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Occupational Stressors and Job Satisfaction among Royal Malaysian Navy at Teluk Sepangar Sabah: Comparison between Submariners and Surface Ship Personnel

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Abstract

Introduction: In the military, different aspects of job satisfaction are taken into account as compared to the civilian workforce. Some of the job satisfaction is related to as the working environment, nature of work and task, military operations and organizational traditions (e.g. obedience, policies and military disciplines). All these job stressors have an influence on the job satisfaction. Therefore, the military cannot be regarded as a normal and traditional work setting. The objectives of this study were to determine the differences of occupational stressors among submariners and surface ship personnel, the job satisfaction itself and to find a relationship between job satisfaction and occupational stressors among those two groups of occupation.

Methods: In this cross-sectional comparative study, self-administered NIOSH (USA) Generic Job Stress Questionnaire was used as a tool to measure occupational stressors and job satisfaction among 50 submariners and 48 surface ship personnel.

Results: The response rate was 98%. The result showed that there are statistically significant difference in the means in terms of job stressors among submariners and surface ship crews except for the conflict at work (P=0.03) and job requirement (P=0.01). Simple linear regression analysis shows that only mental demands had significant relationship with job satisfaction (P<0.001). Other job stressors such as the physical environment which were very different between these two occupations did not show any significant association on the occupational stress and job satisfaction when compared.

Conclusion: Further study would hope to examine the mental demand aspect as this can improve the overall job satisfaction level among these two groups of occupation.

Keywords: Occupational stress, Job satisfaction, Royal Malaysian Navy, Submariners, Surface Ship Personnel

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Introduction

Work and the workplace environment emphasize many issues related to industrial and organizational psychology. In an occupational scene, naval work force undergoes a mixture of physiologic and mental stressors (Sargent, C., *et al.*, 2017). A career in the military usually involves and required both mental and physical training. This is in order for the enlisted to be continuously ready to serve the country. The expectations in the military for human performance and mental and physical ability are high and the training provided is very often adequate and somewhat challenging. However, the need to understand human nature and human potentiality and limitations cannot be ignored nor under emphasized (Fairbrother, K. *et al.*, 2003).

Military personnel also undergo conflicts while at duty, difficulty in trying to hold up their motivation levels, retention of good mental health, avoiding burnout, occupational stressors and job satisfaction similar with workers in other employment sectors. Research conducted on the military have documented that military personnel often are perceived to have a low job satisfaction (Blair, J.D. *et al.*, 1983; Alpass, F. *et al.*, 1997 & , Sanchez, R.P. *et al.*, 2004) and experienced high occupational stress (Pflanz, S. *et al.*, 2002 & Chou, H.W. *et al.*, 2016) compared to their civilian counterparts. Occupational stress among Navy personnel shown in studies to involve the role of ambiguity, obligation for somebody, powerlessness, under participation (Pawar, A.A. *et al.*, 2007), and work dimension factors which include the lack of clarity of the work role, and disruption of individual life values and daily routines (Fairbrother, K. *et al.*, 2003).

Submarine environment is defined by the characteristics of isolation, stealth, confinement, and risk. With the constraints of restricted environment, resources and limited numbers of submarine crew, causing to cope for extra responsibilities and duties. In the navy, origin of stress could include shortage of workers, lengthy occupational hours, interrupted leisure time in exchange for unplanned duty schedules, deployments, risk of military punishment, trouble with superior *etc.* (Pflanz, S.E. *et al.*, 2006). As such, submariners appeared to have more stressors compared to surface ship personnel in the navy. On the job on Navy ships is also related to with elevated PSQI (Pittsburgh Sleep Quality Index) scores, which meant a relatively higher frequency of poor sleep, and resulted lower psychomotor watchfulness execution at workplace (Matsangas, P. *et al.*, 2020).

There are not many studies on population that working in a remote, isolated confined space such as the submarines in the Royal Malaysian Navy and what are the factors associated with their job satisfaction. The objectives were to study the physical, mental and social stressors related to occupation and job satisfaction among surface ship personnel and submariners of Royal Malaysian Navy at Sepangar Navy Base, Kota Kinabalu, Sabah.

Methodology

This study was conducted among Royal Malaysian Navy personnel working as submariner and surface ship crew at Sepangar Navy Base, Kota Kinabalu, Sabah in March 2017. Respondents answered the self-administered NIOSH (USA) Generic Job Stress Questionnaire and the results were calculated according to the scoring key provided by NIOSH. This was a cross-sectional comparative study between two groups of occupations *viz.*, the submariners and the surface ship personnel. They have entirely different working surroundings which exposed them to different job stressors and may influence their job satisfaction.

The study was done in a cross sectional manner as both groups are involved in active operational duty and were deployable within 24hours for operational duty. Selections of respondents were done through convenience sampling method among Royal Malaysian Navy personnel working in Sepanggar Navy Base among submariners and surface ship crew members who were not on leave when the study visits were conducted. Sample size was 100 subjects using the formula of comparing two means at 80% power and α= 0.05 informed consent was obtained prior to the distribution of questionnaire.

In this study, all correspondents were required to answer the NIOSH Generic Job Stress Questionnaire. The scores were then calculated using the key scoring provided. Some scores needed to be reversed coded before being calculated. This model, developed by NIOSH (USA), builds upon frameworks proposed by Caplan, Cobb, French, Harrison, and Pinneau (1975), Cooper and Marshall (1976), and House (1974).

All data gathered from the questionnaire were entered into excel database and later analysed using SPSS (Statistical Package for Social Sciences) version 22.0. The dependant variable was job satisfaction while the independent variables were conflict at work, employment opportunity, job requirements, mental demand, physical environment, and work hazard, workload and work responsibility. Family support acted as a buffer in this study.

Results

Ninety eight Royal Malaysian Navy (RMN) personnel who consisted of 50 submariners and 48 surface ship personnel managed to answer the questionnaires. The response rate was 98%. The age of 98 Navy personnel ranges from 23 years old to 42 years old. The distribution of age among respondents was normally distributed. The mean for the age was 30.86 with standard deviation of 3.73. Majority of the respondents were male (90 personnel or 91.8%) whereas the rest were female respondents (8 personnel or 8.2%).

In terms of type of occupation, 50 personnel were working as a submariner out of 98 respondents (51%) and 48 personnel were working on surface ship (49%). Majority of the navy personnel were married; 74 (75.5%). Number of children in the family ranged 0-5. Majority of the subjects had one child in the family. The means for the NIOSH generic Job Stress questionnaires and the results of analysis of variance are shown in Table 1. Other variables such as employment opportunity, mental demand, physical environment, work hazard, work load and work responsibility does not differed significantly between submariners and surface ship crew. Family support acted as a buffer in this study as to find an association between job stressors and job satisfaction (**Table 1**).

In the simple linear regression analysis on job stressors associated with job satisfaction, only one job stressors showed significant linear relationship($P<0.05$) with job satisfaction that is mental demand($P<0.001$). The rest of the job stressors did not showed significant relationship with job satisfaction (**Table 2**).

The fitted line plot showed the same regression results graphically (**Figure 1**). There was significant linear relationship between mental demand and job satisfaction ($P<0.001$).It was observed that those who scores 1 point higher in the mental demand questionnaire have the job satisfaction score of 4.1 unit less.

Table 1: Comparison of NIOSH (USA) Generic Job Stress Questionnaires Score According to Type of Work

Variable	Submariner mean (SD) @ n=50	Surface Ship Crew mean (SD) @ n=48	Mean Difference (95%CI)	*t* stat. (df)	*P*-value
Job Satisfaction	9.26 (2.45)	9.17 (2.20)	0.09 (-0.84, -1.03)	0.19 (96)	0.66
Conflict at work	26.14 (6.02)	25.25 (4.37)	0.89 (-1.23, 3.01)	0.84 (96)	0.03
Employment opportunity	8.58 (2.55)	9.85 (2.50)	-1.27 (-2.29, 0.26)	-2.50 (96)	0.68
Job requirements	11.48 (2.85)	12.00 (1.85)	-0.52 (-1.49, 0.45)	-1.07 (96)	0.01
Mental demand	13.64 (20)	13.25 (2.26)	0.39 (-0.46, 1.24)	0.91 (96)	0.33
Physical environment	13.16 (1.72)	13.38 (1.21)	-0.26 (-0.81, 0.38)	-0.71 (96)	0.10
Work hazard	10.54 (2.29)	10.58 (2.64)	-0.04 (-1.18, 1.09)	-0.08 (96)	0.53
Workload	21.92 (2.44)	21.46 (3.29)	0.46 (-0.70, 1.62)	0.79 (96)	0.10
Work Responsibility	11.12 (2.44)	12.69 (4.25)	-1.57 (-3.09, -0.04)	-2.04 (96)	0.14
Family support	8.90 (3.11)	9.10 (3.72)	-0.20 (-1.58, 1.17)	-0.30 (96)	0.25

Table 2: Simple Linear Regression Analysis on Job Stressors Related to Job Satisfaction

Job stressors	*b* (95% CI β)	*t* statistic	P-value	r^2
Conflict at work	-0.03 (-0.12, 0.06)	-0.68	0.50	0.246
Employment opportunity	-0.04 (-0.02, 0.15)	-0.39	0.70	0.002
Job requirements	0.07 (-0.12, 0.26)	0.72	0.48	0.005
Mental demand	0.41 (0.21, 0.61)	3.98	<0.001	0.14
Physical environment	0.04 (-0.28, 0.35)	0.25	0.81	0.001
Work hazard	0.04 (-0.13, 0.21)	0.45	0.65	0.002
Work load	0.02 (-0.14, 0.19)	0.28	0.78	0.001
Work responsibility	0.10 (-0.20, 0.22)	1.65	0.10	0.028

Note: n= 98; Y = $\alpha + \beta$x; Dependent Variable= constant+(b*Independent variable); Job Satisfaction= 3.70–(0.41*mental demand)

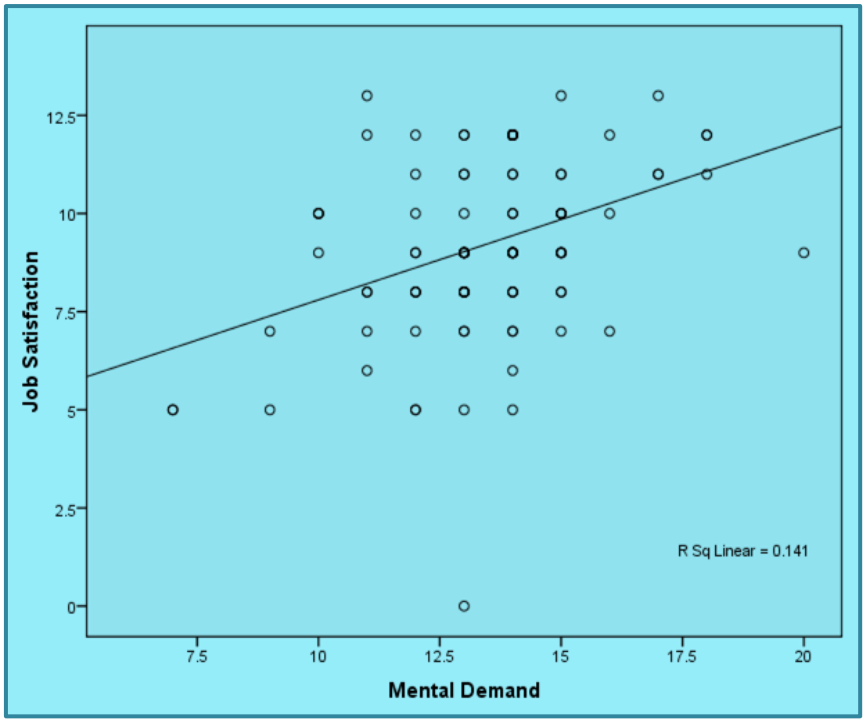

Figure 1: Fitted Line Plot Showing Linear Regression between Job Satisfaction and Mental Demand

Discussion

The minimum age for the respondents is 23 and maximum was 42 with the mean age of 30.86(SD=3.73). The age distribution was not quite different from the age distribution among navy personnel in other countries; in UK navy the age ranges from 16 years old to 36 years old while in the United States the age ranges from 17-34 year old. Although all the submariners were male (100%), but there are a few female personnel working on board the surface ship (n= 8.0, 8.2% from total respondents). It's a common practise nowadays among international Navy to enrol female as submariners especially in United States, UK and Australia although their numbers are very small. Certain occupations like those in the military emphasize the empowerment of men. As seen in the past research conducted among the military, more than 80% of these studies have used the male as respondents (Fairbrother, K. *et al.*, 2003). It seems that the males are still seen as predominant and makes up to the highest degree of the military workforce.

There were eight different job stressors that were compared between the submariners and the surface ship crews in this study. Those job stressors were conflict at work, employment opportunity, job requirements, mental demand, physical environment, work hazard, work load and work responsibility. Only two job stressors showed significant difference in the mean between the submariners and the surface ship crew. Those two job stressors were conflict at work (p= 0.03) and job requirements (p= 0.01). Job requirement in operating these two different types of vessels were very clear because they operate in a different manner from each other. Job requirements mean among surface ship crew was much higher (12.00) compared to submariners (11.48). Surface ship crew are usually required to execute more than a single task at a time, whereas in the submarines, each member has a specific job scope to execute.

In terms of conflict at work, the mean is much higher among the submariners (26.14) compared to the surface ship crew (25.25). Limited resources such as time, money, supplies are all important resources. Rival for any of these resources would unavoidably lead to interpersonal and interdepartmental conflict. Surprisingly, the physical environment factor did not have significant difference among those 2 types of job even though they are working on two different surroundings; one was open and the other completely enclosed underwater.

A similar study in Korea which compared the two jobs of submariners and surface ship personnel but using a different outcome as in JAWS (Job-Related Affective Well-Being Scale) score also showed no significant difference even though the work environment is non-comparable (Jo. D. *et al.*, 2021).

The buffer factor in this study that was the social support from family shows significant differences ($P<0.001$) when associated with job satisfaction. So, it is safe to say that the buffer factor in this study is actually mighty because it affected the job satisfaction level. Results from this study also revealed that the majority of respondents have a moderate level of job satisfaction. These findings deviate with past literature that have stated that military personnel experienced low levels of job contentment (Blair, J.D. *et al.*, 1983; Alpass, F. *et al.*, 1997 & Sanchez, R.P. *et al.*, 2004) although the British military perceived neutral job satisfaction.

Based on the simple linear regression analysis on job stressors related to job satisfaction as shown in Table 2, only one variable among the NIOSH Generic Job Stress Questionnaires shows significant linear relationship with job satisfaction that is the mental demand ($P<0.001$).

Stress enhancing mindsets may be a good strategy in order to combat the potential stressors, especially in highly rigorous and stressful settings. A mindset's may potentially beneficial when dealing with interacting with people, culture, and specific environment. Organizations, administrators, or employees can influence mindsets to adapt in the workplace and in their personal lives (Smith, E.N. *et al.*, 2020).

Limitations of the study

Several limitations in this study needed to be highlighted. Firstly, this study was preliminary in nature and the data analyzed were considered as exploratory in nature. This study was also limited to only active duty navy personnel and cannot be generalized to naval volunteers because they experience different issues related to the nature of work than those in active duty[5]. Therefore, caution must be taken in order not to generalize these findings to the whole Navy population. Lastly, since this study was based on a cross-sectional comparative study design, caution on the causality should be taken into account when drawing any conclusion.

Conclusion

There was a significant linear relationship between mental demand and job satisfaction based on the prediction model that has been developed from this study. The higher the mental demand, the lower the job satisfaction. Various types of jobs in the Navy may have different carrying out method and different risk that comes with it. These findings might not predict the true outcome of the actual study to be conducted but the data would still be useful when developing a research hypothesis for future study.

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