

Level of Fatigue in Traffic Wardens of Lahore; A Cross Sectional Survey

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Abstract

Background: Occupational health and safety is an important issue. Occupations requiring high physical demands from workers may cause both physical and psychological fatigue. Prolonged standing is an important risk factor for occupational injuries.

Objective: The objective of this study was assess the level of fatigue in traffic wardens in region of Lahore.

Study type settings & duration: An observational cross sectional survey was done at Lahore from May to June 2018.

Methodology: A total of 177 traffic wardens fulfilling inclusion criteria from the different roads of Lahore were taken for the proposed study by non-probability convenient sampling. Fatigue severity extent (FSS) was used to measure the level of fatigue. The validity and reliability of this scale (FSS) was established by Geri B. Neuberger.

Results: The mean age and standard deviation of participants were 35.33±6.24 with minimum age 25 years and maximum 50 years. It was observed that out of 177 respondents, 37 (20.9%) very strongly agreed that their motivation was low when they were fatigued. Out of 92 fatigued respondents, 49 (53.5%) had mild fatigue, 28 (30.5%) had moderate fatigue and 15 (16%) had severe fatigue. The association between fatigue and age groups was (p -value = 0.013) significant. The overall prevalence of fatigue in traffic wardens was 52%.

Conclusion: It was concluded that jobs in long-drawn-out standing has contributed frequent health effects like work-related musculoskeletal issues, constant venous insufficiency and carotid atherosclerosis. On the other hand, those injuries can be reduced to extent in the course of ergonomics appliance of engineering and administrative controls.

Key words: Traffic, warden, muscle fatigue.

Introduction

Occupational health and safety is an important issue. Occupations requiring high physical demands from workers may cause both physical and psychological fatigue. Prolonged standing is an important risk factor for occupational injuries.¹

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Authors Contribution

MM, MW & QA conceptualized the project. MS & NA performed the data collection. MS, NA & AN did the Literature search. MM, NA & MW also did the statistical analysis. Drafting, revision & writing of manuscript was done by NA, MW & QA.

Mental and physical tiredness resulting from continuous exertion activities and in one is unable to perform exercise at the same intensity and consequently quality of performance compromised is termed as fatigue. It has two main components such as motivational and drainage of energy or low energy and it is different from the term drowsiness which is explication of need of sleep. Apart from drowsiness, other symptoms sometimes confused with fatigue such as dysnea and muscle weakness. Further, abovementioned symptoms can be occurred simultaneously.²

The nature of job of traffic wardens demands standing for the entire day and puts a constant stress on the lower extremities plus added work demand of arms may increase the level of both physical and psychological fatigue that can reduce their efficiency at work. Prolonged standing can lead to fatigue induced pain and increased muscle and joint stiffness in traffic wardens. Prolonged standing at occupations has been described as spending

above 50% of the working hours in standing position¹ or standing for more than 8 hours a day.³

A study on analysis of fatigue in manufacturing workers has shown muscle fatigue in all the workers due to prolonged standing.² Chronic venous insufficiency, musculoskeletal pain in lower back and feet were found to be the health risks associated with prolonged standing.³

High level of fatigue in jobs demanding prolonged standing or physical efforts can be attributed to both physical and psychological factors. A prospective study conducted on nurses' aides has shown high stress and lack of motivational rewards at work to add up to persistent fatigue. Moreover reduction of work difficulty, sufficient feedback and logical support has shown to reduce the level of fatigue.⁴

Current study was conducted to assess the level of severity of fatigue in traffic wardens and how did it affected their working ability. No work has been done regarding the role of occupations requiring prolonged standing in causing fatigue in our setting.

Methodology

This descriptive cross-sectional study was done from May to June 2018 in Lahore. After written informed consent a total of 177 traffic wardens (sample size was calculated by using the formula $n = Z^2_{1-\alpha/2} \times SN \times (1-SN) / L^2 \times \text{prevalence}$, whereas estimated proportion was 14.4%, margin of error 5%, confidence level 95% and prevalence was 25%)² ages 25-50 years, only male with no history of physical and mental illness in past ten weeks were taken from Lahore for the purpose of this study.

The data was collected by using fatigue severity scale (FSS) questionnaire. The validity and reliability of this scale (FSS) was established by Geri B. Neuberger.⁵ Non-probability convenience sampling was done for the data collection.

The following procedure was used for evaluation of the patients: FSS was used as a measurement to determine the level of fatigue severity in traffic wardens. The FSS questionnaire contains nine statements that attempt to explore severity of fatigue symptoms. Read each statement and circle a number from 1 to 7, depending on how appropriate they felt the statement applied to them over the preceding week. A low value indicated that the statement was not very appropriate whereas a high value indicated agreement (1 very strongly disagree, 7 very strongly agree). The scoring was done by calculating the average response to the

questions (adding up all the answers and dividing by nine).⁵

All collected data was entered in computer program statistical package of social science (SPSS) version 20 and analyzed through this very software. Mean \pm standard deviation was calculated for quantitative variable while frequencies and percentages were calculated for qualitative variable. Chi square was used for determining association between fatigue and age groups. A p -value ≤ 0.05 was considered as significant.

The ethical approval was taken from the ethical review committee of Riphah International University, Lahore.

Results

Among 177 respondents of traffic wardens, mean ages and standard deviation were 35.33 ± 6.24 with minimum age 25 years and maximum 50 years. Out of 177 respondent, 152 (85.9%) were married and 25 (14.1%) were unmarried. FSS score was 38.18 ± 5.63 with minimum score of 18 and maximum score was 53 (Figure). Fatigue severity scale was applied for measuring score of nine statements (Table) of fatigue symptoms.

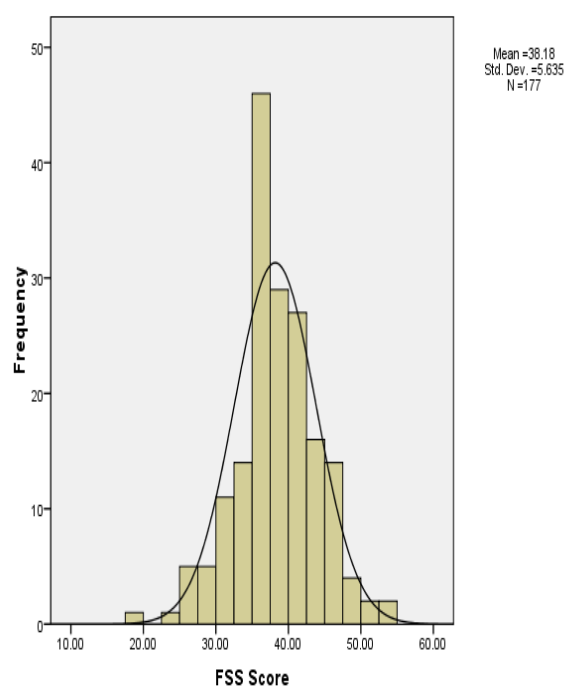


Figure: Fatigue severity scale score. (N = 177)

Discussion

In this study, FSS score was measured as minimum score 18 and maximum score 53 which was indicated fatigue in respondents.

Table: Frequencies and percentages of nine statements of FSS. (N = 177)

	<i>Very Strongly Disagree</i>	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>	<i>Very strongly Agree</i>
Motivation is lower when tired	7(4%)	34(19.2%)	19(10.7%)	20(11.3%)	30(16.9%)	30(16.9%)	37(20.9%)
Exercise brings on fatigue	5(2.8%)	40(22.6%)	24(13.6%)	21(11.9%)	24(13.6%)	41(23.2%)	22(12.4%)
Easily exhausted	9(5.1%)	32(18.1%)	31(17.5%)	21(11.9%)	10(5.6%)	40(22.6%)	34(19.2%)
Fatigue interferes with physical functioning	10(5.6%)	31(17.5%)	22(12.4%)	26(14.7%)	26(14.7%)	45(25.4%)	17(9.6%)
Fatigue causes frequent problems	7(4%)	33(18.6%)	30(16.9%)	28(15.8%)	23(13%)	38(21.5%)	18(10.2%)
Fatigue prevents sustained physical functioning	17(9.6%)	27(15.3%)	30(16.9%)	31(17.5%)	18(10.2%)	42(23.7%)	12(6.8%)
Fatigue interferes with moving out definite duties and everyday jobs	8(4.5%)	27(15.3%)	28(15.8%)	31(17.5%)	31(17.5%)	36(20.3%)	16(9%)
Fatigue is among three most disabling symptoms	12(6.8%)	28(15.8%)	29(16.4%)	30(16.9%)	23(13%)	37(20.9%)	18(10.2%)
Fatigue interferes with work, family, or social life	13(7.3%)	26(14.7%)	34(19.2%)	34(19.2%)	26(14.7%)	30(16.9%)	14(7.9%)

Less rest intervals, improper type of shoe wear and the surface over which worker has to stand for hours are some of the important factors leading to fatigue.¹ Traffic wardens have to do prolonged standing with less rest intervals and they have to stand on roads made of concrete for hours which makes them more vulnerable to suffer from muscular fatigue. Another study has found moderately strong correlation between age, height, weight, job tenure and perceived fatigue discomfort.⁶ There is a study showing the objective relationship between the duration of standing and fatigue in muscles of lower extremity.⁷ This study also showed that this fatigue could however be relieved after 30 minutes of rest.⁷ Alicia et al. also summarized that transitioning from sitting to standing and vice versa every after 30 minutes can also reduce the fatigue.⁸ This is in consistent with our results that long standing has impact on level of fatigue.

A study conducted to find differences in lower leg swelling and fatigue in sitting, standing and sit-stand chair has shown standing to cause more fatigue in entire lower extremities specifically feet as compared to other positions.⁹ Significantly higher fatigue rates ($p < 0.05$) were found in leg and lower back muscles in stationary standing postures as compared to dynamic postures.¹⁰ Isa Halim et al, suggested that along with the muscle fatigue, psychological fatigues is also associated with long standing. There is another study claim that fatigue is related to age, standing hours and it is also associated with anxiety and depression.¹¹

It is evident from our study that the traffic warden in Lahore suffers from fatigue due to their long physical and mental endurance hence it is suggested to reduce their duty hours from eight

hours to maximum six hours in order to reduce the fatigue suffering. Furthermore, they should be provided with respite in order to make them fresh during the duty hours instead of continuous duty. Simultaneously, a provision should be made in their employment contract which offer them leave fare assistance, after every six months, during which they may visit any recreational place to mitigate the effect of the mental stresses the tackled during the period.

It is recommended to carry out the study in details which should include digital fatigue measuring tools developed in the world. It is further recommended to enhance the fatigue measurement study to different professions of high concentration and requiring more physical endurance which may vary from pilots to factory labors.

It was concluded that job nature with prolonged standing has detrimental effects such injuries related to musculoskeletal, venous insufficiencies and carotid atherosclerosis. Though, these injuries can be minimized to great extent by application of many ergonomics techniques

Conflict of interest: None declared.

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