health and their work outcomes has been substantially demonstrated. In this manner, to ensure that workers' performance complies with the desired results, employers are supposed to provide an appropriate working environment for their workers.

3- Methodology

A descriptive, correlational, and comparative approach was employed for this study since it facilitates the development of the investigation sequentially, from recognizing a problem to developing aims and objectives (Azungah, 2018). The study depended on collecting primary and secondary data to achieve the study purpose. Secondary data was collected from the literature, while primary data was retrieved from a survey involving 409 oil and gas workers.

The targeted population was Egyptian workers who directly interacted with the psychosocial hazards of the Oil & Gas working environment during their assignment to multiple oil and gas-related operational, managerial and service activities.

3.1 Proposed Model for the Framework of the Interrelations between Variables

The study proposed a theoretical framework Model, as shown in Figure (2), based on submitting both direct relationships (represented by straight arrows) and indirect relationships (represented by dashed arrows) between the psychosocial hazards of the Oil & Gas working environment and workers’ performance. In the Model, psychosocial hazards of the Oil & Gas working environment, presented in remoteness, isolation, stressful work schedules, high workload, and adverse living conditions, are independent variables that directly and indirectly (through mental health disorders correlate to workers’ performance being a dependent variable. Further, the site location of the working environment, offshore or land, represents a moderating effect in the indirect relationship between the working environment’s psychosocial hazards and workers’ performance.

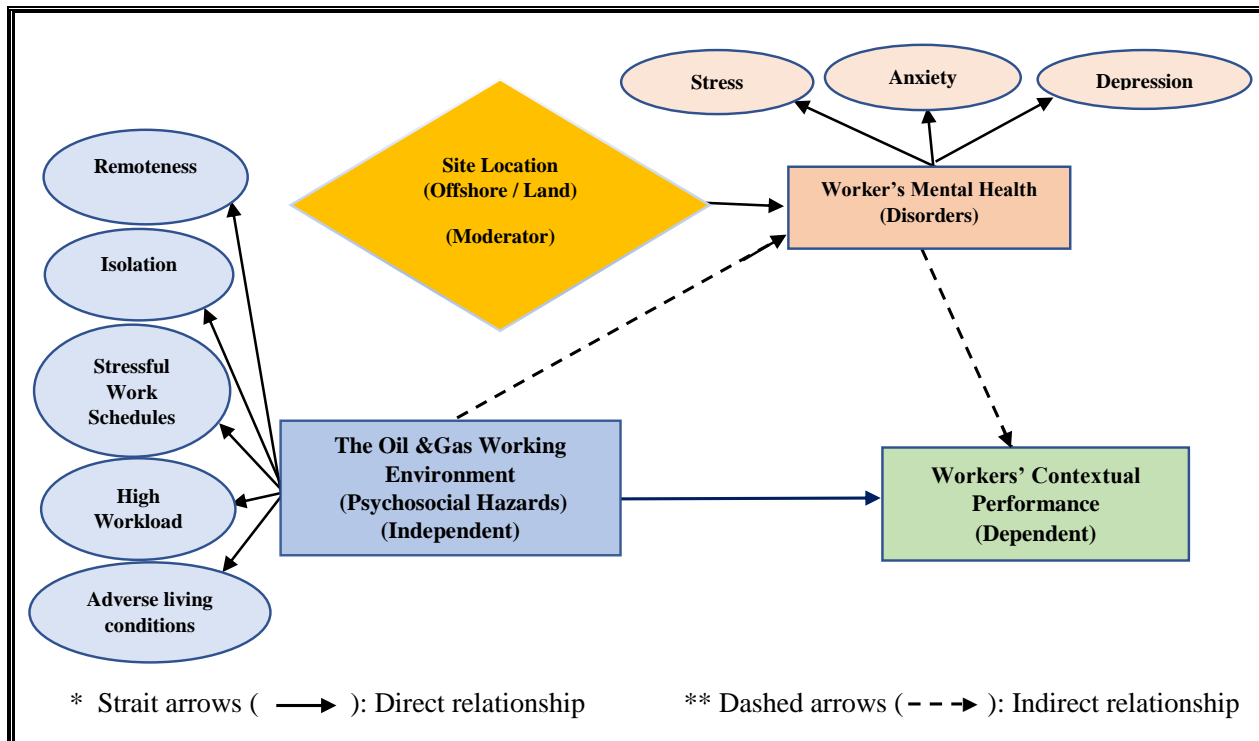


Figure (2): Proposed Model for the Interrelations between Variables

3.2 Developing the Questionnaire

The questionnaire was presented in both hard and soft copies; the soft copy was created using "Google Forms", and its link was forwarded through e-mails or messages to those in offshore and land-based work sites or on leave. The questionnaire was constructed in five sections as follows:

- 1- The first section involved participants' demographic data.
- 2- The second section involved a screening tool for measuring the working environment's psychosocial hazards in the Oil & Gas sector, including "Remoteness", "Isolation", "Stressful Work schedules", "High Workload", and "Adverse living conditions".
- 3- The third section included validated versions of three screening tools: the "Perceived Stress Scale" (PSS-10), the "Generalized Anxiety Disorder (GAD-7)", and the "Patient Health Questionnaire (PHQ-9)" respectively. These tools have been chosen for being reliable short-screening tools and widely utilized in either medical or community settings for assessing the prevalence of Stress, Anxiety, and Depression (Spitzer et al., 2006).
- 4- The fourth included statements assessing dimensions of workers' contextual performance.

The questionnaire was addressed for authenticity, privacy, and validity. Some questionnaire statements were reformulated to achieve the intended outcome and suit the work's nature, the terminology used in the oil and gas industry, and the workers' cultures. Nevertheless, no modifications were made to the sections screening mental health disorders (Stress, Anxiety and Depression) since being adopted from previous research that examined the validity of Arabic and English versions.

Reliability for the instrument was calculated using Cronbach's Alpha method after the questionnaire was applied in the field to a survey sample that included (82) participants. Table (1) shows that the reliability coefficients for the questionnaire which were higher than the minimum acceptable stability coefficient (0.70), confirming its reliability.

Table (1) Reliability Coefficients for the Questionnaire

Variable		No of Items	Cronbach's Alpha
Working Environment (Psychosocial Hazards)	Remoteness	3	0.77
	Isolation	3	0.67
	Stressful Work Schedules	3	0.82
	High Work Load	3	0.89
	Adverse Living Conditions	3	0.74
	Psychosocial Hazards	15	0.92
Worker's Mental Health (Disorders)	Depression	9	0.93
	Anxiety	7	0.96
	Stress	10	0.94
Worker's Performance		15	0.97

4- Data Analysis

Data analysis was carried out upon collecting the filled-in questionnaire forms when the researcher eventually obtained a total of (409) complete responses. In comparison (91) responses were excluded either due to uncompleted questionnaires with items not answered or those filled by participants with no previous interactions with the Oil & Gas working environment. All reverted questionnaires were checked for stray marks and other defects. The response file was generated by entering data into the Statistical Package for the Social Sciences (SPSS) version (27), and SPSS AMOS version (26), using four techniques to analyze the data; Descriptive Analysis; Correlation Analysis; Independent samples T-test; and the Structural Equation Modelling (SEM).

5- Results and Discussion

The results of the descriptive analysis showed “High” levels of psychosocial hazards in the Oil & Gas working environment from the perspective of the study sample, with a mean of (2.50) for the total score. Regarding mental health disorders, the results indicated a “moderate” level of Depression, with a mean of (10.19), a “mild” level of Anxiety, with a mean of (8.79), and a “moderate” level of Stress, with a mean of (23.49). Furthermore, the results showed a “moderate” total performance score, with a mean (2.01). This performance level can be explained by the workers’ high levels of items related to task performance such as official duties and responsibilities, which can be observed in their answers to the statements, showing that they fulfil their responsibilities specified in their jobs’ descriptions and accomplish their assigned duties optimally on time as targeted. In contrast, the participants’ answers indicated a low level of volunteer participation in activities that help their companies’ success and a humble desire to take on additional responsibilities to serve the interest of their work. Also, the answers indicated an induced desire to participate in teamwork to achieve work goals.

These findings might refer to a critical issue, which is that despite the workers’ high level of commitment towards their duties and responsibilities, they significantly showed low levels in their ability to adapt, the capability of career development, the desire to participate and take on additional responsibilities, work in new projects, and increase productivity to serve the interest of their work. Those are considered vital and core components of the contextual Performance that seem to be significantly breached.

The results of utilizing the Pearson correlation coefficient showed a positive and statistically significant correlation between the working environment psychosocial hazards and mental health disorders and a negative statistically significant correlation between psychosocial hazards and workers’ performance. Also, a negative and statistically significant correlation existed between workers’ mental health disorders and performance.

The independent samples t-test results showed that offshore workers experience higher levels of psychosocial hazards and mental health disorders but lower levels in contextual performance than land-based workers. The results of utilizing the Pairwise parameter comparisons indicated a moderating effect of the site location (offshore / land-based) on the effect between the

psychosocial hazards, mental health disorders, and workers’ performance, where the highest effect was for the offshore workers.

5.1 Differences in Psychosocial Hazards According to the Site Location (offshore / land)

Table (2) shows significant differences at the level of significance (0.01) in the psychosocial hazards of the Oil & Gas working environment among the study sample, according to the site location. The value of “t “was (12.71), and the highest mean was for offshore workers (2.71), while the mean for land-based workers was (2.04).

Table (2): Differences in the levels of the Psychosocial Hazards according to the Site location (n=409)

Variable	Worksite Location	N	Mean	Std. Deviation	t	P-value / Sig.
Remoteness	Offshore	284	2.95	0.56	7.91	0.00
	Land	125	2.46	0.61		
Isolation	Offshore	284	2.97	0.49	9.62	0.00
	Land	125	2.45	0.54		
Stressful Work Schedules	Offshore	284	2.37	0.80	7.62	0.00
	Land	125	1.73	0.76		
High Work Load	Offshore	284	2.43	0.76	10.89	0.00
	Land	125	1.59	0.63		
Adverse Living Conditions	Offshore	284	2.80	0.58	13.42	0.00
	Land	125	1.97	0.58		
Psychosocial Hazards	Offshore	284	2.71	0.49	12.71	0.00
	Land	125	2.04	0.47		

These results indicate that offshore workers face higher levels in all studied dimensions of the psychosocial hazards in the Oil & Gas working environment. This can be explained by the unique nature of the offshore working environment, where workers have periods of total isolation and separation from family with no social support networks due to being at sea without network coverage. This unique combination of factors can contribute to higher psychosocial hazards for offshore workers than land-based sites.

5.2 Differences in Mental Health Disorders According to Site Location (offshore / land)

Table (3) demonstrates the difference in the levels of Depression, Anxiety, and Stress among the study sample according to their Site location. It can be observed that there was a significant difference in the Depression levels among the study sample according to the Site location at the

level of significance (0.01), as the value of “t “was (9.10). The highest mean was for offshore workers (11.61), while the mean for land-based workers was (6.97).

Table (3): Differences in the Levels of Mental Health Disorders according to the Site Location (n=409)

Variable	Worksite Location	N	Mean	Std. Deviation	t	P-value / Sig.
Depression	Offshore	284	11.61	5.09	9.10	0.00
	Land	125	6.97	3.88		
Anxiety	Offshore	284	9.80	4.79	6.84	0.00
	Land	125	6.51	3.68		
Stress	Offshore	284	24.85	5.89	7.26	0.00
	Land	125	20.42	5.16		

Furtherly, there was a significant difference at the level of significance (0.01) in the Anxiety levels as the value of t was (6.84), and the highest mean was for offshore workers (9.80), while the mean for land workers was (6.51). Also, there was a significant difference at the level of significance (0.01) in the Stress levels according to the site location, as the value of t was (7.26). The highest mean was for offshore workers (24.85), while the mean for land-based workers was (20.42).

The differences in the levels of Depression, Anxiety, and Stress among the study sample clearly showed that offshore workers are experiencing higher levels of mental health disorders, which can be explained by the unique challenges that face offshore workers contributing to higher levels of mental health disorders compared to their land-based counterparts such as the unique combination of isolation, demanding work conditions, lack of recreation and leisure facilities, safety concerns, rotational schedules, and strained personal relationships due to isolation.

5.3 Difference in Worker’s Performance According to Site Location (offshore / land)

Table (4) shows a significant difference in performance levels among the study sample, according to the site location at the level of significance (0.01). The value of “t “was (-9.60), and the highest mean was for land-based workers (2.43), while the mean for offshore workers was (1.82).

Table (4): Difference in the Level of Worker’s Performance according to the site location (n=409)

Variable	Worksite Location	N	Mean	Std. Deviation	t	Sig.
Performance	Offshore	284	1.82	0.65	-9.60	0.00
	Land	125	2.43	0.45		

These findings confirmed that offshore workers’ lower levels of performance compared to workers in land-based sites, which could be seen as logical since they face higher levels of psychosocial hazards and experience higher levels of mental health disorders.

The results of utilizing the structural equation modelling (SEM) indicated a moderating effect of the Site location (offshore /land) on the relationship between the psychosocial hazards, mental health disorders and workers’ performance.

The Model for the offshore group demonstrated in Figure (3) indicates that the standardized coefficient for the direct effect of psychosocial hazards on workers’ performance is (-0.09), the coefficient for the effect of psychosocial hazards on mental health disorders is (0.85), and the coefficient for the effect of mental health disorders on workers’ performance (-0.39).

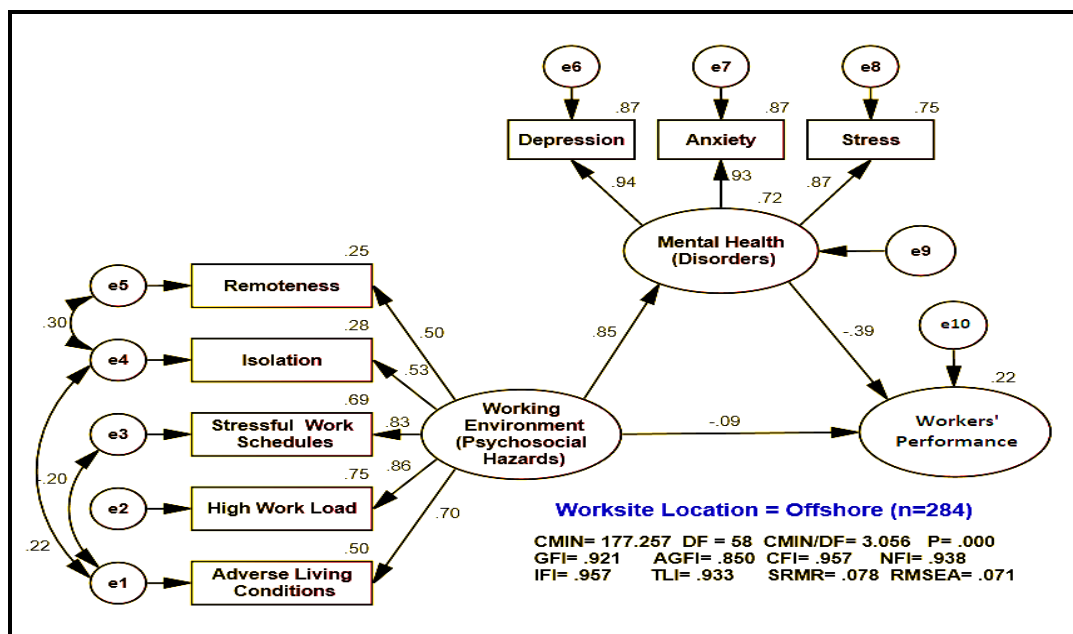


Figure (3): Model of the Relationship between Psychosocial Hazards, Mental Health Disorders and Workers’ Performance for the Offshore group

The Model for the land group is shown in Figure (4). It is clear that the standardized coefficient for the direct effect of psychosocial hazards on workers’ performance is (0.07), the coefficient for the effect of psychosocial hazards on mental health disorders is (0.77), and the coefficient for the effect of mental health disorders on workers’ performance (-0.81).

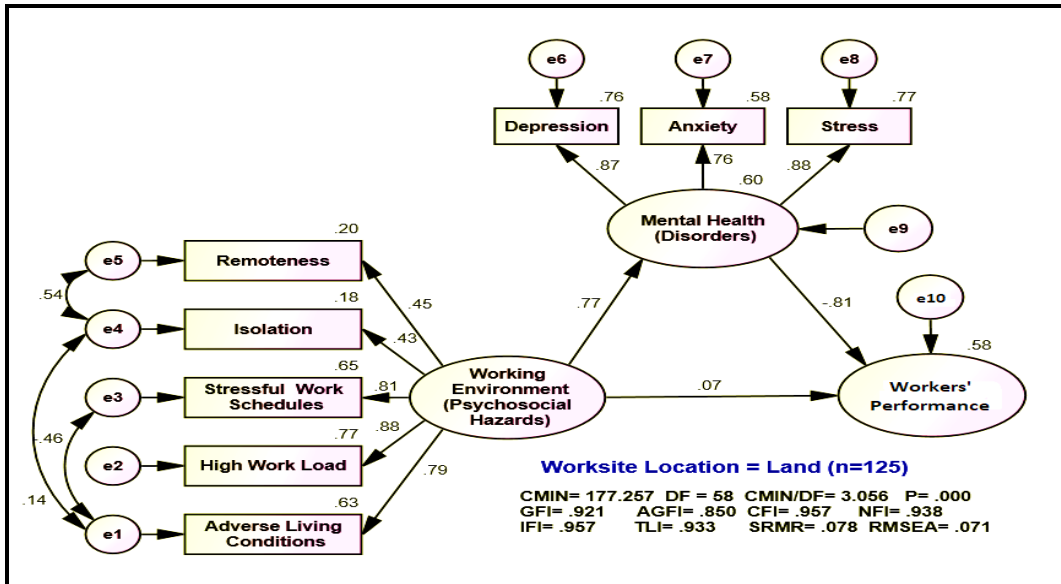


Figure (4): Model of the Relationship between Psychosocial Hazards, Mental Health disorders and Workers’ Performance for the Land-based group

The Pairwise parameter comparison was used to test the moderating effect of the site location (offshore / land) on coefficient values for the relationship between the psychosocial hazards, mental health disorders and workers’ Performance.

Table (5): The Moderating Effect of the Site Location (offshore / land) on the Relationship between Psychosocial Hazards, Mental Health Disorders and Worker’s Performance (n=409)

Paths		Worksite Location	Standardized Coefficients	CR.	Sig.	CR for Differences	
Working Environment (Psychosocial Hazards)	---->	Worker’s Mental Health (Disorders)	Offshore	0.85	12.09	0.00	3.87
			Land	0.77	7.73	0.00	
Working Environment (Psychosocial Hazards)	---->	Worker’s Performance	Offshore	-0.09	-0.72	0.47	-0.85
			Land	0.07	0.47	0.64	
Worker’s Mental	---->	Worker’s Performance	Offshore	-0.39	-3.12	0.00	1.25

Paths			Worksite Location	Standardized Coefficients	CR.	Sig.	CR for Differences
Health (Disorders)			Land	-0.81	-5.03	0.00	

Table (5) shows that there were significant differences between standardized coefficient values for the direct effect of psychosocial hazards on mental health disorders, according to the site location (offshore / land), as the value of the critical ratio was (3.87). The highest effect was for the offshore workers (0.85), while the effect coefficient for the land-based workers was (0.77). The significant differences between the standardized coefficient values for the direct effect of psychosocial hazards on mental health disorders, according to the site location (offshore / land), as the highest effect was for the offshore group, can be explained by the fact that Offshore sites are significantly isolated and remote, leading to a distinct set of psychosocial hazards related to limited social interaction, and reduced access to support networks typically available in land-based settings.

Conclusion

These site location of the Oil & Gas working environment can contribute to differing patterns of workers’ mental health disorders and subsequently impact their performance in a manner distinct from land-based settings. The differences in the levels of each dimension of the psychosocial hazards clearly showed that offshore workers experience higher levels in all studied dimensions than other workers in land-based sites leading to experiencing higher levels of stress, anxiety and depression. These findings indicate that the offshore working environment can exacerbate mental health disorders and impact workers’ performance differently when compared to land-based sites due to the unique challenges and stressors present in this unique working environment. This means that the "site location” of an Oil & Gas working environment has a moderating effect in determining the levels of the workplace psychosocial hazards, thus presenting a moderating impact on the prevalence of mental health disorders and subsequently the workers’ performance. Workers, decision-makers and operators of the Oil & Gas industry should recognize the significance of mental health in the workplace and mitigate the psychosocial hazards which workers could encounter in an offshore working environment.

Recommendations

- 1- Increasing the number of workers and incorporating further automation in operation activities for tackling high workloads.
- 2- Providing adequate means of communication, like high-speed internet, to decrease workers’ perceptions of isolation and remoteness, especially for offshore workers.
- 3- Ensuring workers’ privacy in accommodation offshore and providing recreational and entertainment facilities to mitigate the perception of adverse living conditions.

Suggestions for Future Research

Future research is suggested to examine the relationship between workers' educational backgrounds and safety culture dimensions for assessing attitudes and perceptions towards workplace safety climate in the Oil & Gas Industry.

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