

Job Role Differences In Psychosocial Risk Perceptions: A Comparative Study of Oil And Gas Industry Personnel

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Abstrak The oil and gas industry exposes workers to significant psychosocial hazards, yet comparative analyses of risk perceptions across organizational hierarchies remain limited. This study addresses this gap by investigating differences between managerial and non-managerial personnel in Sarawak's oil and gas sector using the Copenhagen Psychosocial Questionnaire (COPSOQ). Data from 278 employees (142 managers, 136 non-managers) across five companies revealed a significant difference in the domain of work demands, with managerial personnel reporting higher levels ($M = 51.47$ vs. 47.88 , $d = 0.40$, $p < .001$) than non-managerial workers. No significant differences were found in work organization, interpersonal relations, work-individual interface, work values, or health and well-being. These findings indicated that occupational health strategies should prioritize mitigating work demands for managerial staff, while also addressing psychosocial risks common to all roles in this high-risk industry.

Keywords: Psychosocial risks, job role, oil and gas industry, job demand.

Abstract Industri minyak dan gas mendedahkan pekerja pada pelbagai bahaya psikososial, namun analisis perbandingan terhadap persepsi risiko merentas hierarki organisasi masih terhad. Kajian ini menangani jurang tersebut dengan mengkaji perbezaan antara kakitangan pengurusan dan bukan pengurusan dalam sektor minyak dan gas di Sarawak menggunakan Copenhagen Psychosocial Questionnaire (COPSOQ). Data daripada 278 orang pekerja (142 orang kakitangan dari pengurusan, 136 orang kakitangan dari bukan pengurusan) dari lima buah syarikat menunjukkan perbezaan signifikan dalam domain tuntutan kerja, kakitangan pengurusan melaporkan tahap yang lebih tinggi ($Min = 51.47$ berbanding $Min = 47.88$, $k < .001$) berbanding pekerja bukan pengurusan. Tiada perbezaan signifikan antara dua pihak ini dalam aspek organisasi kerja, hubungan interpersonal, antara muka kerja-individu, nilai kerja, atau kesihatan dan kesejahteraan. Dapatan ini menunjukkan bahawa strategi kesihatan pekerjaan harus memberi keutamaan kepada usaha mengurangkan tuntutan kerja bagi kakitangan pengurusan, di samping menangani risiko psikososial yang dikongsi oleh semua peranan dalam industri berisiko tinggi ini.

Kata kunci: Risiko psikososial, peranan pekerjaan, industri minyak dan gas, permintaan pekerjaan.

The oil and gas industry is central to global economic activity but is characterized by hazardous, complex work conditions that generate substantial psychosocial risks, such as excessive demands, role ambiguity, difficult relationships, and work-life conflict (Bergh et al., 2014; Mohd Rani et al., 2022; Zand, 2024). Existing occupational health practices often treat workers as a homogeneous group, overlooking how demographic and hierarchical factors shape risk perceptions, which may lead to generic interventions that fail to address role-specific stressors and safety outcomes (Dunger, 2024; Dyreborg et al., 2022). This study addressed that gap by comparing psychosocial risk perceptions between managerial and non-managerial personnel in Sarawak's oil and gas industry and identifying which psychosocial risk domains differ most between these groups.

Psychosocial risks arise from interactions between job content, work organization, management, and individual characteristics and can detrimentally affect health depending on how work is structured and managed (International Labour Office, 1986; Leka & Jain, 2016). In oil and gas, these risks are intensified by remote locations, long shifts, isolation, job insecurity, high workload, and variable

leadership quality, all of which have been linked to stress, fatigue, burnout, anxiety, and reduced performance (Derdowski & Mathisen, 2023; Khaksar et al., 2019; Pignata, 2022). The Job Demand-Control model (Karasek, 1979) underpins the study by proposing that strain is most likely when high job demands co-occur with low decision latitude, although safety-critical industries may restrict autonomy across hierarchies and thereby weaken assumed managerial advantages in control.

Methods

Research Design

This study employed a quantitative, cross-sectional design to examine and compare perceptions of psychosocial risks among managerial and non-managerial employees in Sarawak's oil and gas sector. Self-report survey data were collected at a single time point for direct statistical comparisons between the two independent groups.

Respondents

A total of 278 employees were recruited from major oil and gas operations across the Sarawak region of Malaysia. The sample was predominantly middle-aged (31.7% aged 40–49), gender-balanced (51.8% male, 48.2% female), and highly educated (57.2% holding bachelor's degrees). Notably, most participants possessed substantial professional experience, with 85.3 percent reporting over six years in their field. The sample comprised primarily in permanent employment (49.6%), working office-based roles (50.0%) and 51.1% of the participants work 40 to 50 hours weekly. Most operated onshore (58.6%), aligning with the cohort's managerial dominance (51.1% managerial roles). In contrast, the non-managerial roles balanced with the managerial roles at 48.9%. Hybrid work arrangements (28.1%) and contract employment (36.0%) represented significant minorities. In the context of this study, non-managerial roles were technician, engineer, HSE (site safety officer and safety and health officer were included), supply chain personnel and foreman. As for the managerial roles, they included human resources employees, finance employees, senior managers, operations manager, project manager and supervisor.

Purposive sampling was used to ensure that participants met the inclusion criteria such as:

- (a) The employee has at least six months of experience in the oil and gas industry,
- (b) The employee is directly involved in industry operations (e.g., drilling, production, pipeline maintenance, office-based operations, or administrative roles), and
- (c) The employee is currently employed in Sarawak-based companies.

The use of purposive sampling allowed the selection of participants with sufficient knowledge and experience relevant to the study context, thereby enhancing the depth and meaningfulness of the data (Haute, 2021). Recruitment of the respondents were facilitated through collaboration with five major oil and gas companies in Sarawak. Each company's designated focal person distributed the survey invitation to eligible employees. During the initial engagement phase, the participating companies provided information on the number of eligible managerial and non-managerial employees who met the inclusion criteria. This process was to ensure alignment between the sample and the actual workforce composition within each organization. Including all available eligible employees strengthened the representativeness of the sample and increased the applicability of the findings to real-world industry conditions.

Instrument

The study employed the validated Malay version of the Copenhagen Psychosocial Questionnaire II (COPSOQ-II; Pejtersen et al., 2009). COPSOQ-II was designed to assess the main aspects of the psychosocial work environment, including work demands, organizational factors, interpersonal relations, and health and well-being. The questionnaire comprises 86 items across multiple domains. Items were rated using 5-point Likert-type scales (0 = Never/hardly ever, 1 = Seldom, 2 = Sometimes, 3 = Often, and 4 = Always). COPSOQ-II consisted of domains: Demands at work (11 items), Work organization and job contents (15 items), Interpersonal relations and leadership (25 items), Work-individual interface (14 items), Values at workplace (8 items), Health and well-being (13 items). The COPSOQ-II

demonstrated strong psychometric properties, the analysis reported Cronbach's Alpha ranged from .81 (Work-individual interface) to .91 (Interpersonal relations and leadership).

Data Analysis

Data was collected using Google Forms and analysed using IBM SPSS Statistics version 27. Descriptive statistics, including means and standard deviations, were computed to summarize participants' characteristics and psychosocial risk scores. Independent samples t-tests were carried out to compare psychosocial risk levels between managerial and non-managerial employees. Assumptions of normality and homogeneity of variance were evaluated prior to conducting the analyses.

Results

Mean score and standard deviation of Psychosocial Risks

Psychosocial risks scoring of Copenhagen Psychosocial Questionnaire II (COPSOQ-II) was ranged from 0 to 104, refer to Table 1, it showed that all of the domains of COPSOQ-II have moderate mean score in which it indicated that both managerial and managerial perceive moderate psychosocial risk in this study, the results suggested neutral-to-moderate perception across these domains in the respondents. Standard deviations (ranged from 6.02 to 10.98) indicated moderate variability, with work values exhibiting the highest dispersion (S.D = 10.98), implied substantial differences in how employees prioritized organizational values. The absence of extreme scores suggested no systemic issues in work conditions or well-being. However, variability in work values signals a need for personalized engagement strategies.

Table 1
Mean Score and Standard Deviation of Psychosocial Risks Study Variables (N=278)

Domains	Mean	Standard Deviation
Demands at work	49.71	9.24
Work organization and job content	49.83	7.90
Interpersonal relations and leadership	49.06	6.02
Work individual interface	49.03	9.24
Work values	49.54	10.98

Descriptive comparisons between managerial (N = 142) and non-managerial (N= 136) personnel revealed notable differences in six psychosocial risks domains (refer to Table 4). Work demands were substantially higher among managerial personnel (M= 51.47, SD = 9.10) than non-managerial employees (M= 47.88, SD = 9.05), with a mean difference of 3.59 points. Conversely, health and well-being were moderately lower for managers (M= 48.55, SD = 8.29) compared to non-managers (M= 50.08, SD = 9.46), a mean difference of -1.53 points. Managers also reported slightly higher work values alignment (M= 50.15, SD = 10.69 vs. M= 48.90, SD = 11.29; Δ = +1.25). Minimal differences were observed in work organization, interpersonal relationships, and work interface, with mean differences \leq 1.04 points (refer to Table 2).

Table 2
Mean and Standard Deviation in Domains Between Non-Managerial and Managerial

Domain	Managerial (N= 142)		Non- Managerial (N= 136)	
	Mean	S.D	Mean	S.D
Work Demand	51.47	9.10	47.88	9.05
Work Organization	49.46	7.70	50.21	8.12
Interpersonal Relations	48.80	5.77	49.34	6.28
Work Individual Interface	48.52	8.46	49.57	9.99
Work Values	50.15	10.69	48.90	11.29
Health and Well Being	48.55	8.29	50.08	9.46

The Difference Between Managerial and Non-

Table 3

Independent Sample T-Test Analysis on Psychosocial Risks Between Managerial (N = 142) and Non-Managerial Employees (N = 136)

Domains	Managerial		Non-Managerial		t	Sig.	Cohen's d	95% CI	
	Mean	(S.D)	Mean	(S.D)				LL	UL
Work Demand	51.47	(9.10)	47.88	(9.05)	3.30	.001	0.40	1.45	5.74
Interpersonal Relations	48.80	(5.77)	49.34	(6.28)	-0.75	.455	-0.09	-1.96	0.88
Work Organization	49.46	(7.70)	50.21	(8.12)	-0.79	.431	-0.10	-2.62	1.12
Work Individual Interface	48.52	(8.46)	49.57	(9.99)	-0.94	.348	-0.11	-3.22	1.14
Work Values	50.15	(10.69)	48.90	(11.29)	0.95	.341	0.11	-1.34	3.85
Health and Well Being	48.55	(8.29)	50.08	(9.46)	-1.44	.151	-0.17	-3.63	0.56

Discussions

The present study examined psychosocial risks among managerial and non-managerial employees in Sarawak's oil and gas sector using the COPSOQ-II Malay version. Overall, the findings indicated moderate levels of psychosocial risks across all domains for the sample, suggested that employees generally experienced manageable though not negligible levels of work demands, organizational conditions, interpersonal factors, work-individual interface challenges, and value alignment. These results were aligned with prior research showing that employees in high-risk industries, including oil and gas operations, commonly report moderate psychosocial strain due to the demanding nature of their work environments (Cox & Griffiths, 2005).

The variability observed in work values (SD = 10.98) is particularly noteworthy, as it indicated substantial differences in how employees perceived organizational justice, trust, and respect. Prior literature has emphasized that value alignment is strongly associated with motivation, well-being, and organizational commitment (Edwards & Cable, 2009). Divergence in perceived work values may therefore suggest differences in cultural expectations, leadership exposure, or organizational communication practices across departments. Although no extreme scores were detected, indicated by the absence of severe psychosocial hazards, the variability highlights the need for personalized or department-level engagement strategies.

Differences Between Managerial and Non-Managerial Employees

Consistent with expectations and prior evidence, the study found that managerial employees reported significantly higher work demands than non-managerial employees. This finding aligned with established models such as the Job Demands-Resources (JD-R) framework, which posited that individuals in higher-responsibility roles typically face greater cognitive, emotional, and administrative burdens (Bakker & Demerouti, 2017).

Managerial Employees in Psychosocial Risks

Independent samples t-tests revealed a statistically significant difference in work demands between managerial (M = 51.47, SD = 9.10) and non-managerial employees (M = 47.88, SD = 9.05), $t(276) = 3.30$, $p < .05$. Managerial roles reported substantially higher work demands. In contrast, the results revealed no significant differences were found in work organization, interpersonal relationships, work interface, work values, or health and well-being between managerial and non-managerial employees (refer to Table 3). Cohen's d effect sizes for non-significant differences ranged from -0.17 to 0.11, indicated minimal practical significance. Equal variances were assumed for all tests per non-significant Levene's results ($p > .05$).

Managerial roles in the oil and gas sector often involved decision-making pressures, safety oversight, compliance monitoring, and managing complex operational risks, factors that likely contribute to elevated work demands (Håvold & Nettet, 2022).

Interestingly, despite higher work demands, managers did not differ significantly from non-managers in other psychosocial domains, included interpersonal relations, work organization, work-individual interface, work values, and health and well-being. This pattern suggested that although managerial staff experienced heavier workloads, the organizational environment may provide adequate resources, such as autonomy, authority, or role clarity that buffered the negative effects typically associated with high job demands (LePine et al., 2016). Similarly, the absence of significant differences in interpersonal relationships may indicate that relational support and leadership quality are fairly consistent across hierarchical levels within the participating organizations.

Non-managerial employees showed marginally better scores in health and well-being, although the difference was not statistically significant. Previous studies have shown that prolonged exposure to high job demands is associated with greater risk of burnout and health impairment, particularly among supervisory roles (Schaufeli & Taris, 2014). While the difference observed here is small, it may reflect early indicators of strain that warrant organizational monitoring.

Conclusion

In summary, the study contributes to the understanding of psychosocial risks among different job categories in Malaysia's oil and gas industry. Managers experienced significantly higher work demands, yet both managerial and non-managerial employees reported similar levels of organizational and interpersonal experience. Although no severe psychosocial hazards were detected, variations in value alignment and demands among managers emphasized the need

for targeted support strategies. Future research may consider longitudinal designs or qualitative methods to further explore contextual factors influencing psychosocial risks in this sector.

The findings have several practical implications for organizations within the oil and gas industry. First, the significantly higher work demands reported by managers highlight the need for initiatives aimed at workload optimization, delegation strategies, and resilience-building interventions at the managerial level. Leadership development programs focusing on time management, stress regulation, and healthy supervisory practices may also be beneficial.

Second, the variability in work values suggested that employees did not share a uniform perception of organizational justice and respect. Strengthening organizational communication, ensured transparent decision-making, and promoted inclusive leadership may enhanced alignment in perceived values. Given that value congruence is directly associated with job satisfaction and employee retention (Kristof-Brown et al., 2005), targeted interventions could produce substantial long-term benefits. Third, the overall moderate psychosocial risk levels point to a workplace environment that is generally functioning well but still susceptible to strain, especially given the high-risk and high-demand nature of the oil and gas sector. Continuous monitoring of psychosocial hazards using validated instruments like COPSOQ-II is critical for early identification of risk trends and prevention of long-term health consequences.

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