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Original Article

Prevalence of Musculoskeletal Disorders Among Low to High Mileage Non-Occupational Car Drivers in City Faisalabad

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ABSTRACT:

Musculoskeletal discomfort has been reported among the non-occupational car drivers covering low to high mileage to reach their jobs or other destinations. Domestic driving, driving to reach the job, social driving, and driving for leisure activities is also found to cause discomfort among people. This can affect their daily life activities and socioeconomic status. **Objective:** The purpose for which this study was conducted was to find out the musculoskeletal problems that could possibly arise among the common population of car drivers and among them the problem with highest ratio, due to various contributing risk factors. **Methods:** A cross-sectional study was carried out in city Faisalabad among non-occupational drivers in which 192 drivers including both males and females were enrolled with age limit from 18 to 60 years. Nordic musculoskeletal questionnaire was used to evaluate the pain in various areas of body in non-occupational drivers. **Results:** The results showed that the highest affected area was backache. There was 41% small back pain in last twelve months and 38% in last seven days among non-occupational car drivers. **Conclusion:** Low back pain was highest to be discovered in the time period of last 12 months and also in the last week as compared to other areas of body.

KEYWORDS:
musculoskeletal problems, low back pain, car drivers, driving, non-occupational drivers

INTRODUCTION

As much as driving is stated to be the leading reason behind musculoskeletal problems in occupational drivers, it is also found to be a nuisance in non-occupational drivers in their daily life. The fact that mostly low back pain prevails in driving, is not a surprise. Many researches have been conducted of LBP among professional and non-professional drivers in different countries. After headaches and neck pain, low back pain is stated to be

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third most common complaints by population. The true reason of increased LBP in populations of occupational car drivers is mostly undefined. The repeatedly listed risk factor for LBP is carrying heavy physical load during work, postural stresses due to wrong posture and vibrational force on body related to driving [1]. In addition to this musculoskeletal discomfort is spotted more with increased hours of driving and less among those with the car having adjustable steering wheels and seat, Lumbar spine supports, support for arm and seat inclination features also have shown a major role in decreasing risk factors [2]. Other risk factors include driving seat comfort, whole body vibrational effect, postural stresses, and psychological stresses. Longer period of awkward sitting posture due to the demand of driving task without any break leads to the leakage of intervertebral fluid from nucleaous pulposis of vertebral discs and ultimately leads to the loss of cushioning ability of spine [3]. Several studies have shown that driving of various vehicles increases the risk for lumbar spine disc herniation and other musculoskeletal problems that can possibly arise in lower back. There is good evidence that the amount of vibration transferred to the spine depends upon the seating system, the softness of the seat cushions, the road and terrain surface, and the speed. Quick starting and stopping, prolonged sitting, lack of spinal support according to the lumbar spine curve, inadequate distance from the seat to the floor, and the muscular effort of driving also may add to the stress on the spine [4]. As car driving involves sitting for longer hours and in some cases with no independence of taking rest to stretch the body or relax the muscles, it puts exertional stress on lumbar spine and intervertebral discs. Lumbar disc herniation is most common at the L4 and L5 levels; however, it is recently noted that as sitting hours increases with car driving, risk for L4 and L6 disc herniation increase [5]. In occupational drivers the time period of driving is found to be associated with MSDs. The time which is spend on driving per week and average of hours spend on a single day are greater among drivers of buses who complained about the low back pain than the car drivers or other domestic drivers [6]. In non-occupational drivers most of people who have been noticed of higher leaves from their jobs due to low back discomfort are from high distance annual driving as compared to low mileage drivers. When a survey was conducted to compare the occupational drivers to non-occupational ones, it was observed that who drive as part of job for more than 20hours/week have more damaging effect on lower back than people whose jobs involved standing/sitting/lifting [2]. The musculoskeletal pain meta-prevalence rate is as follows, in low back 53%, in neck 42.4%, in shoulder 39.2%, in upper back 25.5%, in knee 21.8%, in hips/thighs 19.5%, in wrist 11.5%, in ankle 15.1%, and in elbows 7.9% [7].

This study was conducted to find out the musculoskeletal problems which mostly affect the non-occupational drivers i.e. who drive car for domestic, social or recreational purposes and among these problems the one with highest percentage as compared to others.

METHODS

A standard questionnaire was used to assimilate the data from the respondents in a cross sectional survey to ascertain the prevalence of Musculoskeletal problems in car drivers. The study was conducted among low to high mileage car drivers in City Faisalabad. The study took 3 months to complete, from May to July 2021. A sample size of 192 members (Males + Females) was selected, it was taken according to the parent article and was approved by the supervisor. The data was collected from the selected population through simple random sampling. Those who were willing to participate in the study were given a questionnaire. A simple convenient sampling technique was used in the study as it was a precise description of a large population. This technique does not take much time to collect data from respondents. The study was conducted by the three physical therapy final year students. Following criteria will be followed; Inclusion criteria; age 18-60years, both males and females were included, participants had no previous history of any Musculoskeletal injury and trauma, participants who were not gone through any recent surgery, the persons who were not having any chronic back, neck, or shoulder pain. Exclusion criteria; non-drivers were excluded, wheelchair users were excluded (because

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their vehicles may have adaptations and their inabilities can include Musculoskeletal problems), people having osteoporosis and any known health issue were not included. SPSS version 16 was used. Nordic musculoskeletal questionnaire was used. After getting the acceptance of sample size and keeping in view the exclusion and inclusion criteria of the study a standard questionnaire; Nordic musculoskeletal questionnaire was selected. The questionnaire consummated all the terms and conditions related to the topic of study. The questionnaire contained 32 questions that were necessary according to condition. Demographic data was also presented in the questionnaire such as age and height. A diagram was also there in the questionnaire for the ease of respondents to point out the region of pain This was a survey-based study and was completed by using convenient sampling after meeting exclusion and inclusion criteria. The sample size of 192 members was interviewed through a standard Nordic musculoskeletal questionnaire to collect data input. Before collecting the data participants were informed about the purpose and benefits of the study. All the questions including demographic data and the purpose of driving and driving hours, among others, were according to our study protocol. The questionnaire was approved by the supervisor before using it for study. The actual purpose of the study was to see the prevalence of musculoskeletal problems in car drivers. The data was analysed by using SPSS version 16.0. The frequency distribution of a descriptive study was used to check the occurrence of each response. After calculating frequency distribution, cross-tabulation was used to create the bi-variate relationships. Cross tabulation was used to find the interrelationship between variables and in this study gender was used as an independent variable to find the relationship with other variables. For simple and easy data entry SPSS version 25 software, information of the variables was converted into numerical coding after completing data collection so that it can be easy for application of analysis of data and statistical tests to find out the significance of the research. The study was conducted after informing the participants about the purpose of the study. This study didn't force any participant to fill the questionnaire and all the personal information was kept confidential. The selection of respondents was done without any favouritism. The study ensured the obscurity of participants.

RESULTS

Out of 192 participants, 111 males were non occupational drivers while females were 81. 95 participants with percentage of 49.5% drove car as a profession and 7 to reach their jobs and 90 participants drove for other purposes. The driving hours in last 12 months driving had prevented them from doing their normal work, Table 1..

Variables		Frequency	Percentage	significance (association with gender)	St. deviation	mean
Gender	male	111	57.8	0.013	0.396	1.19
	female	81	42.2			
Driving hours	1-20	145	75.5	.104	3.30407	3.30407
	21-40	35	18.2			
	41-60	4	2.1			
	81-100	2	1.0			
Discomfort in last 12 months	Neck	68	35.4	.032	.445	1.73
	Shoulders	59	30.7	.024	.441	1.74
	Elbow	20	10.4	.034	.309	1.89
	Wrist	29	15.1	.002	.319	1.89
	Upperback	49	25.5	.034	.426	1.76
	Lowerback	91	47.4	.020	.464	1.69
	Hips/thighs	31	16.1	.033	.355	1.85

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	Knees	23	12.0	.034	.298	1.90
	Ankles	19	9.9	.032	.321	1.88
Discomfort in last 7days	Neck	68	35.4	.025	.438	1.74
	Shoulders	48	45	.034	.390	1.82
	Elbow	8	4.2	.091	.180	1.97
	Wrist	20	10.4	.036	.278	1.92
	Upperback	46	24	.004	.392	1.8
	Lowerback	75	39.1	.157	.430	1.76
	Hips/thighs	27	14.1	.081	.332	1.88
	Knees	13	6.8	.168	.264	1.92
	Ankles	16	8.3	.230	.290	1.91

Table 1: Frequency, percentage, and significance of multiple variables related to the study

DISCUSSION

High incidence of musculoskeletal problems, predominantly lumber ache is probably owed towards long sedentary positions in addition absenteeism to sufficient workout between lorry chauffeurs. An additional fact is the arrangement of the orchestras, which found that musculoskeletal syndromes were the maximum ubiquitous healthiness delinquent in lorry drivers. [8]. Subsequently, in-harmoniousness among cosiness or occupation would consequence in damage to the chauffeur in the long run [9]. Features contributory to the pervasiveness of musculoskeletal problems comprise poor posture and acquaintance to vibration and mechanical shocks [10]. Occupational musculoskeletal problems are the period of muscle disease that consists of impairment to tendons, tendon sheaths, and synovial lubrication of tendon sheaths, and related to bones, muscles, and nerves of hands, wrists, elbows, shoulders, neck, and back [11]. We have recurrent interaction through medical representatives who repeatedly drive cars for business, and have noticed that many of them suffer from lumber ache. The total driving distance was significantly higher in legislatures with lumber ache than in those without back ache [12]. The guideline on the relation between backache and whole-body vibration in the past studies is scarce. Drivers with more exposure to driving had more risk of backache was discussed in all other than two studies. Only one author of the reviewed studies takes in account the effect of car features as potentially effecting factors for low back pain. If more studies had found effectively the history of the back pain and the cause-effect relationships might be better recognized such as the degree to which it occurs in relation with car driving. Back pain in car drivers might be linked to sitting posture or some environmental impacts while driving. From the published studies it is not clear the extent to which factors are affecting lower backs. The sitting forces at the feet when operating foot pedals, load from the arms, cervical posture, twisting to look rearward during reversing, forces during entry and exit from a car have the risk of inducing backache. The important factor, the sitting posture is liable to be significant for both car riders and car drivers. The more awkward posture of drivers than commuters might affect the risks of pain in back. In both genders there was an epoch-making way for increased backache in those most exposed compared with those least exposed [13]. This study tells about how ergonomics has polished our knowing of the nature of the disorders and their work-relatedness. Greater adherence to the ergonomics process would seem the most preferred strategy for getting long term prevention of these problems within the UK and elsewhere [14]. According to study report in truck, bus, and taxi drivers the most common risk factors for these occupations include long hours in a sitting position, years in the profession, vehicle ergonomics, and vibration [15]. The implanting health education and awareness programs about LBP and its risk factors is discussed in this study and prevalence was high among car drivers [16]. Analysed data demonstrate that the re-location of control elements is at long last a curative solution for the drivers by changing the ergonomically work environment [17]. 70% of cab drivers in this study were suffering from backache and they were the sufferers were asked for the posture correction [18]. Assessment on the issues of these vehicle

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drivers utilizing RULA and CMDQ were made. The outcomes displayed that there was a correlation on the body portions of truck, taxi and bus drivers on the RULA and CMDQ esteems [19]. Open Pose and Kinect can successfully be used in observance the driver's sitting posture. A subjective evaluation showed that contestants did not showed a difference between the two play scripts and believe that posture monitoring systems should be merged in vehicles to increase driver safety [20].

CONCLUSIONS

After collecting the data, we concluded that, males face more musculoskeletal discomfort than females because their driving ratio was higher than females.

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