Journal of Energy and Safety Technology

JEST

RESEARCH ARTICLE Open Access

THE CORRELATION BETWEEN WORK-LIFE BALANCE AND SAFETY CULTURE AMONG OIL & GAS GEO-SURVEY WORKERS IN MALAYSIA

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Article History

Received:	Received in revised form:	Accepted:	Published:
August 22, 2025	October 28, 2025	October 30, 2025	December 12, 2025

Abstract

The oil and gas industry has adopted many prevalent safety initiatives to ensure a safer working environment. However, the effectiveness of these initiatives is very depending on the organization's safety culture. Many previous studies have highlighted the importance of Work-Life Balance (WLB) for employees in the oil and gas industry, the problem is most acute for workers in geo-survey, who are highly susceptible to poor WLB. Therefore, the aim of this study is to investigate the influence of WLB on safety culture and contributing factors of WLB among on-shore and offshore geo-survey workers. A cross-sectional study was conducted across 89 offshore and on-shore geo-survey workers in a Malaysian oil and gas company. The study employed convenience and snowball sampling methods, with data collected via online questionnaire survey. Data analysis was done using the Mann-Whitney test, which was selected after a normality test. All calculations were performed in SPSS and SEM PLS. The WLB rating for the geo-survey company is 2.74; rating for home induces is 2.73, and the job induces 2.74. Although the level is the same, but the contributory factors for offshore workers arise from job-induced activities. Additionally, years of experience showed a statistically significant relationship with WLB of the offshore employees. Nevertheless, there is no statistically significant relationship between WLB and safety culture. This research identified a low rating of WLB within the geo-survey company and revealed specific concerns based on location and years of experience. A failure to manage this situation could significantly affect productivity and employees' health.

Keywords: geo-survey worker, oil and gas, safety culture, work-life balance

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1.0 INTRODUCTION

The safety culture came into focus after the Chernobyl nuclear reactor catastrophic disaster in 1986. This unfavorable disaster illustrates that a weak safety culture results in high complacency, poor communication, and a failure to prioritize safety procedures, significantly increases the likelihood

DOI: https://doi.org/10.11113/jest.v8.215

and severity of accidents. Therefore, topics related to safety culture have garnered the attention of various parties, including industries, government agencies, and research institutions. The term safety culture refers to the level of organizational acceptance towards safety, where safety is given top priority in every business aspect. In other words, the term is also known as "the ability of individuals or organizations to deal with risks and hazards to avoid damage or losses and yet still achieve their goals" (1).

The oil and gas industry, with activities such as exploration, transportation, extraction, storage, and refinery, is categorized as a high-risk industry, and safety has always been a significant concern (2). According to the International Association of Oil and Gas Producers (IOGP) Report 2021, the fatalities and injuries in the oil and gas sector are both increased from 2020 levels. The number of fatalities surged from 14 to 20 in 2021. These 20 fatalities were resulted from fifteen separate occupational incidents. The aggregate recordable injury rate in 2021, which includes fatalities, cases involving lost workdays, cases involving restricted workdays, and cases involving medical care, was 0.77, 10% higher than in 2020 (0.70). The overall lost time injury rate (deaths and cases involving lost workdays) remained constant from 2020 until 2021 at 0.22. Five hundred eighty lost workday cases (injuries requiring at least one day off work) were reported by participating IOGP member companies. Four hundred fifty-three of those occurrences involved contractors, while 127 had to do with the company. However, 20% of the instances or 114 cases, were classified as 'slips and trips (at the same height)'. There were only ninety-nine cases (18%) reported in 2020. On the other hand, there are one hundred six cases, or 18% of the total, that were classified as 'struck by (not dropped object)' (3).

Malaysia is ranked 4th out of 7 ASEAN countries in the IOGP in total recordable injury rate (TRIR) of 0.43 and 3rd in lost time injury rate (LTIR) of 0.1. The TRIR 2021 of Malaysia increased sharply from the previous year, which was recorded 0.32 (3). This indicates a decline in safety performance in Malaysia's oil and gas sector. In order to improve the safety of the oil and gas industry, many safety initiatives were introduced to enhance the awareness of employees, to prevent unsafe conditions and to improve the unsafe acts (4). However, the effectiveness of these initiatives are very relying on the organization's safety culture. Therefore, an organization must cultivate a positive and mature safety culture.

The Work-Life Balance (WLB) is determined as a driving factor of the safety culture. Studies have shown that adequately managing Work-Life Balance (WLB) will assist organizations to improve their performance by increasing productivity levels, reducing overheads and turnover, and preventing health issues such as burnout and fatigue (5). Burnout is a syndrome of chronic workplace stress that remains unresolved until now. It is a phenomenon specific to the occupational context and does not apply to experiences in other areas of life. Furthermore, burnout is defined by three dimensions: feelings of energy depletion or exhaustion; increased mental distance from one's job or feelings of negativism or cynicism related to one's job; and reduced professional efficacy (6). Fatigue, on the other hand, can be described as acute or chronic, or both. Fatigue is 'the state of feeling very tired, weary or sleepy resulting from insufficient sleep, prolonged mental or physical work, or extended periods of stress or anxiety' (7). Boring or repetitive tasks can intensify feelings of fatigue.

Geo-survey workers are one of the professions in the oil and gas industry that are highly predicted to have poor WLB status. Geo-survey workers refer to the individuals that perform a systematic investigation of the geology of an area (8). The responsibilities of geo-survey workers include leading or working on a crew and completing field work related to ALTA/NSPS surveys, boundary and topographic surveys, hydrographic surveys, and other types of surveys (9). The job nature separates them from family and civilization for a long period. This makes them often experience burnout and fatigue.

Several studies found a significant relationship between WLB and fatigue/burnout. However, the existing studies mainly focused on job satisfaction and burnout/fatigue. Although an imbalance of WLB may cause workers to suffer from burnout or fatigue, and eventually increase the incident

DOI: https://doi.org/10.11113/jest.v8.215

risk. Nonetheless, no recent study has examined the direct contribution of WLB toward safety culture. Thus, there is an urgent need to investigate the influence of WLB on safety culture in oil and gas geo-survey workers in Malaysia. This research aims to validate the relationship between WLB and safety culture. The ultimate goal of this study is to make the workplace safer.

2.0 METHODOLOGY

2.1 Research Design

A cross-sectional study was conducted in order to investigate the relationship between independent variables (WLB, work location, position, gender, and age) and dependent variable (safety culture) across 89 offshore and on-shore geo-survey workers in a Malaysian oil and gas company. However, the sample size of 89 was determined by the limited time frame for data collection and the inherent difficulty in surveying a population within a highly professional and relatively small industry sector, though efforts were made to enhance informational convincement by including different organizational roles. The present study adopted a convenience and snowball sampling method to efficiently recruit participants who meet specific criteria and are easily accessible, which significantly reduces the time and resources required for data collection. Additionally, all recipients are encourged to share the link with a minimum of 5 individuals within the organization.

2.2 Study Tools

The online questionnaire survey was distributed via the company's Microsoft 365 account. A total of four sections were designed in the questionnaire. The first section serves as an introduction to the participants, comprising the research objective and allowing participants to refuse participation in the survey, as participation in this research is completely voluntary. In addition, the participants were informed that their responses in this study would be kept anonymous. There is no single correct response to the questionnaire.

The second section requires participants to complete the demographic information pertaining to age, gender, marital status (married with children, married without children, or single), work location (on-shore or offshore), designation (executive/engineer/surveyor, manager, senior executive/senior engineer/senior surveyor/specialist, or senior manager and above), years of working (less than 2 years, 3-4 years, 5 to 10 years, or 11 to 20 years), and area of expertise (Human Resource, Health, Safety and Environment (HSE), Finance, Project Management, Logistics, Crewing, Survey, Field Engineer, and Marine.). In the third section, the participants are required to answer a set of questions designed to assess WLB. The measurement ratings are based on the Likert scale from completely dissatisfied ‘1’ to completely satisfied ‘5’. The initial three questions for WLB refer to home induce (HI) reasons for WLB, and the second three questions will refer to job induce (JI) reasons concerning WLB (10).

The final section measures the safety culture using the Safety Culture Step Ladder Model, which consists of seven elements: commitment to HSE and care for colleagues, balance between HSE and profitability, workforce interest in competency and training, work-site job safety techniques, the purpose of procedures, repercussions and feedback after accidents, and audit & reviews (11). The ratings are on a scale from one ‘1’ to five ‘5’, reflecting from completely dissatisfied to completely satisfied, similar to the WLB rating.

Likert scale questionnaire design was adopted due to its straightforward, easily understood format is suitable for employees with various academic backgrounds, minimizing confusion and preventing participant impatience. Furthermore, these results of scaling method are highly supportive for subsequent statistical analysis.

DOI: https://doi.org/10.11113/jest.v8.215

2.3 Data Collection and Data Analysis

Respondents were given one week to respond to the questionnaire. The participants of this survey consist of on-shore and offshore workers of an oil and gas company in Malaysia. The implication is to further study the current state of WLB between the two categories of workers. For the offshore workers, the data collection was done before or immediately after their return from duty. The present study applied Mann-Whitney test to examine the relationship between variables. Importantly, a normality test was performed prior to the aforementioned test. All calculations were performed by the Statistics Package for Social Science (SPSS) software and Structural Equation Modelling with Partial Least Square (SEM PLS) software. The output statistics play an important role in forming meaningful conclusions.

3.0 RESULTS AND DISCUSSION

3.1 Demographic Characteristics

The sociodemographic characteristics of the respondents are provided in Table 1.

Table 1: Demographic Characteristics of the Respondents (n=89)

Characteristics	Frequency		Total (n, %)
	On-shore (n, %)	Offshore (n, %)	
Gender			
Male	23 (58.9)	48 (96)	71 (79.7)
Female	16 (41.1)	2 (4)	18 (20.3)
Total	39 (100)	50 (100)	89 (100)
Marital Status			
Married with children	25 (64.2)	33 (66)	58 (65.1)
Married without children	7 (17.9)	7 (14)	14 (35.8)
Single	7 (17.9)	10 (20)	17 (19.1)
Total	39 (100)	50 (100)	89 (100)
Year of Working Experience			
<2 years	8 (20.5)	12 (30.7)	20 (22.4)
3-4 years	9 (23)	13 (33.3)	22 (24.7)
5-10 years	12 (30.8)	12 (30.7)	24 (26.9)
11-20 years	10 (25.7)	13 (33.3)	23 (26)
Total	39 (100)	50 (100)	89 (100)
Work Designation			
Executive/Engineer/Surveyor	12 (30.7)	22 (44)	34 (38.2)
Manager	10 (25.6)	N/A	10 (11.2)
Senior Executive /Senior Engineer / Senior Surveyor / Specialist	11 (28.2)	28 (56)	39 (43.8)
Senior Manager and above	6 (15.5)	N/A	6 (6,8)

DOI: https://doi.org/10.11113/jest.v8.215

Total	39 (100)	50 (100)	89 (100)

This study received responses from eighty-nine oil and gas workers, while 73% of the respondents are working at geo-survey company. Based on gender, females only represented 20.3% of respondents. Moreover, there are only two women who represent female employees from offshore. On the contrary, the male workers' dominance is apparent in both on-shore (58.9%) and offshore (96%). Out of 89 respondents, 58 respondents (65.1%) were married and had children. For those who are married, 33 of them work in the offshore section. Among the respondents, 35.8% (n=14) were married without children, equally divided between on-shore and offshore. A total of 17 respondents (19.1%) declared being single.

In terms of the professional working experience, the number of respondents is almost evenly distributed. Twenty-three respondents (26%) were recorded as having work experience in the 11-20 years range. Based on designation, the respondents included 50 offshore personnel (56.2%), composed solely of Executive/Engineer/Surveyor and Senior Executive /Senior Engineer/Senior Surveyor/Specialist. Meanwhile, the 39(43.8%) on-shore staff respondents are varying from executive level to senior management.

3.2 Descriptive Statistics of WLB Status

Upon reviewing the responses of the survey, 18 answered survey responses were rejected due to the participants not completing their questionnaires. Thus, the present study only adopted seventy-one responses to perform the statistical analysis. The Table 2 illustrates the descriptive statistics of WLB status.

Table 2: Descriptive Statistics of WLB Status (n=71)

Descriptive WLB Status		Statistics	Std. Error
Home Induce			
Mean		2.7324	.08836
95% Confidence Interval for Mean	Lower Bound	2.5562	
	Upper Bound	2.9086	
5% Trimmed Mean		2.7079	
Median		2.6667	
Variance		.554	
Std. Deviation		.74455	
Minimum		1.33	
Maximum		5.00	
Range		3.67	
Interquartile Range		1.00	
Skewness		.497	.285
Kurtosis		.534	.563
Job Induce			
Mean		2.7418	.12224
95% Confidence Interval for mean	Lower Bound	2.4980	
	Upper Bound	2.9856	
5% Trimmed Mean		2.6917	
Median		2.3333	

DOI: https://doi.org/10.11113/jest.v8.215

Variance	1.061	
Std. Deviation	1.03002	
Minimum	1.00	
Maximum	5.00	
Range	4.00	
Interquartile Range	1.33	
Skewness	1.050	.285
Kurtosis	.089	.563

Based on the analysis results, the WLB rating for the geo-survey company is 2.74. Nonetheless, the rating for home induces (HI) is 2.73. The low standard deviation of 0.74 in HI further illustrates the responses were consistent among the majority of respondents. For the job induces (JI), the rating is counted as 2.74, and based on the confidence interval, there is a 96 % chance that the rating falls from 2.29 to 2.98. However, the standard deviation of JI is 1.01, indicating the responses of this section are more varied.

3.3 Factors Contributing to WLB

A normality test was conducted on the data collected from the survey, with the purpose of investigating the different factors in WLB for on-shore and offshore workers. The results are provided in Table 3 below.

Table 3: Normality Test of WLB

Normality Test (Kolmogorov Smirnov)	Statistic	df	Sig.
Home Induce	.143	71	.001
Job Induce	.232	71	.000

The normality test is conducted by applying the data gathered from the survey. This is to investigate the different factors in WLB for both on-shore and offshore workers. However, the significant normality test result (p-value < 0.05) showed that the data was not normally distributed. This is further supported by the large variation in responses within the sample. Hence, the Mann-Whitney test was applied to further analyze the data. All the details are shown in Table 4.

Table 4: Mann-Whitney Test of Factors Contributing to WLB

Hypothesis Test	Sig. [a,b]
Home Induce and Job Induce WLB	
The distribution of HI is the same across Work Location	.555
The distribution of JI is the same across Work Location	.033
The distribution of WLB is the same across Work Location	.287
The distribution of HI is the same across Work Location	.555
WLB in Location and Gender	
The distribution of HI is the same across categories of Work Location and Gender	.814
The distribution of JI is the same across categories of Work Location and Gender	.164
The distribution of WLB is the same across categories of Work Location and Gender	.670
WLB in Location and Designation	

DOI: https://doi.org/10.11113/jest.v8.215

The distribution of HI is the same across categories of Work Location and Designation	.147
The distribution of JI is the same across categories of Work Location and Designation	.169
The distribution of WLB is the same across categories of Work Location and Designation	.605
WLB in Location and Years of Experience	
The distribution of HI is the same across categories of Work Location and Years of Experience	.087
The distribution of JI is the same across categories of Work Location and Years of Experience	.045
The distribution of WLB is the same across categories of Work Location and Years of Experience	.054
WLB in Location and Marital Status	
The distribution of HI is the same across categories of Work Location and Marital Status	.125
The distribution of JI is the same across categories of Work Location and Marital Status	.449
The distribution of WLB is the same across categories of Work Location and Marital Status	.210

The Mann-Whitney test revealed a statistically significant difference in JI scores across work locations (p = 0.033). Nevertheless, the HI (sig. 0.555) and WLB average (sig. 0.287) were statistically insignificant. In terms of the WLB analysis pertaining to location and gender, it was concluded that none of the components is significantly correlated. The findings were similar to the results of the WLB analysis regarding location and designation. Another analysis for WLB was conducted based on location and years of experience. However, the analysis showed a statistically significant relationship between job-induced WLB (sig. 0.045) and the offshore & on-shore groups, based on the location and years of experience. Apart from that, the analysis result of HI across location and years of experience fails to reject the null hypothesis, implying there is no significant difference between the groups (sig. 0.054). In addition, the analysis result for location against marital status was statistically insignificant. Since the p-value for both JI for work location against marital status (sig. 0.125) and HI for work location against marital status is (sig. 0.449) exceed 0.05, therefore the null hypothesis is unable to be rejected.

3.4 Relationship between WLB and Safety Culture

To identify the relationship between WLB and safety culture for a geo survey company in Malaysia's oil and gas industry, the current study analyzed the data by using the SmartPLS Software. The Construct Reliability and Validity analysis is crucial in developing the research model for the relationship between WLB and safety culture. In addition, the criteria for selections are Cronbach's alpha > 0.5, composite reliability (rho-c) >0.7, and average variance extracted (AVE) 0.5. Table 5 presents a comprehensive overview of the test results.

Table 5: Construct Reliability and Validity Results

Variable	Cronbach's Alpha	Composite reliability (rho-a)	Composite reliability (rho-c)	Average variance extracted
Audits and reviews (AR)	0.015	-0.033	0.541	0.380
Balance between HSE and profitability (BP)	0.497	0.460	0.743*	0.492
Commitment to HSE and care for colleagues (CC)	0.208	-0.257	0.051	0.297
Home Induce (HI)	0.385	0.371	0.707*	0.447
Job Induce (JI)	0.797*	0.815*	0.880*	0.710*
Purpose of procedures (PP)	0.752*	0.871*	0.790*	0.571*
Repercussions and feedback after accidents (RF)	0.388	0.176	0.036	0.375
Work-site job safety techniques (ST)	0.677	0.770*	0.816*	0.601*
Workforce interest in competency and training (WC)	0.398	0.947*	0.588	0.389

DOI: https://doi.org/10.11113/jest.v8.215

A second criterion factored into the analysis was discriminant validity. For such instances, the Fornell-Larcker criterion was reviewed during the study. The relevant results are illustrated in the Table 6 below.

Table 6: Result of Fornell-Larcker Criterion

	AR	BP	CC	HI	JI	PP	RF	ST	WC
AR	0.617								
BP	0.077	0.701							
CC	-0.618	-0.211	0.545						
HI	-0.192	0.165	0.287	0.668					
JI	-0.090	0.433	-0.436	0.165	0.842				
PP	0.437	0.334	-0.016	0.005	-0.153	0.755			
RF	-0.351	0.034	0.193	0.432	0.067	-0.200	0.612		
ST	-0.263	0.003	0.121	0.318	0.000	-0.134	0.294	0.775	
WC	-0.243	0.035	0.312	-0.000	-0.326	-0.001	0.395	0.307	0.624

Path analysis of the research model revealed no statistically significant relationship between WLB and safety culture (p = 0.614). The Figure 1 below shows the result of the Research Model Path Analysis.

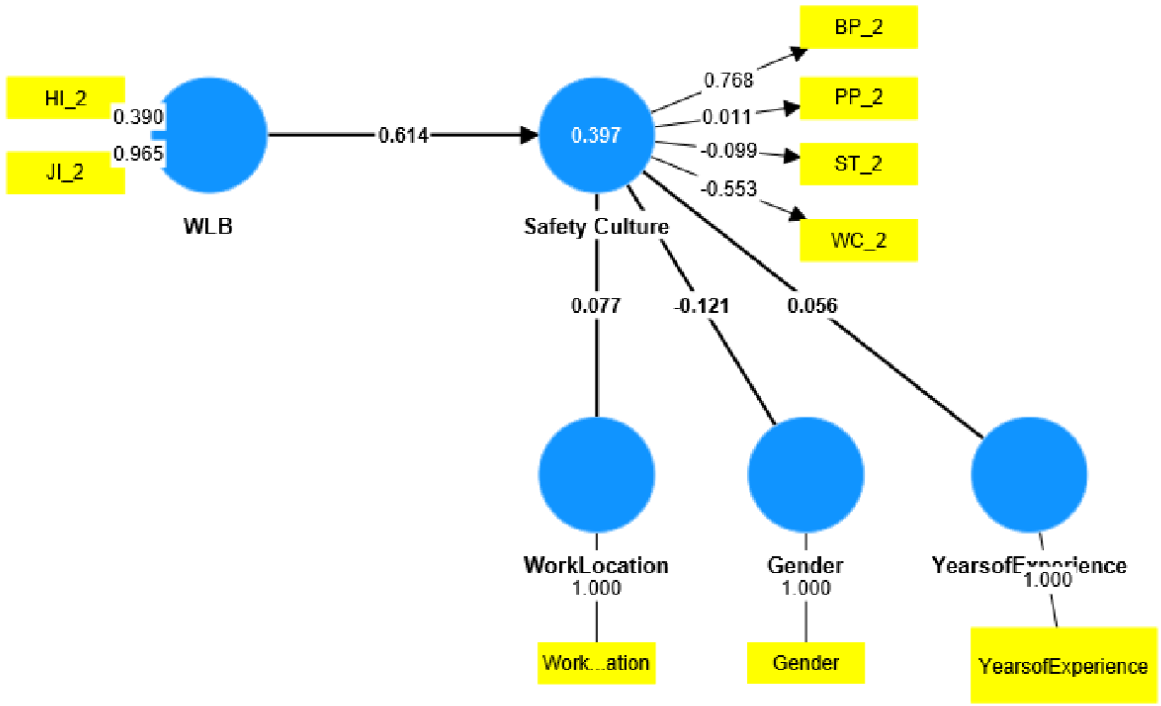


Figure 1: SmartPLS Result for Research Model Path Analysis

3.6 Discussion of Findings

DOI: https://doi.org/10.11113/jest.v8.215

WLB Status of Geo-survey Workers

The WLB rating for the geo-survey company is 2.74. Additionally, rating for home induces (HI) is 2.73, and the job induces (JI) is 2.74. The results imply that the employees of the geo-survey company are dissatisfied with the current state of WLB. Such a finding is consistent with the study conducted by Monster.com in 2019, which reported that 49% of Malaysians rate their current WLB as average, and constantly worry about work. A US-based security specialist found that Kuala Lumpur ranked 47th out of 50 selected significant cities with qualities that can provide a WLB working environment and was ranked 40th from 40 cities in the same study conducted in 2019 (12). The study index was calculated based on work intensity, society and institution, city livability, and the impact of Covid-19. Although the study focused on the possibilities of a city to provide a suitable environment for WLB, but the Kuala Lumpur's ranking as the fourth most overworked city is alarming. It placed just behind Hong Kong, Singapore, and Seoul, but ahead of Tokyo, which took fifth place. An immediate intervention is desperately needed. Moreover, there are some other elements identified under work intensity which include hours worked and commute per week, minimum days vacations offered, vacation days taken, latest unemployment, multiple job holders, and paid days for parental leave. Another study reported that 73% of employees experienced an overwhelming workload, which eventually led to poor WLB (13).

Previous study conducted by (2) discovered that poor WLB status in UAE oil and gas companies is a crucial factor that can influence the turnover rate in a company. Other researchers also investigated the relationship between WLB and its effects on organizations (14). It was concluded that employees who felt their work and family lives enriched were less likely to consider leaving. Additionally, (15) found that the association between work arrangements, turnover intentions and job satisfaction is mediated by work-to-family enrichment.

Different Factors Contributing to WLB among On-shore and Offshore Geo-survey Workers

Although the level of WLB for offshore and on-shore workers were found to be similar, the contributory factors were varied indeed. In terms of offshore workers, the contributing factors stemmed from job-induced activities. However, from the perspective of offshore workers, working offshore often leads to a poor work-life balance. This is primarily due to their inability to return home daily, which limits the time available for personal and family commitments. Based on the survey, 59% of respondents reported facing difficulties in enjoying their leisure, due to the offshore environment. In addition, 54% of them mentioned facing difficulties in fulfilling family responsibilities, and 59% of respondents claimed that professional tasks negatively affect their private life. This indicates that employees generally prefer WLB because they have more time for self-development and family.

The findings are supported by Randstad's study that found 40% of employees define WLB as the time spent on family, and 39% of employees perceive WLB is the flexibility and personal time during the weekend night (13). A survey conducted by Monster.com discovered that 66% of Malaysians perceive WLB as not working on weekends and 54% of respondents relate WLB with the ability to leave the workplace on time every day (16). Working offshore means the employees have to work daily, and they often face limited flexibility for personal time. In this case, although the offshore employees have completed their shifts, they still cannot return home.

Designation

Work designation was found to be statistically insignificant to WLB for the geo-survey company, including offshore or on-shore. This result differs from the previous study conducted by (17) which

DOI: https://doi.org/10.11113/jest.v8.215

found that higher-level positions in non-oil and gas workers led to better work-life balance because they had higher income and work flexibility. This finding could be attributed to several factors. Even though workers have a higher work designation, they cannot fully experience the rewards of their hard work in their family lives. In addition, the work system of the oil and gas sector is generally not flexible.

Gender

Gender was proven to be statistically insignificant to WLB for the geo-survey company, including offshore or on-shore. The high p-value indicates that there is no statistically significant difference between the groups. However, pervious found that female employees have 72% higher expectations for WLB (13). Several potential reasons may cause this finding, including salary inequality, family duty and gender biases. Moreover, the limited number of respondents also can lead to this contrasting result. In fact, there are only two female respondents who answered the survey questionnaire, representing the offshore worker.

Years of experience

The analysis revealed years of experience were statistically significant to WLB for the geo-survey company for offshore employees. According to the result from SPSS Pairwise Comparison for offshore employees with 11 to 20 years versus offshore employees with less than 2 years' experience, no significant difference between these two groups was found. The p-value obtained was 0.22. Furthermore, the mean value for offshore employees with working experience of 11 to 20 years is 2.40, while the offshore employees with less than two years is 3.08. The SPSS Pairwise Comparison revealed offshore employees with more working experience were generally dissatisfied with the current WLB status. On the contrary, offshore employees with less than two years' experience were the most satisfied with their WLB.

Regarding the onshore employees, it was found that employees with 5 to 10 years of experience recorded the highest level of satisfaction in terms of WLB. The finding is in contrast to the offshore groups in similar years of experience. For instance, offshore employees with 5 to 10 years of experience showed the highest level of dissatisfaction with their WLB. On-shore workers with 5 to 10 years of experience recorded the highest level of WLB satisfaction overall. Hence, it is concluded that seniority based on work location is crucial to WLB. However, this phenomenon may be attributable to the welfare provided by the organization**.**

Marital Status

The marital status was found to be statistically insignificant to WLB in the geo-survey company, including both offshore and on-shore. In fact, 72% of Malaysians are more interested in attractive salaries and benefits rather than WLB (13). Employees within the range of 5 to 10 years of experience are typically young growing families; thus, demanding more income and job stability is a common aspiration.

The findings of this study are consistent with (18), which found no significant differences in work-life balance among four worker categories (single, married without children, married with children under 18, married with children over 18. These findings could be explained by the age of children and the employee's marital status did not have a strong impact on these four samples' levels of work-life balance. Additionally, the presence of a spouse, a minor or dependent child, and employment status of the respondent group reflected a significant variation in household or childcare responsibilities. Nevertheless, it does not result in notable differences in the work-life balance

DOI: https://doi.org/10.11113/jest.v8.215

perceived by unmarried employees.

Relationship between WLB and Safety Culture in the Geo-survey Company

Apart from that, the study discovered no significant relationship between WLB and safety culture. The finding contrasts with prior studies that claim WLB is critical to employee health and safety. Employers who encourage their workers to develop a good balance experience fewer injuries and encounter an increase in safety compliance (19). Organizations that minimize interference between job and family life lead to a 38% reduction in injuries, while high interference has the negative effect. Likewise, a worker's positive perception of the safety climate was associated with a 32 percent decrease in injuries (20).

The negative results of this study could be attributed to several factors. Firstly, the existing studies were conducted in countries where WLB accepted commonly, unlike Malaysia, which ranked 50th among 50 countries. Thus, the WLB and safety culture expectations had already been well established in those countries. In Malaysia, WLB is still lagging behind. However, Malaysian- based companies are still actively looking for an opportunity to create WLB currently, without realizing that WLB can affect safety culture. From another perspective, the scope of safety culture is vast, and the method to measure the safety culture is ambiguous. Genuinely, there is no specific method to measure safety culture.

In contrast to prevailing studies that typically focus on multiple organizations or select a single country, the data of present study is only collected from a single organization and considered as a case study. It was found that the WLB rating for the selected company is low. In this circumstance, the acceptance of WLB as part of the Safety Culture could not be identified. A poor safety climate can induce the organization to fail to identify critical safety matters, executing unsuitable HSE plans and HSE tools, eventually resulting in wider disparities in maturity. Moreover, the survey results are not ideal. This implies a specific issue for the organization.

4.0 CONCLUSION

In conclusion, the present study identified a poor WLB condition within the geo-survey company. Home and work related concerns were further examined as the driving factors. Notably, the finding is consistent with other studies related to WLB in Malaysia (9,15). In addition, the primary results of present study indicate that work designation, gender, and marital status were all statistically insignificant predictors of employee WLB. A similar lack of significant relationship was found between WLB and safety culture. However, years of experience were found to be statistically significant to WLB, specifically among offshore staff. By referring to this study, the geo-survey company can implement more specific programs to resolve the poor WLB situation. Creating awareness of WLB will not be adequate to generate solid benefits. Thus, a continuous effort is required to propel the change and integration of WLB in the organization.

ACKNOWLEDGEMENT

The authors would like to express our gratitude to Universiti Teknologi Malaysia (UTM) and the Ministry of Higher Education of Malaysia. This research is funded by a HICOE research grant VOT number R.J130000.7846.4J757.

DATA AVAILABILITY

All data underlying the results has been provided in the article and no additional source data are required.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

ETHICS DECLARATION

This study did not involve human participants, animal subjects, or sensitive data. Consequently, formal ethical approval was not required.

REFERENCES

[1] Reason, J. (2016). Managing the risks of organizational accidents. In *Managing the Risks of Organizational Accidents*. https://doi.org/10.4324/9781315543543
[2] Harhara, A. S., Singh, S. K. and Hussain, M. (2015). Correlates of employee turnover intentions in oil and gas industry in the UAE. *International Journal of Organizational Analysis*, 23(3), 493–504. https://doi.org/10.1108/IJOA-11-2014-0821
[3] International Association of Oil and Gas Producers. (2022). *IOGP Safety performance indicators - 2021 data*. https://www.iogp.org/bookstore/checkout/order-received/449177/?key=wc_order_oFf5EITuKbQKe
[4] Revie, R. (2015). *Oil and gas pipelines: Integrity and safety handbook*. https://books.google.com/books?hl=en&lr=&id=DiDPBwAAQBAJ&oi=fnd&pg=PR5&dq=oil+and+gas+safety&ots=7kQDqe8qkO&sig=3us3qVimYOyeWsvP4-aGF6EHsR4
[5] Kowitlawkul, Y., Yap, S. F., Makabe, S., Chan, S., Takagai, J., Tam, W. W. S. and Nurumal, M. S. (2019). Investigating nurses' quality of life and work-life balance statuses in Singapore. *International Nursing Review*, 66(1), 61–69. https://doi.org/10.1111/INR.12457
[6] World Health Organization. (2019). *Burn-out an "occupational phenomenon": International Classification of Diseases.* https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases
[7] Schwartz, S. P., Adair, K. C., Bae, J., Rehder, K. J., Shanafelt, T. D., Profit, J. and Sexton, J. B. (2019). Work-life balance behaviours cluster in work settings and relate to burnout and safety culture: A cross-sectional survey analysis. *BMJ Quality and Safety,* 28(2), 142–150. https://doi.org/10.1136/bmjqs-2018-007933
[8] Chen, C., Li, C., Reniers, G. and Yang, F. (2021). Safety and security of oil and gas pipeline transportation: A systematic analysis of research trends and future needs using WoS. *Journal of Cleaner Production*, *279*. https://doi.org/10.1016/j.jclepro.2020.123583
[9] Tang, D. K. H., Leiliabadi, F., Olugu, E. U. and Md Dawal, S. Z. binti. (2017). Factors affecting safety of processes in the Malaysian oil and gas industry. *Safety Science*, 92, 44–52. https://doi.org/10.1016/j.ssci.2016.09.017
[10] Bellmann, L. and Hübler, O. (2021). Job Satisfaction and Work-Life Balance: Differences between Homework and Work at the Workplace of the Company. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3660250
[11] Tang, K. H. D., Md Dawal, S. Z. and Olugu, E. U. (2018). A review of the offshore oil and gas safety indices. In *Safety Science,* 92, 344-352.
[12] Nortajuddin, A. (2020). *Most Overworked Cities In ASEAN*. Most Overworked Cities In ASEAN
[13] Randstad. (2022). *Randstad Malaysia Work Monitor Report*. https://www.randstad.co.uk/workmonitor/workmonitor-h2-2021-download/
[14] Russo, M. and Buonocore, F. (2012). The relationship between work-family enrichment and nurse turnover. *Journal of Managerial Psychology*, 27(3), 216–236. https://doi.org/10.1108/02683941211205790/FULL/HTML
[15] McNall, L. A., Scott, L. D. and Nicklin, J. M. (2015). Do positive affectivity and boundary preferences matter for work-family enrichment? A study of human service workers. *Journal of Occupational Health Psychology*, 20(1), 93–104. https://doi.org/10.1037/A0038165
[16] Monster.com. (2019). *Striking a Balance*. https://media.monster.com.my/logos/research_report/Work-Life-Balance-Infographic-Malaysia.pdf?spl=MY_contmar_INTCC_AID_7973
[17] Duxbury, L., Higgins, C. and Halinski, M. (2015). Identifying the antecedents of work-role overload in police organizations. *Criminal Justice and Behavior,* 42(4), 361–381. https://doi.org/10.1177/0093854814551017
[18] Panisoara, G. and Serban, M. (2013). Marital Status and Work-Life Balance. *Procedia-Social and Behavioral Sciences*, *78*, 21–25. https://doi.org/10.1016/j.sbspro.2013.04.243
[19] DCM Group. (2018). *Why Work/Life Balance Is a Workplace Safety Issue - Industrial Construction | Piping | Fabricators | Oil & Gas | DCM*. https://www.dcmgroup.ca/en/news/why-work-life-balance-is-a-workplace-safety-issue/
[20] Smith, T. D. and Dejoy, D. M. (2012). Occupational Injury in America: An analysis of risk factors using data from the General Social Survey (GSS). *Journal of Safety Research*, 43(1), 67–74. https://doi.org/10.1016/j.jsr.2011.12.002