

## The Correlation between Occupational Stress and Coping Mechanisms among Iranian Navy Veterans

Javadi Mahrooz<sup>1</sup>, Sepahvand Mohammad Jafar<sup>2</sup>, Khaghanizadeh Morteza<sup>3</sup>, Mokhtari Jamileh<sup>4</sup>

<sup>1</sup>BSN, MSN, Lecturer, Department of Pediatric Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran

<sup>2</sup>BSN, MSN, Department of Psychiatric Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran

<sup>3</sup>BSc, MSc, PhD. Assistant professor, Behavioral Sciences Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

<sup>4</sup>MSN, BSN, PhD of Nursing, Assistant professor, Department of Nursing Management, Baqiyatallah University of Medical Sciences, Tehran, Iran

Received: March 31, 2014

Accepted: May 22, 2014

### ABSTRACT

**Background:** Veterans work in hostile stressful situations and hence, are under considerable occupational stress. The aim of this study was to examine the correlation between occupational stress and coping mechanism among Iranian navy veterans.

**Methods:** This was a cross-sectional descriptive-correlational study conducted in 2013. We recruited a random sample of 384 staffs affiliated to the Navy Force of the Iranian Revolutionary Guard Corps by using the random cluster sampling method. A demographic questionnaire, the Occupational Stress Inventory-Revised, and the Ways of Coping Questionnaire were used for data collection. The SPSS software v. 18.0 was used for data analysis. We analyzed the study data by using the paired-samples t, the repeated measures analysis of variance, and the Pearson's product moment correlation tests. P values less than 0.05 were considered as significant.

**Findings:** The mean and the standard deviation of the participants' occupational stress score were respectively 163.22 and 26.15, indicating a normal level of stress. The highest and the lowest levels of stress were respectively related to the physical environment and the role ambiguity subscales. Moreover, the positive reappraisal and the accepting responsibility strategies were respectively the most and the least frequent coping mechanisms used by our participants. Finally, occupational stress was significantly correlated with the confronting coping ( $r = 0.19$ ), the escape-avoidance ( $r = 0.47$ ), the seeking social support ( $r = -0.29$ ), and the positive reappraisal ( $r = -0.34$ ) subscales of the ways of Coping Questionnaire.

**Conclusion:** Most of the navy veterans who participated in the study had normal levels of occupational stress; however, about two percent of them were experiencing moderate to severe stress, deserving effective stress-management interventions. Moreover, many participants still tended to use emotion-based strategies. Accordingly, veterans are in need of education regarding the greater effectiveness of problem-based coping strategies.

**KEYWORDS:** Occupational stress, Coping mechanism, Military force, Navy veterans.

### INTRODUCTION

Occupational stress (OS) is the result of imbalance between occupational stressors and individuals' coping ability (1). OS can cause different mental problems such as anxiety, depression, job burnout, and conversion disorders (2). These mental problems can in turn progress over time and undermine people's health and well-being. These changes can happen so much gradually that the affected person may not detect them or at least cannot acknowledge them until others identify their signs (3). OS and its subsequent mental and physical problems can impair the affected individuals' professional performance. In sensitive jobs such as military occupations, OS-related mental and physical problems and impaired professional performance can endanger both the health of affected veteran as well as public safety. Consequently, military OS is seriously detrimental. As an example, OS-related depression is an important factor contributing to early retirement, suicide, and domestic and workplace violence (4). Besides personal and social problems, OS is also associated with heavy financial burdens—an annual rate of about \$200 milliard.

OS is responsible for 60–80% of all industrial accidents (5). According to the American Psychological Association Report (2009), 69% of employed people considered job as a main source of stress, 41% reported that they usually experience stress during a working day, and 51% noted that stress decreases their efficiency (6). Research studies indicate that because of the dangerous nature of military occupations and exposure to violent

\* **Corresponding Author:** Sepahvand Mohammad Jafar, Department of Psychiatric Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran.

incidents such as armed conflicts and road accidents, veterans are at great risk for experiencing stress (7). Iranian veterans also suffer from OS and reported that OS is a major cause of stress among Iranian veterans. They reported that military OS was significantly correlated with overall stress ( $r = 0.59$ ) and family-related stress ( $r = 0.97$ ). Consequently, making effective interventions for decreasing OS and its related complications among veterans is crucial (8).

Stress is usually managed by using coping mechanisms. Coping mechanisms (CM) are people's active or passive efforts for avoiding or decreasing stress. There are two types of CM including problem-focused and emotion-focused mechanisms. Problem-focused coping mechanisms aim at solving a problem or dealing with an issue. On the other hand, emotion-focused coping mechanisms are used to manage or alleviate emotional distress embedded in stressful events (12). It is noteworthy that the use of coping mechanisms does not necessarily alleviate stress. According to Lazarus (1998), the efficacy of coping mechanism depends on context and many contributing factors. He noted that in some instances, coping mechanisms not only are ineffective, but also increase the pre-existing stress. Lazarus and Folkman (1984) noted that individuals who have higher levels of support are less vulnerable to stress. Accordingly, individuals' vulnerability to stress is directly related to their perception of the stressful situation and their perceived level of support. In summary, people who have effective coping skills and high levels of support can deal with problems and challenges of daily life more effectively (12).

Despite massive research efforts, OS and its related coping process—particularly among veterans—have still remained poorly known (9–11). Given the importance of CM in managing stress, investigating veterans' strategies for dealing with and managing OS as well as the relationship between the use of such mechanisms and the perceived level of stress are also of paramount importance. The aim of this study was to examine the correlation between occupational stress and coping mechanism among a group of Iranian navy veterans.

## METHODS

This was a cross-sectional descriptive-correlational study conducted in 2013. The study population consisted of all Iranian missile, diving, and commando staffs affiliated to the Navy Force of the Iranian Revolutionary Guard Corps (IRGC). Staffs were recruited to the study by using the cluster sampling method. We calculated the study sample size by using the Krejcie and Morgan's (1970) table. The calculated sample size was 380. Initially, we recruited 420 staffs to the study. However, some of the questionnaires had been incompletely filled and hence were excluded from the study. Accordingly, 384 questionnaires were subjected to final analysis.

The study instrument consisted of a demographic questionnaire, the Occupational Stress Inventory-Revised, and the Ways of Coping Questionnaire. The demographic questionnaire included of questions regarding participants' personal, occupational, social, and familial characteristics. The Occupational Stress Inventory-Revised (OSI-R), which was introduced in 1981 and revised by Osipow and Spokane (1998), consists of six subscales including role overload, role insufficiency, role ambiguity, role boundary, role responsibility, and physical environment. Each of these subscales has ten items—60 items in total. The scoring system is different for male and female participants. As all of our participants were male navy staffs, we used the scoring system developed for male participants. Items are scored on a five-point likert scale ranging from 1 (Never) to 5 (Mostly). Some of the items are scored reversely, i.e. Never and Mostly are scored 5 and 1, respectively. Accordingly, the possible ranges of scores for each subscale and the total OSI-R are as follows, Role overload: 10–50; Role insufficiency: 10–42; Role ambiguity: 10–39; Role boundary: 10–39; Role responsibility 10–47; Physical environment: 10–30; and Total OIS-R: 60–300. The total score of OSI-R is interpreted as follows; 60–133: Without stress, 134–216: Low stress, 217–258: Moderate stress, and 259–300: Severe stress (14). The original version of OSI-R is in English that was translated the inventory into Persian and then back-translated it into Persian. The criterion-related validity of this inventory has been 0.85. The reliability of the inventory has been assessed by checking its internal consistency which has yielded to a Cronbach's alpha of 0.89 (15).

The Ways of Coping Questionnaire (WOCQ) is a 66-item questionnaire developed by Lazarus and Folkman (1985). WOCQ evaluated a wide range of thoughts and actions that people use when encountering internal and external stressful situations. Initially, we asked each participant to either verbally explain or write about a recently-experienced stressful situation. Then we asked them to respond to WOCQ and accordingly determine how they dealt with that stressful situation. In some instances, we explained a hypothetical stressful situation, such as a medical treatment, to the participants and asked them to determine how they would handle that hypothetical situation. WOCQ consists of eight subscales including confronting coping, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem solving, and positive reappraisal. These eight subscales fall into two categories including the problem-focused and the emotion-focused coping strategies (See Table 2). The Cronbach's alpha of the Persian version of WOCQ has been reported to be 0.89 (16 and 17).

The Institutional Review Board of Baqiyatallah University of Medical Sciences, Tehran, Iran, approved the study. The aim of the study was explained to the participants. We guaranteed the confidentiality of the participants' personal information. Participation in the study was on a voluntary basis. We obtained informed consent from each participant.

The Statistical Package for Social Sciences (SPSS v. 18.0) was used for data analysis. We presented the study data by using descriptive statistics measures such as mean and standard deviation. We used the repeated measures analysis of variance (RM ANOVA) for the within-subjects factor of the subscales of OSI-R and WOCQ. Moreover, we employed the Least Significant Difference (LSD) post-hoc test for pairwise comparison. The paired-samples t test was used for comparing the difference between the problem- and the emotion-focused coping strategies adopted by our participants. Finally, the Pearson's product moment correlation test was used to examine the correlation between our participants' level of OS and the used CM. The level of significance was set at below 0.05.

## FINDINGS

As mentioned earlier, the questionnaires filled by 384 participants were eligible for and included in the final analysis. All the participants were male staffs. The mean and the standard deviation of the participants' age were 29.65 and 4.22, respectively. Most of the participants were married (88.8%), had been employed formally (82%), had a work experience of 6–10 years (49.7%), and worked for 1–8 hours a day (49.2%). Respectively, 53.1% and 46.9% of the participants were senior and junior officers. Moreover, 78.4% of the participants had one or no child and the remaining 21.6% had two children or more. Finally, 42.43% of the participants held high-school diploma and others (48.7%) had university education.

The mean and the standard deviation of the participants' OS score were respectively 163.22 and 26.15, indicating a normal level of stress. Table 1 shows the mean scores and the ranks of the OSI-R subscales. The results of the RM ANOVA test showed that the mean differences of OSI-R subscales were statistically significant. The LSD post-hoc test revealed that the mean score of the physical environment subscale (the highest-ranked subscale) was significantly higher than the mean scores of all the other subscales of OSI-R except for the role insufficiency one (Table 1). Accordingly, the highest level of stress as perceived by our participants was related to the physical environment and the role insufficiency subscales, respectively. On the other hand, the results of the same test revealed that the mean score of the role ambiguity subscale was significantly lower than all the other subscales of OSI-R, indicating that the lowest level of perceived stress was related to this subscale.

Table 2 shows the mean scores and the ranks of the coping mechanisms used by the study participants. Again, the results of the RM ANOVA test showed that the mean differences of WOCQ subscales were statistically significant. The results of the LSD test revealed that the positive reappraisal and the accepting responsibility strategies were respectively the most and the least frequent coping mechanisms used by our participants (Table 2). Moreover, the results of the paired-samples t test demonstrated that the mean score of the problem-focused coping strategies was significantly higher than the mean score of emotion-focused ones ( $P$  value  $< 0.001$ ; Table 2).

The results of the Pearson's product moment correlation test revealed that the total score of OSI-R was significantly and directly correlated with the confronting coping and the escape-avoidance subscales of WOCQ ( $P$  value  $< 0.05$ ; Table 3). Moreover, the results of this test showed that there was a significant, inverse correlation between the total score of OSI-R and the seeking social support and positive reappraisal subscales of WOCQ ( $P$  value  $< 0.05$ ; Table 3). Finally, the results of this test revealed that the total score of OSI-R was not significantly correlated with the distancing, self-controlling, accepting responsibility, and planful problem solving subscales of WOCQ ( $P$  value  $> 0.05$ ; Table 3).

## DISCUSSION

In this study, we evaluated the sources of occupational stress in a group of Iranian navy veterans and the coping strategies adopted by them. The study findings revealed that our participants were experiencing normal levels of stress. The highest levels of stress were related to the physical environment and the role insufficiency subscales of OSI-R. The study participants' working environments were located in southern provinces of Iran. Considering that the average scores within the physical environment were more than other areas and since about 68% of the subjects had severe stress in this area so this area was considered as a major cause of stress in employees.

These provinces have a sultry weather with high levels of air pollution. Moreover, outdoor work in military occupations means having no access to air-conditioners. Additionally, the working environment of navy veterans is usually located in remote islands and areas. All these conditions could turn physical environment into a major source of OS for our participants. Previous studies also have reported physical environment as a major source of stress for

veterans (18, 19 and 21). Garbarino *et al.* (2013) also investigated the relationship between work-related stress and mental health problems and found that working environment was an important factor contributing to police officers' mental health. They also found that high levels of work-related stress such as lower levels of support and reward and higher levels of effort and over commitment increased the risk of developing mental health problems such as depression in military forces (20). However, Hajiamini *et al.* (2011) (15) found that physical environment did not significantly contribute to OS. This contradiction—between the findings of Hajiamini *et al.* (2011) study and the findings of the current study—can be attributed the fact that the former study had been conducted on a group of civilian drivers working in urban areas.

We also found that role insufficiency was the second major cause of OS for the participating veterans. Hajiamini *et al.* (2011) reported role insufficiency and accepting responsibility as the main sources of OS. The items of the role insufficiency subscale evaluate the congruency between the requirements of the intended job and the individual's knowledge, experience, and skills. Accordingly, acquiring a high score in this subscale means that the individual probably is not eligible for the intended job, resulting in different job-related problems such as poor professional performance, job dissatisfaction, and burnout (15). The study findings also revealed that the third leading cause of stress among navy veterans was role overload. The role overload subscale reflects the workload-related perceived level of stress. The high levels of workload-related stress as perceived by our participants might be related to staff shortage and subsequent heavy workload. Finally, the lowest level of perceived stress among our participants was related to the role ambiguity subscale. This finding contradicts the findings of a study conducted by Azad-Marzabadi *et al.* (2007) who found that role ambiguity was a leading cause of OS among veterans. Besides the difference between the study settings of these two studies, many interventions had been made for decreasing veterans' OS since 2007, resulting in veterans' enhanced awareness of priorities, work-related requirements, and performance evaluation criteria.

The study findings showed that positive reappraisal strategy was the most frequent coping mechanism used by our participants. The positive reappraisal subscale bears a religious meaning and includes efforts that focus on personal growth and give a positive meaning to the immediate situation. Accordingly, it is well suited to the religious culture of IRGC. Positive reappraisal is a problem-focused coping mechanism and implies avoidance of emotional reaction to stress. On the other hand, the least frequent coping mechanism used by our participants was accepting responsibility. Hayati and Mahmoudi (2008) also reported the same finding. They found that women employed religious coping and positive attitude strategies (including hope and optimism) to deal with mental health problems associated with breast cancer. According to Hayati and Mahmoudi (2008), religious faith and self-confidence improve individuals' ability to manage problems and challenges of daily life and give them senses of peace and security (23).

The study findings revealed that the mean score of problem-focused coping strategies was significantly higher than the mean score of emotion-focused ones. This finding implies that our participants used coping strategies that were more effective and logical. Dimiceli *et al.* (2009) also reported the same finding. However, Gholamzadeh *et al.* (2011) found that compared to problem--focused strategies, emotion-focused ones were used more frequently. This contradiction can be attributed to the fact that most of the participants who participated in their study were female nurses. Women usually tend to used emotion-focused strategies (25).

Another finding of the study was that OS was positively correlated with the use of emotion-focused strategies. This finding implies that increased use of emotion-focused strategies is associated with increased levels of OS and vice versa. On the other hand, there was a negative correlation between the use of problem-focused strategies—such as seeking social support and positive reappraisal—and the level of OS, indicating that the increased use of these strategies is associated with decreased levels of OS. Dimiceli *et al.* (2009) (24) and Gholamzadeh *et al.* (2011) (25) also reported the same findings. Galanakis (2011) (26) also found that using effective coping strategies was negatively correlated with levels of stress and the prevalence of stress-related complications.

## CONCLUSION

The findings of the study indicate that most of the IRGC navy veterans had normal levels of OS. However, about two percent of the participants were experiencing moderate to severe OS, deserving effective stress-management interventions. Moreover, despite the fact that the mean score of problem-focused coping strategies was higher than the mean score of emotion-based ones, many participants still tended to use emotion-based strategies. Accordingly, as the problem-based strategies decrease OS more effectively; healthcare providers can help decrease veterans' OS by educating them to use these strategies for managing stressful situations in their working environment.

## **Acknowledgement**

This article is a part of a Master's thesis funded by Baqiyatallah University of Medical Sciences, Tehran, Iran. Accordingly, the Research Administration of the university deserves our profound gratitude. Moreover, we would like to thank all the study participants, the faculties of Baqiyatallah University of Medical Sciences, and the administrators and staffs of the Navy Medicine Research Center, Tehran, Iran, who supported us throughout the study.

## **REFERENCES**

1. Orasanu, J., M. Backer, P. 2013. Stress and Military. Stress and Human Performance. San Jose: NASA-Ames research center, pp: 89-90
2. Cooper, B. 2012. Mental health epidemiology today: a monitor of distress. *Epidemiology and Psychiatric Sciences.*, 21(02):171-3.
3. Winwood, P., C. Peters R. Peters, M. Dollard, M. 2012. Further Validation of the Psychological Injury Risk Indicator Scale. *Journal of Occupational and Environmental Medicine.* 54(4):478-84.
4. Violanti, J., M. 2007. Police suicide: Epidemic in blue. Springfield, IL: Charles C Thomas Publisher, pp: 85-90.
5. Seaward, B. 2008. Managing Stress: Principles and Strategies for Health and Well-Being-BOOK ALONE. Jones & Bartlett Publishers, pp: 103-108.
6. Taverniers, J. Smeets, T. Lo Bue, S. Syroit, J. Van Ruysseveldt, J. Pattyn, N. et al. 2011. Visuo-spatial path learning, stress, and cortisol secretion following military. *Cogn Affect Behav Neurosci.*, 11(3):332-43.
7. Lester, P. Mogil, C. Saltzman, W. Woodward, K. Nash, W. Leskin, G. et al. 2011. Families overcoming under stress: implementing family-centered prevention for. *Mil Med.*,176(1):19-25.
8. Taylor, M., K. Mujica-Parodi, L., R. Potterat, E.,G. Momen, N., Ward, M., D. Padilla, G., A. et al. 2009. Anger expression and stress responses in military men. *Aviat Space Environ Med.*, 80(11):962-7.
9. Coyne, J., C. Racioppo, M., W. 2000. Never the Twain shall meet? Closing the gap between coping research and clinical intervention research. *American psychologist.*, 55(6):655-664.
10. Folkman, S. Moskowitz, J., T. 2000. Positive affect and the other side of coping. *American psychologist.*, 55(6):647-54.
11. Lazarus, R., S. 2000. Toward better research on stress and coping. *American psychologist.*, 55(6): 665-73.
12. Lazarus, R., S. Folkman, S. 1984. Stress, appraisal, and coping. Springer Publishing Company. pp: 82.
13. Lazarus, R., S. 1998. Psychological stress and coping process: Role of health problems. *Journal of Behavioral Medicine*, 62, 385-398.
14. Osipow, S., H. 1998. Occupational stress inventory-revised Edition (OSI-R) professional manual. Odessa: Psychological Assessment Resources;Inc.
15. Hajiamini, C., Z. Azad Marzabadi, E. Ebadi, A. Norouzi Koushali, A. 2011. Comparison of job stress in military and non-military drivers in Tehran city. *Iranian Journal of Military Medicine.* Spring. 13(1): 25-30.
16. Vahedi, H. 2000. Evaluate the feasibility, reliability, validity, and evaluation of test methods in the face of Tehran's public high school adolescents, Master's thesis, Islamic Azad University Central Tehra,.
17. Mosavi Nasab, M., H. Tghavi Seyed, M., R. 2007. Effects of stress and coping strategies on mental health, *Hormozgan Journal of Medicine.* Spring, 11 (1): 83-90.
18. Azad Marzabadi, E. Salimi Seyed, H. 2004. Study the Job Stress in a Military Unit, *Journal of Military Medicine*, Winter., (2)1: 113-9.
19. Lieberman, H., R. Castellani, J., W. Young, A., J. 2009. Cognitive function and mood during acute cold stress after extended military. *Aviat Space Environ Med.* 80(7): 629-36.

20. Garbarino, S. Cuomo, G. Chiorri, C. Magnavita, N. 2013. Association of work-related stress with mental health problems in a special police force unit. *BMJ open*. 3 (7): 002791
21. Taylor, M., K. Mujica-Parodi, L., R. Padilla, G., A. Markham, A., E. Potterat, E., G. Momen, N. et al. 2009. Behavioral predictors of acute stress symptoms during intense military training. *J Trauma Stress*. 22 (3): 212-7.
22. Layne, C., M. Hohenshil, T., H. Singh, K. 2004. The relationship of occupational stress, psychological strain, and coping resources to the turnover intentions of rehabilitation counselors. *Rehabilitation counseling bulletin*. 48(1):19-30.
23. Hayati, F. Mahmoudi, M. 2008. Coping strategies in women with breast cancer who were referred to hospitals of Tehran University of Medical Sciences, *Iranian Journal of Breast Disease*, First year, second edition, Autumn. 38-43.
24. Dimiceli, E., E. Steinhardt, M., A. Smith, S., E. 2009. Stressful experiences, coping strategies, and predictors of health-related outcomes among wives of deployed military servicemen. *Armed Forces & Society*. 36(2) :351-73.
25. Gholamzadeh, S. Sharif, F. Rad, F., D. 2011. Sources of occupational stress and coping strategies among nurses who are working in Admission and Emergency Department in Hospitals affiliated to Shiraz University of Medical Sciences, Iran. *Iranian journal of nursing and midwifery research*. 16(1):42-48.
26. Galanakis, M. Galanopoulou, F. Stalikas, A. 2011. Do positive emotions help us cope with occupational stress? *Europe's Journal of Psychology*. 7(2): 221-40.

Table 1. Occupational stress among our participants

Stress level subscales	No stress	Normal stress	Moderate stress	Severe stress	Number of items	Rank	MD	SD	ANOVA
Role Overload	17.2%	70.3%	12%	0.5%	10	3	27.63	6.18	Greenhouse Geisser F = 27.71 P value < 0.001
Role Insufficiency	6.5%	45.8%	29.4%	18.2%	10	2	27.94	7.89	
Role Ambiguity	6.3%	60.4%	21.9%	11.5%	10	6	24.26	6.63	
Role Boundary	1.3%	43.2%	33.9%	21.6%	10	4	27.48	6.61	
Responsibility	6.8%	23.2%	68.2%	1.8%	10	5	27.07	5.63	
Physical Environment	0.0%	13.5%	17.7%	68.8	10	1	28.78	7.82	
<b>Total Osipow</b>	13.3%	85.2%	1.3%	0.3%	60		163.22	26.15	

Table 2. Coping mechanisms used by our participants

Coping mechanisms	MD	Rank	Number of items	MD	SD	MD	SD	Paired t test	ANOVA P value
<b>Emotion focused</b>	Confronting	7	6	6.98	2.73	7.78	2.93	t = 5.61 P value < 0.001	Greenhouse-Geisser F = 137.69 P value < 0.001
	Distancing	6	6	7.26	2.57				
	Self controlling	2	7	9.12	2.90				
	Escape-Avoidance	5	8	7.76	3.55				
<b>Problem focused</b>	Social Support	3	6	8.96	3.02	8.42	2.60		
	Responsibility	8	4	6.08	1.86				
	Positive Reappraise	1	7	10.65	2.99				
	Problem Solving	4	6	8.02	2.55				

Table 3. Correlation between occupational stress and coping mechanisms

	Confronting	Distancing	Self controlling	Social Support	Responsibility	Escape-Avoidance	Problem Solving	Positive Reappraise
<b>Osipow</b>	.197(**)	.001	.020	-.295(**)	.003	.473(**)	-.086	-.342(**)
	.000	.987	.694	.000	.951	.000	.091	.000
	384	384	384	384	384	384	384	384