

Factors that contribute to occupational stress of offshore workers

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ABSTRACT

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Large costs associated with employee turnover due to stress among the offshore worker can be related to the individual and organisation factors. This article presents the relationship between individual and organisational factors toward occupational stress of off-shore worker. A quantitative method has been carried out to investigate the relation of interpersonal relationship, job characteristics, and organizational role toward stress among the operators in an offshore platform. Set of data has been gathered from respective respondents, then analysed using Statistical Package for Social Science (SPSS) version 21.0. For the credential, the data were initially tested for its reliability, then were analysed using frequency analysis, Pearson's correlation analysis, coefficient regression analysis and SWOT analysis. The findings indicate that job characteristics, interpersonal relationship, organizational role have a significant influence toward the occupational stress. However, this study shows that organizational role is identified as major contribution to the occupational stress of the offshore workers. A few recommendations to manage stress among the workers have been identified. It is expected that this could reduce the number worker of turnover due to stress.

Keywords:

Occupational stress, job characteristic, interpersonal relationship, organizational role

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1. Introduction

Occupational stress is defined as the response from employee when dealing with work demands and pressures that are not matched to their level of knowledge and abilities that bring strong challenges towards their ability for coping with it at the workplace [1]. Occupational stress can significantly cause an unusual and dysfunctional behaviour at work which subsequently contributed to poor physical and mental health [2]. Lazarus *et al.* [3] emphasized that occupational stress occurrence is determined by the effectiveness of job performance that have been contributed by the employee in the organization. In recent research, occupational stress occurrence is determined by the employee psychological strength towards level of concentration, and focus given at work [4].

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According to Kreissl [5], the sources of stress at work come from the individuals themselves and also from the organization which can be more details in nature, more pervasive, and come from various backgrounds. McHugh [6] has identified that interpersonal relationship significantly contribute towards occupational stress among employee at the workplace. Moreover, interpersonal relationship at work might be reflected from the style of management practiced in an organization, communication style among workers and also working habit from employee interaction with others [7].

The organizational factors that can considerably contribute towards occupational stress is basically related from the characteristics of the job itself [8]. Kang *et al.* [9] found that job characteristic play important role in influencing the occupational stress in terms of working environment, security of work, work over-load or under-load, job design and others. Previously, Quah and Campbell [10] identified the role of organization to manage their employees has strong influence to the occupational stress at the workplace. The role to manage conflict and the role to manage ambiguity were identified as frequent determinants that to contribute the occupational stress at the workplace [11].

Offshore workers must face the same stressors common in on-shore workplaces as well as those specific to off-shore settings [12, 13]. The latter category includes arduous ocean climate, periodic isolation from the family and community, living and working in confined areas, the risks involved in helicopter and ship travel, rough seas, monotonous lifestyle and environment, and the special demands and constraints inherent to off-shore oil work [12, 13]. Based on the Michigan occupational stress model [1–3], two studies by Huang and colleagues indicated that United Kingdom off-shore oil workers perceived occupational stress from eight sources; relationship at work and at home, site management problems, factors intrinsic to the job, the uncertainty element of the work environment, living in the off-shore environment, safety, interface between job and family, and career prospects and reward [12-14].

To date, few studies have examined the mental health of off-shore oil workers. A study by Sutherland and Cooper [12] reported that approximately 19% of offshore workers had obsessionality and phobic anxiety. Sutherland and Cooper [12] also revealed that off-shore workers reported higher rates of anxiety than the general population, and that perceived stress from safety problems at work was a strong predictor of anxiety among off-shore workers. De Dreu *et al.* [14] analyzed 2,126 medical evacuations from four major oil and/or gas producers operating in the UK sectors of the North Sea from 1976 to 1984 and found that 1.98% (42/ 2,126) of the evacuations were carried out primarily due to mental disorders. A comparative study by Parkes [10] on mental health among operators working on off-shore and on-shore platforms showed that rates of anxiety were significantly higher among off-shore workers as compared with on-shore workers. In contrast, a similar study by Gann *et al.* [11] did not find any difference between on-shore and off-shore employees in anxiety and depression symptoms.

Based on the justification above, it is evident that previous research on the experiences of occupational stress had been conducted according to individual based factors such as interpersonal relationship, personal attitudes, personal traits, locus control and others or organizational based factors such as job characteristics, job demands, organizational structure, organizational roles, and others [6, 15]. However, there is lack of research conducted by combining both the individual and organizational factors in relation to occupation stress. Therefore, current study specifically intends to combine both individual and organisational factors.

2. Methodology

2.1 Conceptual Framework

The conceptual model developed for this study was derived from a literature review. This study initially assumed that there is a relationship between factors of interpersonal relationship, job characteristic and organizational role with the occupational stress that occurs among the operational offshore worker as shown in Figure 1. Each three hypothesis as shown in the figure represents related and non-related of the contribution factors toward occupational stress.

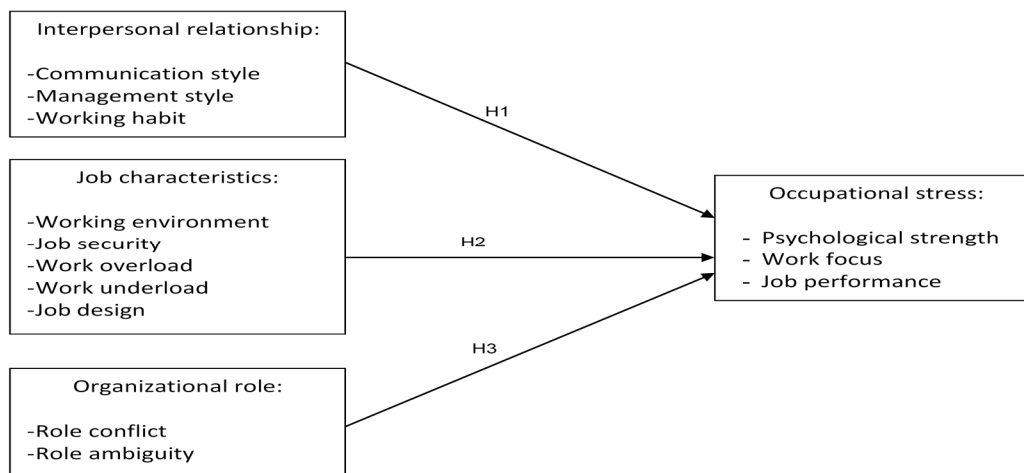


Fig. 1. Conceptual Framework for Occupational Stress

2.2 Case study sampling

An offshore operation department of one of the Malaysia oil and gas related company has been selected as a case of the present study. The respondents were among the operation staff which consist of different position level including project manager, operation team leader, engineer, procurement executive, project secretary and technical clerk. This study used cross sectional survey in which the data have been collected across population using non-probability sampling.

2.3 Instrument

This study has adapted structured questionnaire developed by previous research [10]. The questionnaire was revised according to the current study requirements. The closed-ended question typed was used and 6 scale of Likert which 1 represents strongly disagree and 6 represents 6 strongly agree. The questionnaire has been divided into five main sections, namely demographic, occupational stress, interpersonal relationship, job characteristics, and organisational role.

2.4 Method of analysis

A quantitative method was used to analyse the data. For the verification, the data has been firstly verified using reliability test. The frequency analysis has been then carried out to obtain accumulated number of responses associated with different values of one variable, and also to identify for the majority and minority level among respondents in the demographical information.

Further, a correlation analysis was used to examine the relationship between variables in describing the direction and degree of association between the variables. Whereas multiple

regression analysis was used to study the significant level of relationship between contribution factors and the occupational stress. The analyses have been calculated and simulated using SPSS version 21.0.

3. Results and Discussions

The statistical analysis used in this study including reliability test, frequency analysis, and correlation study and regression analysis.

3.1 Data analysis

The demographic data of respondents is presented in Table 1. The total respondents are 105 which majority are male represents 68.6% of total respondents. Most of the respondent are within age of 20 to 30 years which represent 41.9% of them. About 53 % are contract basis workers and 35.2% have qualification of SPM/STPM and 24.8% of the respondents have Bachelor Degree. 46.7 % of the staff are from technical background and the rest are from management. Their working experience in the operational unit are varies, however 40% of the respondents have working experience less than five years.

Table 1
Profile of Demographic

Demographic Variables	Categories	Frequency	Percentage (%)
GENDER	Female	33	31.4
	Male	72	68.6
AGE	Below 20 Years	3	2.9
	20-30 Years	44	41.9
	31-40 Years	27	25.7
	41-50 Years	22	21.0
	Above 50 Years	9	8.6
EMPLOYMENT STATUS	Permanent	49	46.7
	Contract	56	53.3
EDUCATION BACKGROUND	SPM/STPM	37	35.2
	Diploma	37	35.2
	Bachelor Degree	26	24.8
	Master Degree	5	4.8
JOB STATUS	Technical Clerk	18	17.1
	Executive	21	20.0
	Manager	17	16.2
	Engineer	49	46.7
LENGTH OF SERVICE	Less than 5 Years	42	40.0
	6-10 Years	30	28.6
	11-15 Years	7	6.7
	16-20 Years	14	13.3
	20 Years and Above	12	11.4

3.1.1 Reliability analysis

The reliability of the data are represented by Cronbach’s Alpha. Table 2 indicates that the overall reliability of the study at acceptable Cronbach’s Alpha of 0.947 and more than 0.7 for each variables as tabulated in Table 3. Thus the survey used are considerably consistent.

Table 2
Cronbach’s Alpha for Overall Variables of Study

Variables	No of item	Cronbach's Alpha
Overall Variables	50	0.947

Table 3
Cronbach’s Alpha for each Variable of Study

Variables	No of item	Cronbach's Alpha
Occupational Stress	10	0.802
Job Characteristic	15	0.828
Interpersonal Relationship	14	0.816
Organizational Role	11	0.863

3.1.2 Correlation analysis

Table 4 show the relationship matrix between occupational stress and contribution factors namely job characteristics, interpersonal relationship and organizational role. The highest correlation, giving value of 0.799 is between occupational stress and organizational role. Whereas the lowest correlation is between occupational stress and interpersonal relationship at 0.744. Furthermore, the sig (2-tailed) values are less than 0.05 for all relationship indicate that there have correlations between all variables.

Table 4
Coefficient of Correlation Analysis

		Occupational Stress	Job Characteristics	Interpersonal Relationship	Organizational Role
Occupational Stress	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	105			
Job Characteristics	Pearson Correlation	.784**	1		
	Sig. (2-tailed)	.000			
	N	105	105		
Interpersonal Relationship	Pearson Correlation	.744**	.855**	1	
	Sig. (2-tailed)	.000	.000		
	N	105	105	105	
Organizational Role	Pearson Correlation	.799**	.730**	.856**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	105	105	105	105

** Correlation is significant at the 0.01 level (2-tailed).

3.1.3 Multiple regression analysis

Multiple regression analysis is used to analyse the relationship between occupational stress (dependent variable) with the independent variables (job characteristic, interpersonal relationship and organizational role). Table 5 shows the coefficients of regression analysis of the present study. Both job characteristic and organizational role are expected to have stronger influence factor toward occupational stress as both standardize and unstandardized coefficient give higher positive value. The t-test value in the table also indicates that organizational role have significant relation with the occupational stress, followed by job characteristic and interpersonal relationship. The significant value (p) also supports that the organizational relationship, job characteristics and interpersonal relationship have significantly contributed to the occupational stress when $p \leq 0.05$.

Table 5
 Coefficients of Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. (p)
		B	Std. Error	Beta		
1	(Constant)	1.038	.236		4.405	.000
	Job Characteristics	.508	.091	.554	5.595	.007
	Interpersonal Relationship	-.228	.118	-.251	-1.924	.037
	Organizational Role	.524	.085	.610	6.150	.000

3.2 Discussion

The study has identified the significant relationship between organizational role, interpersonal relationship and job characteristic with the occupational stress among the offshore operation workers. For the interpersonal relationship and job characteristic, the related practice that contribute to the stress at workplace including internal conflict within peers or others, negative style of communication among workers, poor working habits and poor management practice.

However, it is expected that the most significant factor that contributes to the occupational stress is the organizational role. Specifically when the staff working under poor environment condition, excessive given task, work under risk or unsafe, and inconvenience job or workplace design could potentially put staff under pressure and consequently lead to the occupational stress.

The findings suggest that the management of the offshore operation company could pay attention regarding individual and management factors that contribute the occupational stress within the organization. The company should plan an efficient and effective stress management program based on the suggested factors. If the workers are persistently exposed to the stress, it could stimulate many other associated problems including physical and mental health, disrupted work focus, lack of motivation and others. These accumulate problems will lead decrease the job performance among the staff in the organization.

4. Conclusion

This study has identified a few factors that significantly influence the occupational stress of the offshore company staffs. The most significant factor is organizational roles, followed by job

characteristic and interpersonal relationship. Special attention need to be addressed by the company on these specific factors so that a mitigation strategy could be planned to reduce stress level among the workers. It is believed that by providing a conducive and save working environment, good interpersonal relationship and prudent management style may initiate minimal occupational stress and lead to increase their performance.

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