

Investigating Job Stress among Professional Drivers

Warzaneh Hafeemanesh

Mashhad University of Medical Sciences, Mashhad, Iran

***Corresponding Author :** Warzaneh Hafeemanesh, Assistant Professor of Occupational Medicine, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Received : November 04, 2023

Accepted: November 05, 2023

Published : December 05, 2023

Abstract

Background : One of the biggest risks associated with the workplace is psychological stress. The purpose of this study was to assess psychological stress in professional drivers in relation to role stress and its domains.

Methods : Three hundred heavy vehicle drivers and three hundred light vehicle drivers participated in this cross-sectional study. Interviews and the Osipow occupational stress questionnaire were used to gather data. To analyse the data, the T-test, ANOVA, chi-square test, and linear regression were employed.

Results : Mild to moderate stress was experienced by 33.2% of the subjects. Car type, shift work, job happiness, and salary were independent indicators of psychological stress. Heavy truck drivers had greater stress scores than light vehicle drivers in the areas of job overload, role conflict, responsibility, and work environment ($p < 0.001$), although there was no significant difference in the area of role inadequacy.

Conclusion : In conclusion, mild to moderate stress was present in about one-third of the drivers. Drivers of big vehicles reported higher overall stress levels than drivers of light vehicles. The role inadequacy was ascribed to the drivers with the highest stress domain scores overall.

Keywords : *driver, job, psychological stress*

Introduction

Stress is unquestionably a necessary component of modern life.

It is one of the major occupational dangers with multiple negative impacts on an individual's health, according to connected literature. The National Institute of Occupational Safety and Health (NIOSH) defines job stress as the result of an incongruence between an individual's requirements and talents and the expectations of their job (Hoel, Sparks, & Cooper, n.d.). Numerous researchers have examined the effects of job stress (Haider et al., 2018; Hannani et al., 2018). They have found that, in addition to directly costing people's lives through physical and mental illnesses and impairing performance (LaDou & Harrison, 2014), job stress also wastes millions of dollars in organisational expenses by lowering productivity and raising absenteeism, accidents, and insurance indemnities. Paradoxically, according to Tangri (2003), stress costs range from 1% to 3.5% of GDP. In the EU, stress-related problems cost up to 20 billion euros annually (KIZILOĞLU, 2018). Many factors influence an individual's susceptibility to job stress; yet, workplace stressors must receive more attention than individual susceptibility in order to address this issue. Workplace stressors can be broadly categorised into five categories: 1. Organisational (such as communication issues and organisational changes), 2. Career development (such as missed opportunities for advancement), 3. Individual role (such as role ambiguity and conflict), 4. Job task (such as decision-making latitude and responsibility levels), and 5. Work environment (such as chemical and physical exposures).

Of course, every job has unique stress factors. Recent studies have shown that driving is one of the most stressful jobs. Increasing drivers' stress levels will lead to accidents since driving demands competence, great focus and accuracy, careful judgement, and confidence in decision-making (Aminian, 2005). Long working hours, erratic schedules, even and repetitive labour, unsuitable physical circumstances, a lack of employment support, and social and familial restraints are some of the causes that might lead to job stress in drivers. Workplace stress exacerbates mental and cognitive exhaustion in drivers and lowers the calibre of their work. The idea put forth by Simon and Corbett states that stress and worry make it difficult for drivers to obey traffic laws, which raises the risk of deadly collisions and financial loss.

We chose to assess job stress in terms of role stress and its domains in heavy truck and light vehicle drivers due to the significance of the topic, the paucity of research on numerous stress domains in professional drivers, and the inconsistent findings in other studies.

Method

Professional drivers who were referred to an occupational medicine centre for recurring exams participated in the cross-sectional study that was carried out in this instance. In this investigation, simple random sampling was employed. Using the sample size formula for correlation studies, 627 was the minimum required sample size. A minimum of one year of professional driving work experience and a willingness to engage in the study were the requirements for enrollment. Anxiety disorders that had been identified or a history of using mental medications before to starting a professional driving career were among the exclusion criteria. Sixty-five drivers of both light and heavy vehicles were chosen to take part in the study based on the inclusion criteria. 630 participants in total were included in the study once the exclusion criteria were taken into account.

There were 330 participants who drove light vehicles and 300 subjects who drove large vehicles. This study used a questionnaire with two parts. First, the questionnaire asked about the subjects' age, education, marital status, smoking habit, type of car, shift work schedule, monthly income, amount of rest they took in an hour, and job happiness. It also asked about their occupation. Osipow job stress questionnaire was discussed in the second section. The participants' roles were assessed in six domains—task overload, role ambiguity, role insufficiency, role conflict, responsibility, and work environment—using a 60-item questionnaire. Every subgroup was given ten questions. Each response was given a score between 1 and 5 on a five-point Likert scale.

Based on the questionnaire instructions, we totaled the scores and classified the respondents' overall stress into four categories: light stress (scores ranging from 60-119), mild to moderate stress (171-120), moderate to severe stress (180-239), and severe stress (240-300). Iranian researchers had previously looked at the questionnaire's validity and reliability; the Cronbach's alpha coefficient was 83% (Sharifian, Aminian, Kiani, Baruni, & Amiri, 2005). It should be mentioned that the participants in this study completed the applicable questionnaire under the guidance of a qualified occupational hygiene specialist.

Drivers were divided into three groups based on how they worked shifts:

1. Day workers, whose shifts ran from 6 a.m. to 6 p.m.;
2. Night workers, whose shifts ran from 6 p.m. to 6 a.m.; and
3. Drivers, whose shifts varied.

Three categories of monthly income were established for this study: less than 188\$, 188 to 375\$, and more than 375\$.

Lastly, SPSS-20 software was used to statistically analyse the gathered data. The data were analysed using the T-test, ANOVA, chi-square test, and regression analysis. In every computation, a significance level of less than 5% (P -value <0.05) was used.

Results

The current study assessed 630 professional drivers, comprising 330 drivers of light vehicles (taxi, agency, school service and company drivers) and 300 drivers of heavy vehicles (bus, trailer, chemical tankers, truck, light truck, dump truck and other heavy vehicles). The participants were all men. 96.8% of the 610 subjects were married. 600 individuals (95.3%) held a high school certificate but no advanced degree. Less than \$3,750 was the monthly income for 370 subjects (58.7%). Regarding shift work, 259 participants (41.1%) worked days, 23 subjects (3.6%) worked nights, and 347 subjects (3.55%) worked a combination of shifts. A total of 357 individuals (56.6%) smoked. For drivers of light and heavy vehicles, the mean age was 37.5 ± 5.5 years and 44.33 ± 6.6 years, respectively. The data showed that only 37.9% of light vehicle drivers were in the age group of 40 or older ($P<0.001$), compared to the majority of heavy vehicle drivers who were. In terms of monthly income, cigarette smoking, and shift work type, there were statistically significant differences between the two groups of drivers. Specifically, heavy vehicle drivers had higher monthly income and smoking rates, and 82.3 percent of them had variable working hours, while the majority of light vehicle drivers (68.5%) worked during the day ($P<0.001$). An analysis of the impact of confounding variables on stress was conducted using a linear regression model. The model included variables including age, salary, degree of education, kind of vehicle (light or heavy), length of rest, working shifts, and job happiness. The study's findings (R square=0.11, $p\leq 0.001$) indicated that the following factors independently predicted stress: kind of car, shift work, job satisfaction, and income level. A higher income level of over 188 dollars increased stress by 33 units ($p\leq 0.001$, CI 95%:18-49), job dissatisfaction increased stress by 20 units ($p\leq 0.001$, CI 95%:11-28), and shift work and varied

working shift patterns reduced stress by 25 units compared to day-working ($p \leq 0.001$, CI = 15-35). Light vehicle driving reduced stress by 33 units compared to heavy vehicle driving. Regression analysis was done to compare daytime working with varied working shift pattern because there were less night shift drivers ($n=23$) than day shift drivers and those with variable working shift patterns. The data shows that working different shifts reduces stress by a factor of 25.

When all drivers' stress categories were assessed, role insufficiency received the highest score (29.86 ± 9.29). The study found that heavy vehicle drivers had significantly higher mean stress scores than light vehicle drivers in terms of work load, role conflict, responsibility, physical work environment, and overall stress level ($p < 0.001$). However, there was no statistically significant difference in terms of role insufficiency and ambiguity between the two groups of drivers.

The study employed analysis of variance (ANOVA) to determine if the kind of task (taxi, agency, school service, and corporate drivers) had a significant impact on the total stress score of light vehicle drivers ($p < 0.001$). Taxi drivers experienced significantly higher levels of stress than other light vehicle drivers, as shown by the Dunnett T3 test in the Post hoc analysis ($p < 0.001$, $p < 0.002$, and $p = 0.006$, respectively). Additionally, a post hoc test revealed that agency drivers experienced much less stress than company and taxi drivers ($p < 0.001$).

Discussion

The study's findings indicate that drivers of heavy vehicles experienced moderate to severe overall stress, whereas drivers of light vehicles experienced mild to high overall stress. Given that drivers of big vehicles have evidently more job stress than those of light cars, this case is justified. Among these pressures is the increased accountability heavy-vehicle drivers have for the lives and property of their passengers. A total of 44.3% of the participants reported being moderately to severely stressed. Nonetheless, 78% of public transport drivers reported moderate to severe stress in a study by Aminian et al.; this finding may have been caused by variations in the population under study.

The driver with the highest score across all stress domains was the one who felt they were not doing enough of their roles. The notion of role insufficiency states that people feel their edu-

cation, experience, and credentials do not meet the criteria of their position (Jackson, 2004). Professional drivers are actually expected to have a minimal level of mental competency, exhibit a faster reaction time, and routinely operate and maintain their automobiles. For example, they ought to maintain composure under pressure and refrain from acting aggressively. However, in Iran, professional drivers are not provided with this kind of specialised training at the beginning or end of their careers; instead, they may only profit from the experience of their pioneers.

Because the type of cargo is important, truck and trailer drivers scored lower on the mean stress score than bus drivers and chemical tanker drivers (fuels, solvents, insecticides, etc.) in the current study.

Drivers of heavy vehicles reported higher levels of stress in terms of workload, role conflict, responsibility, and physical work environment compared to drivers of light vehicles; drivers of chemical tankers received the highest scores in terms of role conflict and work environment. Workplace stressors encompass several aspects such as physical hazards (such as heat, cold, vibration, and noise), ergonomic issues, offensive smells, and safety risks. While the first two stresses are undoubtedly widespread among heavy-vehicle drivers, chemical tanker drivers are thought to have more significant issues with safety risks and offensive odours.

A study by Krishnan et al. on drivers of petrol and oil tankers found a strong correlation between psychological elements such job stress and weariness. This could lead to a decrease in driving effectiveness and an increase in traffic accidents.

Previous research indicates that when a person is in situations that contradict each other, role conflict arises. Moreover, it could result from someone's discontent with the expectations of their current employment (Yongkang, Weixi, Yalin, Yipeng, & Liu, 2014). Role conflict sufferers could progressively start to feel that they can't fulfil the demands and responsibilities of their jobs (Piko, 2006). As a result, it is crucial to give special consideration to the negative effects of this problem, particularly for drivers of big vehicles. The investigation revealed that bus drivers had the highest scores for job load, role ambiguity, role insufficiency, and responsibility among heavy-vehicle drivers. Put differently, bus drivers felt that there was an inconsistent relationship between the quantity and quality of expected occupational activities and the time and abilities needed to perform their jobs. Bus drivers' job stress has been the subject of

numerous studies, although these studies have not given much consideration to different subgroups and categories of job stress. Regression analysis was done to compare daytime working with varied working shift pattern because there were less night shift drivers ($n=23$) than day shift drivers and those with variable working shift patterns. The data shows that working different shifts reduces stress by a factor of 25. When all drivers' stress categories were assessed, role insufficiency received the highest score (29.86 ± 9.29). The study found that heavy vehicle drivers had significantly higher mean stress scores than light vehicle drivers in terms of work load, role conflict, responsibility, physical work environment, and overall stress level ($p<0.001$). However, there was no statistically significant difference in terms of role insufficiency and ambiguity between the two groups of drivers.

Additionally, unruly passengers threaten and physically harm this set of professional drivers. Bus drivers frequently work a variety of shifts, which means that their rest days are erratic and conflict with the schedules of their loved ones. Bus drivers are inevitably under more stress because they are accountable for the health and safety of their passengers. According to a study by Golmohammadi et al., 76% of bus drivers reported feeling extremely stressed. Important stress-related characteristics in the study included the degree of an individual's enthusiasm in his work, the quality of his relationships with supervisors and colleagues, and the work environment (Golmohammadi, Damyar, Mohamadfam, & Faradmal, 2013). Another study found that severe stress affected one-third of bus drivers. The study's findings indicated a substantial correlation between stress and working a diverse shift schedule as one ages (Varmazyar, Mortazavi, Hajizadeh, & Arghami, 2013). These outcomes agreed with the current study's findings.

The total stress score of taxi drivers was shown to be much greater than that of agency, school service, and company drivers, based on an investigation of light vehicle drivers. In addition, among all stress domains, cab drivers had the highest stress score. On the other hand, agency drivers had the lowest stress domain scores. The observed factors in taxi drivers are likely related to their competition with other coworkers to pick up passengers, their interactions with various social classes during the workday, their continued use of the vehicle, which results in higher depreciation and additional costs for taxi owners, their extended exposure to urban traffic, their lack of a set

work schedule, and their undetermined monthly income.

Among the study's merits were its comparatively large sample size and inclusion of several professional light- and heavy-vehicle driver groups. Additionally, a small number of research have looked into many stress-related areas in professional drivers thus far. Since this study was cross-sectional, it was not possible to confirm the existence of a causal relationship, but this is a problem that cross-sectional studies inevitably have. Although self-reported questionnaires may have introduced bias into the results, no trustworthy, unbiased approach has been found to address this issue to date. It should be mentioned that we limited our investigation to male professional drivers. Given that men make up the majority of drivers in Iran, it is likely that the investigated sample accurately represents the country's professional driver population.

Conclusion

The study's findings indicate that almost half of the participants experienced moderate to severe stress, and heavy vehicle drivers had greater overall stress levels than light vehicle drivers. Bus and chemical tanker drivers had the greatest stress levels among heavy vehicle operators. Among drivers of light vehicles, taxi drivers scored the highest on stress. Role inadequacy had the highest score out of all the stress domains for all drivers. In comparison to light vehicle drivers, heavy vehicle drivers scored higher on work load, role conflict, responsibility, and physical work environment. Despite the established negative effects of psychological issues on drivers' performance and safety, professional drivers continue to ignore this problem, according to past and current research. Regrettably, job stress and its management, particularly for heavy vehicle drivers in Iran, are not given nearly enough attention. Due to their higher stress levels, health planners should focus more on this issue and give job stress management programmes for tanker, bus, and taxi drivers top priority when funding is scarce.

References

1. Aminian, O. (2005). Stress on drivers. Tehran; Driver's Occupational Health Seminar.
2. Aminian, O., Farjami, A., Pouryaghoob, G., & Sadeghniat, H. K. (2011). The evaluation of effect of job stress on the risk factors of the cardiovascular diseases among the driv-

- ers in Tehran in 86. *tkj.*, 2(1), 26-33.
3. Apantaku-Onayemi, F., Baldyga, W., Amuwo, S., Adefuye, A., Mason, T., Mitchell, R., & Blumenthal, D. S. (2012). Driving to better health: Cancer and cardiovascular risk assessment among taxi cab operators in Chicago. *J Health Care Poor Underserved*, 23(2), 768-80.
 4. Bathija, G., Bant, D., Itagimath, S., Lokare, L., Godbole, M., Nekar, M., Mahesh, K., & Kantesh Reddi, K. A. (2014). Study on stress among government city bus drivers in Hubli. *IJBR*, 5(2), 102-104.
 5. Bergomi, M., Modenese, A., Ferretti, E., Ferrari, A., Licitra, G., Vivoli, R., Gobba, F., & Aggazzotti, G. (2017).
 6. Work-related stress and role of personality in a sample of Italian bus drivers. *Work*, 57(3), 433-440.
 7. Chen, J. C., Chang, W. R., Chang, W., & Christiani, D. (2005). Occupational factors associated with low back pain in urban taxi drivers. *Occup Med (Lond)*, 55(7), 535-40. Epub 2005 Sep 1.
 8. Choi, B., Choi, S., Jeong, J., Lee, J., Shu, S., Yu, N., Ko, S., & Zhu, Y. (2016). Ambulatory heart rate of professional taxi drivers while driving without their typical psychosocial work stressors: A pilot study. *Ann Occup Environ Med.*, 28, 54. eCollection 2016.
 9. KIZILOĞLU, M. (2018). A RESEARCH ON THE RELATIONSHIP BETWEEN WORKPLACE MONITORING AND JOB STRESS. *Journal Of Organizational Behavior Research*, 3(2), 1-12.
 10. Du, C. L., Lin, M. C., Lu, L., & Tai, J. J. (2011). Correlation of Occupational Stress Index with 24-hour Urine Cortisol and Serum DHEA Sulfate among City Bus Drivers: A Cross-sectional Study. *Saf Health Work*, 2(2), 169-75.
 11. Golmohamadi, R., Damyar, N., Mohamadfam, I., & Faradmal, J. (2013). Study of Occupational Stress Among Hamadan City-Bus Drivers, 2011. *TB.*, 12(1), 24-32. [Persian]
 12. Hattori, M., & Azami, Y. (2001). Searching for preventive measures of cardiovascular events in aged Japanese taxi drivers--the daily rhythm of cardiovascular risk factors during a night duty day. *J Hum Ergol (Tokyo)*, 30(1-2), 321-6.
 13. Hoel, H., Sparks, K., & Cooper, C. L. (n. d.). The cost of violence/Stress at work and the benefits of a violence/stress-free working environment.
 14. Jackson, A. (2004). A Survey of the Occupational Stress, Psychological Strain, and Coping Resources of Licensed Professional Counselors in Virginia: A Replication Study.
 15. Kompier, M. A., Aust, B., Van den Berg, A. M., & Siegrist, J. (2000). Stress prevention in bus drivers: Evaluation of 13 natural experiments. *J Occup Health Psychol*, 5(1), 11-31.
 16. Krishnan, S., Hizam, S., Firdhaus, A., Sarah, S., & Taufiq, A. (2017). Analysis of Exhaustion Related Psychological Risk Factors among Oil and Gas Tanker Drivers in Malaysia. *International Journal of Advanced and Multidisciplinary Social Science*, 3(1), 22-27.
 17. LaDou, J., & Harrison, R. (2007). *Current occupational & environmental medicine*. New York: McGraw-Hill.
 18. Haider, S. H., Nisar, Q, Al., Baig, F., Azeem, M., Hameed, W. (2018). Dark Side of Leadership: Employees' Job Stress & Deviant Behaviors in Pharmaceutical Industry. *International Journal of Pharmaceutical Research & Allied Sciences*, 2018, 7(2), 125-138.
 19. LaDou, J., & Harrison, R. (2014). *Current occupational & environmental medicine*. New York: McGraw-Hill. Nakano, Y., Nakamura, S., Hirata, M., Harada, K., Ando, K., Tabuchi, T., Matunaga, I., & Oda, H. (1998).
 20. Immune function and lifestyle of taxi drivers in Japan. *Ind Health*, 36(1), 32-9.
 21. Osipow, S. H., & Spokan, A. R. (1998). *Manual for occupational stress inventory: Research version*.
 22. *Psychological Assessment Resources*, Odessa, FL, USA.

23. Piko, B. (2006). Role Conflict and Burnout: The Direct and Moderating Effects of Political Skill and Perceived Organizational Support on Burnout Dimensions. *Int J Nurs Stud.*, 43(3), 311-8.
24. Roohi, N., & Hayee, S. (2010). Work stress related physiological responses in professional bus drivers. *Acta Physiol Hung.* 97(4), 408-16.
25. Sharifian, S. A., Aminian, O., Kiani, M., Baruni, Sh., & Amiri, F. (2005). The evaluation of the degree of occupational stress and factors influencing it in forensic doctors working in legal medicine organization in Tehran. *J. Forens. Med.*, 12(3), 144-150.
26. Siedlecka, J. (2006). Selected work-related health problems in drivers of public transport vehicles. *Med Pr.*, 57(1), 47-52.
27. Tangri, R. P. (2003). What stress costs: A special report. Canada: Performance Strategies Publication.
28. Varmazyar, S., Mortazavi, B., Hajizadeh, I., & Arghami, S. (2013). Evaluation of the Status of Severe Occupational Stress and Its Associated Factors among Public Transportation Bus Drivers in Tehran, 2012, Iran. *Qom Univ Med Sci J*, 7(5), 73-82.
29. Varmazyar, S., Mortazavi, B., Hajizadeh, I., & Arghami, Sh. (2013). Evaluation of the status of severe occupational stress and its associated factors among public transportation bus drivers in Tehran, 2012, Iran. *Qom Univ Med Sci J*, 7(5), 73-82. [Full Text in Persian]
30. Vrijkotte, T. G., Van Doornen, L. J., & De Geus, E. J. (1999). Work stress and metabolic and hemostatic risk factors. *Psychosomatic Medicine*, 61(6), 796.
31. Hannani, S., Rezagholy, P., Nasiri Ziba, F., Ali Azadi, N. (2018). Relationship Between Sleep Quality with Job Stress and Quality of Life of Operating Room Technologists Working in University Hospitals Affiliated to Iran University of Medical Sciences in 2016-17. *Pharmacophore*, 9(2), 103-108.
32. Wang, P. C., & Delp, L. (2014). Health status, job stress and work-related injury among Los Angeles taxi drivers. *Work*, 49(4), 705-12.
33. Yamada, Y., Mizuno, M., Sugiura, M., Tanaka, S., Mizuno, Y., Yanagiya, T., & Hirose, M. (2008). Bus drivers' mental conditions and their relation to bus passengers' accidents with a focus on the psychological stress concept. *J Hum Ergol (Tokyo)*, 37(1), 1-11.
34. Yongkang, Z., Weixi, Z., Yalin, H., Yipeng, X., & Liu, T. (2014). The Relationship among Role Conflict, Role Ambiguity, Role Overload and Job Stress of Chinese Middle-Level Cadre. *ChnStd.*, 3(1), 8-11.