Occupational Stress in Naval Personnel

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Abstract

Introduction: Increased stress levels have been reported and it has been implicated for mental illness amongst service personnel. However no study has been reported among Indian naval sailors.

Methods: Occupational stress and life satisfaction was measured in 413 naval personnel serving afloat and ashore.

Result: Naval personnel serving on board submarine and ship had lower levels of occupational stress as compared to those serving on shore establishments. Occupational stress scores were higher among junior sailors (36.7%) as compared to officers and senior sailors (20%). Life satisfaction scores were lower in junior sailors. Greater occupational stress was linked to lower life satisfaction.

Conclusion: The findings of high occupational stress in junior sailors needs to be investigated further with a larger sample.

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Key Words: Occupational stress; Naval personnel

Introduction

Stress and stress related disorders are on the rise. Though stress during war or counterinsurgency operations is understandable it is becoming apparent that service life even in the absence of such situations is stressful. Each marine division in United States has a psychiatrist posted and he shifts to the theatre of operations during war. A recent study from Sri Lanka reported that 50% of mentally ill persons, suffered from adjustment disorder or a stress reaction. In a majority, the onset of the mental health problem was not caused by direct exposure to the war situation [1]. A study in Greek warship personnel [2], has reported a negative association between educational level and psychological distress. Married people have been found to have better levels of psychological well being as compared to unmarried people. A longitudinal study over eleven years has shown that men assigned to culinary work had the highest health risks for stress related illness. Groups with elevated hospitalisation rates included construction/manufacturing, deck, ordinance, and engineering personnel, whereas lowest rates were observed for miscellaneous technical, electronics and administrative/clerical jobs [3]. A healthy lifestyle such as regular exercise, abstaining from smoking and moderate drinking has also been associated in preventing premature death in a forty year follow-up study of naval personnel [4]. Similarly depression in navy recruits has been linked to loneliness, higher levels of stress, more life change units, lower sense of belonging, emotion oriented coping and less task oriented coping [5]. A recent study [6], has reported that military personnel have higher job stress

than their civilian counterparts. 26% of the service men reported significant work stress, 15% reported that work stress led to emotional distress and 8% claimed that work stress was severe enough to affect their emotional health. Motivation for serving has also been implicated in reduced incidence of future posttraumatic stress disorder [7]. In another study [8], 60% of mental health patients in the US army reported significant work stress and majority blamed that work stress was a significant contributor to the onset of their mental illness. The service is also characterised by little autonomy and long hours of work. These factors contribute to job stress [9]. Most of these studies have been conducted in the west. We decided to investigate the stressors amongst the naval personnel in our country.

Material and Methods

Naval personnel from two naval ships, a submarine and two shore establishments were selected randomly for the study. Efforts were made to include all the branches and a comprehensive proforma was administered anonymously. The proforma included personal particulars such as age, rank, ship and length of service. Scales to measure stress, standardised on Indian population were used.

A cross-sectional survey amongst 413 individuals was carried out. The data was analysed under different groups, according to the branch and rank. The sample size with $P = 10\%$, $d = 3\%$ and alpha error of 5% works out to 384, thus justifying the adequacy of the sample selected. The following tools were used :

- (a) A comprehensive socio-demographic proforma which included questions on accommodation, family members, marital status, occupation of wife, leisure activities, help

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of friends/relatives and health related questionnaire.

- (b) Occupational Stress Inventory by AP Srivatsava and AP Singh consisting of 46 items, each to be rated on a five-point scale.
- (c) Marital Adjustment Inventory by Harmohan Singh. The scale is self-administered and consists of 40 items to be rated on Likert pattern.
- (d) Life Satisfaction Scale by QG Alam and Ramji Srivastava. This self-administered scale has 60 items related to six areas viz. health, personal, economic, marital, social and job.

Result

The study involved 413 personnel. 44 (10.7%) officers, 143 (34.6%) senior sailors and 226 (54.7%) junior sailors. 238 (57.7%) belonged to shore establishments, 149 (36%) were serving on board ship and 26 (6.3%) were serving on submarine (Table 1). The occupational stress was significantly higher among junior sailors (36.7%) as compared to senior sailors and officers (Table 2). Highest occupational stress was seen in regulating branch (60.6%) and least stress in executive or seaman branch (Table 3). It was seen that 34.5% serving on shore establishments reported greater occupational stress as compared to 24.8% on board ships. Only 7.7% of the personnel serving on board submarine reported high occupational stress. The difference was statistically significant. Table 4 shows that on the subscales of role ambiguity, responsibility for persons, powerlessness and under participation, there was a significant difference between junior and senior sailors. Life satisfaction was low in junior sailors (75.7%) as compared to senior sailors (42.7%) and officers (31.8%) (Table 5). When life satisfaction levels were linked to occupational stress, it was seen that personnel with low life satisfaction levels also had high occupational stress (Table 6). 38.6% of people reporting low life satisfaction

Table 1

Ranks of naval personnel

	Junior sailors		Senior sailors		Officers		Total
	No	%	No	%	No	%	
Shore establishment	122	51.3	84	35.3	32	13.4	238
Ship	93	62.4	45	30.2	11	7.4	149
Submarine	11	42.3	14	53.8	1	3.8	26
Total	226	54.7	143	34.6	44	10.7	413

Table 2

Occupational stress and rank

	Junior sailors		Senior sailors		Officers		Total
	No	%	No	%	No	%	
Low occupational stress	143	63.3	114	79.7	35	79.5	292
High occupational stress	83	36.7	29	20.3	9	20.5	121
Total	226		143		44		413

Chi-square 13.295, df =2, p< 0.01

also had high occupational stress as compared to only 15.6% of personnel reporting average to high life satisfaction. The difference was statistically significant.

Discussion

Junior sailors had significantly higher occupational stress than officers and senior sailors which is unusual as generally junior sailors have little responsibility and generally carry out orders assigned to them.

Executive/seaman branch had the least occupational stress while the regulating branch had the most occupational stress. The figures in the other branches hovered around 30%. Our findings are at variance with Holberg [3], who reported low rates for technical and electronics cadre. However he reported low rates for administrative cadre which is similar to our study.

Personnel serving ashore reported greater occupational stress than those serving on board ships and submarines. This is at variance with the usual perception of ship life being tough due to long working hours, difficulty in getting leave and frequent disruptions in personal life due to sailing. Occupational stress was least on board submarine where conditions are said to

Table 3

Occupational stress and branch

Branch	Low occupational stress		High occupational stress		Total
	No	%	No	%	
Executive/ seaman	73	81.1	17	18.9	90
Regulating	13	39.4	20	60.6*	33
Technical	152	71.0	62	29.0	214
Domestic	41	71.9	16	28.1	57
Logistic	13	68.4	6	31.6	19
Total	292	70.7	121	29.3	413

* Chi-square 20.392, df =5, p<0.01

Table 4

Occupational stress subscales comparison between junior and senior sailors

	Junior sailor (n = 226) Mean score	Senior sailors (n = 143) Mean score
Role overlap	16.6	18.2
Role ambiguity	9.6*	10.2
Role conflict	12.6	12.9
Unreasonable group and peer pressure	10.5	11.0
Responsibility for persons	7.7*	9.4
Under participation	10.0*	9.4
Powerlessness	7.7*	7.2
Poor peer relations	9.4	9.7
Intrinsic impoverishment	9.3	8.6
Low status	6.8	6.8
Strenuous working conditions	10.1	9.8
Unprofitability	5.3	5.6

* p<0.05, Mann Whitney U test

Table 5**Life satisfaction linked to rank**

Life satisfaction scale	Junior sailors		Senior sailors		Officers		Total
	No	%	No	%	No	%	
Low life satisfaction	171	75.7	61	42.7	14	31.8	246
Average to high life satisfaction	55	24.3*	82	57.3	30	68.2	167
Total	226		143		44		413

* Chi-square 55.356, df =2, p< 0.01

Table 6**Life satisfaction score linked to occupational stress**

Life satisfaction score	Occupational stress				Total
	Low occupational stress		High occupational stress		
	No	%	No	%	
Low life satisfaction	151	61.4	95	38.6	246
Average to high life satisfaction	141	84.4	26	15.6	167
Total	292		121		413

Chi-square 25.812, df =2, p< 0.01

be the toughest. This may be due to greater unit cohesion among submariners than others. Similar findings have been reported elsewhere [10].

Work stress has been implicated as an important health hazard for military personnel. In a study of 472 personnel who had not been exposed to any war [8], 26% reported to be suffering from significant work stress. Nearly one in five blamed work stress for causing significant emotional distress and one in ten reported work stress was severe enough to affect their emotional health. This was independent of the age, sex, education, years of military service and marital status. The job stressors reported by these personnel were not specific to military service but common to civilians, such as change in work responsibilities, work hours or type of work. We found higher stress in junior sailors and certain branches such as the domestic, provost and technical as compared to the executive branch. High levels of occupational stress have also been reported in the lower ranks in armed forces of United Kingdom [11]. In a three year study by the Royal Navy, the two main causes of stress were balancing work versus home life and discord in working relationships and that good supervisor support was very effective in managing stress [12]. 75.7% of the junior sailors were unsatisfied with their lives compared to 42.8% of the senior sailors and 31.8% of the officers. The findings were statistically significant. Persons with poor life satisfaction also reported higher occupational stress (Table 6). Thus occupational stress leads to lower life satisfaction.

The study was limited, as it was confined to personnel staying in Mumbai and included only males. A larger

cross sectional study involving different types of ships and submarines would have greater value. Another limitation of the study was that the occupational stress scale though validated on Indian population were not specifically validated on Indian naval personnel.

Conflicts of Interest

This study was financed by research grants from the office of Director General Armed Forces Medical Services.

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