Iranian Journal of Military Medicine Spring 2011, Volume 13, Issue 1; 25-30

Comparison of job stress in military and non-military drivers in Tehran

Hajiamini Z.[*] ***MSc***, **Cheraghalipour Z.**[1] ***MSc***, **Azad Marzabadi E.**[2] ***PhD***, **Ebadi A.**[1] ***PhD***, **Norouzi Koushali A.**[1] ***BSc***

[*]*"Faculty of Nursing" and "Behavioral Sciences Research Center", Baqiyatallah University of Medical Sciences, Tehran, Iran;*
[1]*Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran;*
[2]*Behavioral Sciences Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Abstract

Aims: Occupational stress is a common and money consuming problem in the workplace nowadays. Stress is highly experienced among drivers due to the nature of the job and environmental factors. This study was performed with the aim of comparing the occupational stress in military and non-military drivers in Tehran.

Methods: This descriptive analytical study was performed on 202 drivers of selected municipal areas and military centers of Tehran who were selected by proportional sampling method in February 2009. Osipow job stress questionnaire was used for collecting data. Data was analyzed by SPSS15 software using descriptive and analytical statistical methods including Chi square test.

Results: The mean age of drivers of military and non-military drivers were 43.28±8.63 and 40.49±8.78, respectively. The rate of occupational stress showed a significant difference in two groups in two domains of inefficiency and role range ($p<0.05$), but the total job stress score didn't show a statistically significant difference.

Conclusion: Occupational stress is moderate or even severe among both military and non-military drivers in some domains, but the total stress score doesn't have a significant difference in two groups. More comprehensive studies are needed in this field in order to reduce the amount of stress and its consequences.

Keywords: Occupational Stress, Osipow, Drivers, Military, Municipal

Introduction

Stress and the relating diseases are responsible for a large part of human disabilities. World Health Organization (WHO) estimates, according to global burden of diseases index, that mental illnesses, including stress-related mental disorders ,will be the second cause of disability by 2020 [1]. People are facing with various types of stress during their living period and occupational stress is one of the tensions that are considered as most influential factors affecting individuals [2, 3]. According to the definition of the National Institute of Safety and Occupational Health, an occupational stress occurs when job requirements do not coordinate with person's abilities, properties and desires. In this definition, personal desires are also addressed in addition to the lack of coordination with ability and capability of individuals. On the other word, occupational stress is in the form of any destructive physical and emotional response which occurs as a result of incongruence between expected expectations of a person and his abilities, needs and facilities [4].

United Nations in 1992 considered occupational stress as the twentieth century's disease and later WHO declared it as a comprehensive problem in the world. International labor organization has estimated the cost imposed on governments due to occupational stress as 1-3.5% of the GDP [5]. Results of several studies indicate that stress experienced at work will bring undesirable consequences both for the health of individuals and welfare and health of organizations [6]. People who are exposed to stressful experiences suffer more psycho-somatic disorders and physical discomforts such as muscle pain, insomnia, stomach and intestine pain and the like [7]. The results of studies indicate that occupational environment and occupational stresses can cause mental illness in personnel or accelerate the process of the psychiatric disorders that result in individual's disability [8]. Meanwhile, studies on the unsafe behaviors have shown that stressful occupational factors have a significant contribution in the incidence of unsafe acts by employees through distraction, poor concentration, memory impairment, hesitancy and decreased decision making power. Tension is an effective factor in the incompetency of organizations, job change, absence from work under the pretext of illness, decreased quality and quantity of treatment, increased costs of treatment and decreased job satisfaction [2].

Signs of occupational stress will reveal in three mental, physical and behavioral domains. Psychological symptoms associated with job dissatisfaction were the most common consequences

* Correspondence; Email: z_hajiamini@hotmail.com

Received 2010/10/31; Accepted 2011/01/02

of job dissatisfaction which leads to the sense of depression, anxiety, boredom, frustrated, isolated, and aversion. Physical signs of occupational stress can include cardiovascular diseases, gastrointestinal diseases, allergy and skin disease, sleep disorders, headaches and respiratory discomfort. Behavioral symptoms include personal behaviors such as refraining from work, alcohol and drug consumption, bulimia or anorexia, militant behaviors against colleagues or family members and organizational behaviors such as absence from work, quitting the job, increased accidents and decreased productivity and performance [10].

In today's society, driving is considered crucial for work, social life, fun, educational and economic activities etc. [11]. For driving occupation, higher psychological factors and stress intensity are seen because of the nature of the task and environment.

Among the most important of these stressors, time-related stressors such as prolonged and consecutive work, unusual work hours in night and shift work, irregular working time, work commitment in time, poor physical condition and possible physical damages such as risk of accidents and crashes, heat and cold environment, poor lighting and inadequate vision, safety and security problems, non-ergonomic status of the cabin and the sitting place of driver, psychological structure and lack of adequate control such as uniform and repetitive work, factors outside the organization such as lack of proper occupational, insurance and social support employment, lack of proper organization and union , social and family deprivation and traffic reasons such as poor road and inappropriate driving of the other drivers can be named as the most important stressors [12]. Bus driving is one of the risky occupations, which is associated with various mental and physical problems. For example, driving for long hours, restrictions on the establishment of the body, exposure of whole body to vibration and noise, stress to individuals that can lead to dorsal spine injury and back pain, physiological dysfunction, and skeletal and muscular lesions, foot pain, hand pain, hypertension, visual disturbances, gastrointestinal and vascular failure or early loss of efficacy due to vibration fatigue [13, 14]. The research conducted indicates that the increase of occupational stressors can be caused increased intellectual and cognitive fatigue and reduced quality of the driving and traffic accidents [12].

In this regard, Kentoyanis, using the deriver's pattern of stress and coping with stress strategy, conducted a study on 714 derivers of Greece companies to investigate their relationship with abnormal behaviors and traffic accidents and reported that the percentage of errors and violations was higher in aggressive drivers, but the rates of errors and irregularities have been lower in drivers who had high self-esteem [15]. On the other hand, military environments are among environments that stress and psychological pressure on them are higher due to special sensitivity and existing risks in these centers and the need to preserve physical and mental fitness for employees [16].

Since the types of job play essential role in suffering of employees from stress and occupational changes such as organizational changes, salary and job promotion, cause confusion, anxiety and worry and anxiety in people [17], in performed studies it is recommended to investigate complications and strategies of coping with stress in some environments including flight control centers and military environments or nuclear facilities that the possibility of physical and psychological damage on them is greater [18]. In Azad-Marzabadi et al. study on employees of a military unit it was identified that occupational stress has the main role in stress on employees [19]. According to the mentioned issues, occupational stress can drive underlying personal problems, including physical and mental illness and behavioral abnormalities and on the other hand, traffic problems and accidents can damage the health of society and cause mortality and disability. Moreover, the military work environment may exacerbate these problems. Therefore, a comprehensive study of occupational stress in drivers should be conducted. This study attempted to compare the levels of occupational stress in military and non-military drivers in Tehran.

Methods

This descriptive cross-sectional study was done in February 2009. A total number of 276 minibus and bus drivers working in three military centers (130 patients) and three centers located in West of Tehran Municipality center (146 people), were chosen using proportional allocation sampling. Among them 230 drivers had consent to participate in the study, but due to failure in completing questionnaires, finally the 202 patients with mean age of 41.96±8.79 years, including 106 military and 96 non-military drivers were investigated.

Data collection tools included demographic data questionnaires and Osipow occupational stress questionnaire. Osipow occupational stress questionnaire was employed as a valid test for measuring occupational stress. This test was

introduced in 1981 and has also been revised so many times. Reliability of this test is calculated using test-retest method in satisfaction level (Chronbach's alpha coefficient equal to 89%). This questionnaire was used for the first time by Osipow et al. in 1987 and was named as occupation stress measuring tool [20]. After that it was repeatedly used in many studies to evaluate occupational stress inside and outside Iran and its reliability was confirmed [21, 22, 23, 24]. The questionnaire is designed to assess stress in individuals in 6 dimensions; 1) workload of role, 2) inadequacy of role, 3) duality of role, 4) the range role, 5) responsibility, and 6) physical environment. Each of mentioned six dimensions was assessed by 10 items. Options include never, low, sometimes, high and very high and were scoring 1 to 5 respectively [20]. In this study, scoring was based on interpretation of scoring to questionnaire for men, so that total obtained scores were considered as without stress in the range of 133-60, normal stress in 216-134 (low), medium stress in 258-217 and severe stress in 300-259 [25].

Collected data were analyzed using the SPSS 15 software, descriptive statistics indices (frequency and percentage) and inferential statistics (Chi-square test) and $p<0.05$ was considered as the level of significant.

Table 1- Comparing the frequency of demographic data on military and non-military drivers

Group → Specification↓		Military	Non-military	Level of significance
Marital Status	Married	%99.1	%97.5	0.68
	Single	0	%2.5	
	Divorced	%0.9	0	
Education	Guidance school	%56.6	%36.5	0.04
	Diploma	%41.5	%56.3	
	University Education	%1.9	%7.3	
Satisfaction with monthly income	Low	%56.6	%42.7	0.141
	Moderate	%40.6	%53.1	
	High	%2.8	%4.2	
Smoking	Has	%17	%26	0.247
	Hasn't	%76.4	%69.8	
	Has quit	%6.6	%4.2	
Physical complaints	With	%15.1	%17.7	0.616
	Without	%84.9	%83.3	
Residence	Owned	%37.7	%29.2	0.0001
	Rental	%39.6	%58.3	
	Organizational	%15.1	0	
	Paternal	%7.5	%12.5	
Second job	Yes	%10.4	%14.6	0.365
	No	%89.6	%85.4	

Table 2- Comparison of occupational stress in military and non-military drivers in Tehran

Group→ Domains of occupational stress↓	Military drivers				Non-military drivers				Level of significance
	Without stress	Normal (low)	Moderate	Severe	Without stress	Normal (low)	Moderate	Severe	
Work load of the role	%22.6	%73.6	%3.8	0	%30.2	%69.8	0	0	0.110
Incompetency of role	%4.7	%55.7	%26.4	%13.2	%1.0	%29.7	%39.6	%29.7	0.001
Duality of role	%3.8	%63.8	%26.7	%5.7	%5.3	%58.9	%28.4	%7.4	0.710
Range of role	%1.0	%63.1	%30.1	%5.8	%1.0	%47.9	%35.1	%16.0	0.01
Responsibility	%14.2	%23.6	%61.3	%0.9	%18.8	%22.9	%58.3	0	0.428
Physical environment	%44.8	%22.9	%16.7	%15.6	%30.2	%26.4	%21.7	%21.7	0.038
Overall score	%25.5	%74.5	0	0	%19.8	%80.2	0	0	0.338

Results

The mean age of the 106 military drivers and 96 non-military drivers were 43.28±8.63 years and 40.49±8.87 years, respectively. In all demographic characteristics, no significant difference between the two groups was found, but in terms of residence, the majority of people in both groups with significant difference, lived in rental homes and the majority of people in military drivers' group had guidance school education and non-military derivers group had diploma degree that significant difference between the two groups was seen in education level (Table 1).

In the field of occupational stress comparison, there was no significant difference in the stress of two groups in the area of workload of role and responsibility. But in the area of incompetency of the role, range of role and physical environment between the two groups, statistically significant differences was observed and in these areas, stress was moderate to severe in both groups. Two groups did not have moderate and severe stress from general occupational stress standpoint and highest stress level in both groups was mild that this amount does not have statistically significant differences in military and non-military drivers (Table 2).

Discussion

Occupational stress in the today developing world is considered as an important risk factor in creation of

psychological and physical diseases that cause reduced work performance and job satisfaction [26].

The results of this study showed that in both groups, more than 90% of the samples were married. In terms of education, the majority of people in military group were at the level of guidance school and non-military groups at the level of diploma and this difference in two groups was significant. Silva-Junior et al. in their study on the effect of depression risk factors among Brazilian drivers reported low education levels of studied subjects as one of the effective factors [27]. But in the present study no significant difference was found between general occupational stresses of two groups that considering guidance school as the least basic educational level and regarding the lack of distance between the educational levels in both groups, this finding can be justified.

Smoking rate in the military and non-military groups were 17% and 26% respectively and although these differences were not statistically significant, this amount of consumption studies is compatible with Hajiamini, Shafiqi and colleagues study on the soldiers which has been reported as 10% and 14.3% [28, 29]. Physical complaints in the military and non-military drivers were 15.1% and 17.7%, respectively. These findings contradict with results of some reported studies such as Alishiri and colleagues study who reported clinical complaints of military personnel in Tehran as 58.6% [30]. This difference between the amounts can be due to different in educational environment and research methods. This fact can be acknowledged that existing more abundant of these cases among the drivers is likely but it has not been raised due to the lack of examination and clinical study or organizational and social issues. Considering that in many studies it is emphasized that psychological and occupational stress in the workplace can put destructive influences on physical and mental health of personnel [31] and the negative effects of psychological stress on the efficiency and organizational effectiveness will reveal through poor performance, turnover and reduced satisfaction [32], then more comprehensive studies in this area especially clinical study seems necessary.

The results of this study indicated occupational stress of two groups within the five domains from moderate to severe, so that the in two dimensions of incompetency of role and responsibility more than 50% of them were in the range of moderate and severe stress and the least stress obtained within the work load domain. These findings are consistent with similar studies such as studies of Berraho et al. on Moroccan taxi drivers, Mohammad Fam and colleagues study on occupational stress of automotive workers and Abdi, Shahbazi, Khaghani and colleagues study on occupational stress of nurses [22, 33, 34, 35], but in the study of Abdi and Shahbazi, the dimension of physical environment has been proposed as one of the stressful areas too. In the study of Hashemi Zadeh occupational stress in the work load domain is 90% that is incompatible with our results [36]. Considering that their research community was different it means nurses of medical, surgical or special care department and due to the research environment conditions this contradiction can be justified.

Overall score of occupational stress is 74.5% in military group and 80.2% in non-military groups 2.80% in the normal range (low stress) and the rest were non-stress that these findings are consistent with the study of Khaghanizadeh et al. that reported 90% of nurses in military hospital at normal level [35] and Sirati and Khaghanizade study, but has contradiction with other studies like Danesh and Firooz Abad and Azad-Marzabadi and Salimi that have reported occupational stress in majority of people moderate or more [38,39] despite the difference of society and research environment and tools used in these studies, comprehensive studies in this field seem necessary.

In the comparison of the two groups, in terms of difference in occupational stress domains, there was no significant difference in 3 domains of work load, duality of the role and responsibility as well as overall score of occupational stress but in the domains of incompetency of the role, range of the role, and physical environment non-military group have higher stress and significant difference was observed between two groups. Though a similar comparative study has not been done in this field, but in the military environments higher level of stress is expected due to military regulations and military administration [16]. In this study, occupational stress (which have been investigated on a special job such as driving) is as a common variable which is not much dependent to military working environment of the studied population and on the other hand most of the drivers in both research environments were contractual employees and were not expected to observe all military rules and restrictions. Even in some areas such as physical environment it was seen that occupational stress was higher in non-military group and the same set of factors under the influence of each other, has caused the overall score of job stress in both groups not to show statistically significant difference. However, given the high rate of occupational stress in both study groups, and between occupational stress and personality type mental health as well as between

stress and unsafe driving of people direct relation has been reported [33, 35, 40 , 41].

Consequences of occupational stress on the vehicle drivers can cause various physical, mental and behavioral problems that leading to traffic accidents, mortality and disability of people and impose heavy financial and care costs on family and community. Then more studies should be made on field of occupational stresses of this class of society to reduce the incidence of this problem. In various studies, including Banner et al study, the discussion of traffic accidents controlling and fallowing have been emphasized and Morowati Sharifabad has achieved this important point by studying on 300 drivers in Yazd using the health belief model [11, 42]. However according to the results of this study, minimal screening and conducting comparative research with educational intervention on drivers of other classes of society seems to be an absolute necessity.

Conclusion

Occupational stress in some areas in both groups of military and non-military drivers is moderate and even severe, but the overall stress score in the two groups does not have significant difference. Further studies in this area are required, regardless of screening and control of occupational stress, in order to reduce the incidence of stress and its consequences.

References

1- Kalia M. Assessing the economic impact of stress: The modern day hidden epidemic. Metabolism. 2002;51(6):49-53.

2- Abualrub R. Job stress, job performance and social support among hospital. J Nurse Sch. 2004;(36):24-73.

3- Li CY, Chen KR, Wu CH, Sung FC. Job stress and dissatisfaction in association with non-fatal injuries on the job in a cross-sectional sample of petrochemical workers. Occup Med. 2001;51(1):50-5.

4- Sauter S, Lawrence M, Michael C. Stress at work. Atlanta: DHHS (NIOSH) Publication; 1999. Available from: http://www.edc.gov/niosh

5- Tangri RP. What stress costs: A special report. Canada: Performance Strategies Publication; 2003. Available from: http://www.stresscost.com

6- Gates D. Stress and coping: A model for the workplace. AAOHN J. 2001;49(8):390-7.

7- Sarafino EP. Health psychology: Biopsychosocial interactions. 2nd ed. New York: John Wiley and Sons; 1994.

8- McLean J. Stress and job satisfaction among distance educators [dissertation]. Pennsylvania: Pennsylvania College of Technology; 2008.

9- Goldenhar K. Modeling relationships between job stressors and injury and near miss outcomes for construction laborers. Work Stress. 2003;17(3):218-40.

10- Randall RS, Elizabeth MA. Stress management: Advanced management and organizational behavior. Tehran: Samt Publication; 2006. [Persian]

11- Bener A, Haigney D, Crundal D. Driving behavior stress error and violations on the road: A cross cultural compression study. Nothing ham; Third International Conference on Traffic of Transport Psychology, 2004.

12- Aminian O. Stress on drivers. Tehran; Driver's Occupational Health Seminar, 2005. [Persian]

13- Funakoshi M, Tamora A, Tadoda K, Tsujimura H, Nishiyama K. Risk factors for low back pain among taxi drivers in Japan. Sangyo Eisegaku Zasshi. 2003;45(6):235-47.

14- Shamsul Bahri Mohd T, Kazuhito Y, Juliana G, Nasarudin AA, Nizam J, Rusli N, et al. The association between risk factors and low back pain among commercial vehicle drivers in peninsular Malaysia. Ind Health. 2007;45(2):268-78.

15- Kontoyiannis T. Patterns of driver stress and coping strategies in a Greek sample and their relationship to aberrant behaviors and traffic accidents. Accid Anal Prev. 2006;38(5):913-44.

16- Azad Marzabadi E, Fathi-Ashtiani A, Ahmadi K. Stress of military personnel stationed in the Persian Gulf group. Mil Med J. 2006;8(4):249-54. [Persian]

17- Khosravi M. Job related stress factors for the librarians. Tehran: Iranian Center of Information and Scientific Documents Publication; 2003. Available from: http://www.irandoc.ac.ir [Persian]

18- Doyle E, Christine S. Work and organizational psychology: An introduction with attitude. London: Psychology Press; 2003.

19- Azad-Marzabadi E, Salimi SH. Study on job stress in a military unit. Mil Med J. 2004;6(4):279-84. [Persian]

20- Osipow SH. Occupational Stress Inventory Revised (OSI-R) professional manual. Odessa: Psychological Assessment Resources; 1998.

21- Spooner R, Bbeh SC. The influence of work stress and work sport on burnout in public hospital nurses [dissertation]. Brisbane: Queensland University of Technology; 2004. Available from: http://www.adt.library.gut.edu.au

22- Abdi H, Shahbazi L. Occupational stress in nurses. Yazd Univ Med Sci J. 2000;8(4):17-21. [Persian]

23- Qasemzadeh Kakrudy F. Research of relaxation methods to visualize the manner directed by the stresses of nursing work. J Community Nurs. 2002;11:6-8. [Persian]

24- Khaghani Zadeh M, Ebadi A, Sirati Nir M, Rahmani M. Relationship between job stress and quality of life of nurses in hospitals armed forces. Mil Med J. 2008;10(3):175-83. [Persian]

25- Kabirzadeh A, Mohseni Saravi B, Asghari Z, Baggherian Farhadabadi E, Bagherzadeh ladari R. Rate of general health, job stress and factors in medical records workers. Health Inform Manag J. 2007;4(2):215-22. [Persian]

26- Tsiamyrtis P, Zhu Z, MacBride L, Pavidis IT, Levine JA. Description and clinical studies of a device for the instantaneous detection of office-place. Stress. 2009;34(3):359-64.

27- Silva-Junior FP, Pinho RS, Mello MT, Bruin VM, Bruin PF. Risk factors for depression in truck drivers. Soc Psychiatr Epidemiol. 2009;44(2):125-9.

28- Hajiamini Z, Zamani Babgohary M, Azad Marzabadi E, Ebadi A, Khamseh F, Ghoreishi H. Demographic characteristic correlate to emotional reactions in soldiers training. Mil Med J. 2010;12(4):211-6. [Persian]

29- Shafiee F, Ruhani M, Kazemi J. The relative risk of developing smoking in soldiers serving in the army barracks Iran. Army Univ Med Sci J. 2006;2:1197-1201. [Persian]

30- Alishiri GH, Mohebbi HA, Ahmadzadeh Asl M. The study of physical health workers Iranian revolutionary guards. Mil Med J.

2005;7(2):129-31. [Persian]
31- Mill Ward L. Understanding occupational and organizational behaviour. London: Sage Publication; 2005.
32- Lu C, Siu O, Cooper CL. Manager occupational stress in china: The role of self-effacing. Pers Individ Dif. 2005;38(3):569-78.
33- Berraho M, Nejjari C, ELrhazi K, Fakri S, Tessier JF, Ouedrago N, et al. Measuring levels of professionally related stress in taxi drivers in Fes, Morocco. Sante Publique. 2006;18(3):375-87.
34- Mohammad Fam I, Bahrami AR, Gul Mohammad R, Fatemi F, Mahjoub H. Relationship between job stress and accidents in an automotive company. Behbood J. 2009;13(2):61-5. [Persian]
35- Dahlen ER, Martin RC, Rayan K, Kuhlman MM. Driving anger, sensation seeking and impulsiveness and boredom proneness in the prediction of unsafe driving. Accid Anal Prev. 2005;37(2):301-8.
36- Hashemi Zadeh H. Relationship between time management and job stress in the head medical-surgical wards. Shahid Beheshti Univ Med Sci J. 2006;8(29):51-6. [Persian]
37- Sirati Nir M, Khaghani Zadeh M. Relationship between stress and performance of nursing administrators in selective hospitals. Mil Med J. 2003;5(1):33-7. [Persian]
38- Danesh E, Firuz Bakht Z. Public health and stress control tower staff and airline clerks sky. Iran J Clin Psychiatr. 2006;12(2):160-4. [Persian]
39- Azad Marzabadi E, Salimi SH. Research of job stress in employee review a military unit. Mil Med J. 2004;6(4):279-84. [Persian]
40- Yamada Y, Mizuno M, Sugiura M, Tanaka S, Mizuno Y, Yanayiya T, et al. Bus drivers, mental conditions and their relation to bus passengers, accidents with a focus on the psychological stress concept. Hum Eeryol. 2008;37(1):1-11.
41- Schwebel DC, Severson J, Ball KK, Risso M. Individual difference factors in risky driving: The roles of anger/hostility, conscientiousness and sensation seeking. Accid Anal Prev. 2006;38(4):801-10.
42- Morowati Sharifabad MD. The health model variables as predictors of risky driving behaviors among commuters in Yazd, Iran. Traffic I