PREVALENCE OF NECK PAIN AND ADOPTED POSTURE IN DRIVERS

Muhammad Kashif[1], Marium Zafar[2], Mehar Asif[3], Fatima Munawar[4]

ABSTRACT

AIM The aim of this study was to study the frequency of neck pain and the posture adopted by the drivers employed in The University of Faisalabad (TUF).

METHOD Descriptive study, cross-sectional survey was conducted to collect data from 33 participants by using modified questionnaire derived from Neck Disability Index, Northwick Park Neck Pain Questionnaire and Schiff neck pain. The questionnaire containing 22 questions was distributed among 33 drivers who were working at TUF. Information was collected regarding the presence of neck pain and its corresponding factors and outcomes.

RESULTS The results established from this research exposed that only 18% drivers experienced neck pain while 82% were pain free. 3% of the university drivers drove leaning forward posture, 15% were multi taskers, 3% racer and 79% had pimps posture.

CONCLUSION Only a minority of drivers working in TUF experienced neck pain while majority of the drivers were pain free. Large number of drivers exhibited pimps posture.

KEY WORDS Driving Postures, Driving Ergonomics, Postural Neck Pain.

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INTRODUCTION

Pain is defined as "an unhappy, sad, emotional feeling associated with current experience or potential tissue damage and depicted in terms of such damage".[1] While neck pain is defined as 'discomfort, ache, or pain' in the areas from the occiput to the third thoracic vertebra and involving the medial borders of the both scapulae. Moreover, neck pain is a type of distress or pain in almost any of the structures involving contractile, non-contractile and hard components in the neck.[2]

Binder reported nonspecific (simple) neck pain is caused by postural and mechanical stress.[3] Main causes of neck pain reported in drivers are habitual forward head posture during driving, invariable jolting and driving seat ergonomics.[4] Other are improper driving postures, injury and trauma, rhythmic activity, muscle damage, whiplash,[3] rapid excessive work load of driving and tension in the muscles of neck.[5]

Although driving is a major and important necessity for most of us but it generates pain in the neck both figuratively and literally and it is more frequently to have the occurrence of neck pain in the professional drivers. Those who drive for prolonged and extended periods of time are more prone to shoulder and neck pain, predominantly if the professional drivers do not maintain good posture. Professional drivers adopt such posture of driving that leads them to suffer from neck pain 60%-69% of drivers suffers from it.[6] Anon described that bad posture while sitting for a long period of time can exert a repetitive load on the tissues that results in sustained or persistent stress.[7] Daily and regular prolonged sitting applies load to the spine that cause elastic tissues to slowly deform and creep.[8]

Nordin and Frankel described the phenomenon of creep as the permanent deformation of the elastic and endurable structures under the presence or application of persistent load on these structures.[9] This sustained and persistent load on the elastic structures and resultant deformation or creep results in progressive reduction of tissue strength.[10]

[1] Assistant Professor, School of Rehabilitation Sciences, University of Faisalabad, Faisalabad -Pakistan
[2] Doctor of Physical Therapy, School of Rehabilitation Sciences, University of Faisalabad, Faisalabad -Pakistan
[3] Doctor of Physical Therapy, School of Rehabilitation Sciences, University of Faisalabad, Faisalabad -Pakistan
[4] Doctor of Physical Therapy, School of Rehabilitation Sciences, University of Faisalabad, Faisalabad -Pakistan

Address for correspondence:

Muhammad Kashif
Assistant Professor, School of Rehabilitation Sciences, University of Faisalabad, Faisalabad -Pakistan. Email: Kashif.shafii@gmail.com
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Habitual forward head posture has been considered to be a significant factor in the etiology of postural neck pain in the professional drivers. The result of this research suggests that the professional drivers with postural neck pain have an unusual and significant perception of correct posture.[11] If the work place deign is not suitable for the drivers which might involve manual, visual, foot tasks, seat ergonomics or a mixture of these then they may lead to muscular skeletal diseases like sprain, strain and pain in the neck.[12]

The aim of this study was to study the frequency of neck pain and the posture adopted by the drivers employed in The University of Faisalabad (TUF)

METHODS

The conducted study is a cross-sectional survey based on exploratory data which is systematic and it was conducted at The University of Faisalabad. The drivers who were working in TUF were taken as population. The research survey was conducted on the population of 55 drivers who were working at TUF for at least 6 months. Their age ranged from 23-70 years without having any cognitive problems and history of neck pain due to tumor or systematic problems.

Non-probability purposive Sampling technique was used to calculate sample size. We provided the drivers with the questionnaire composed of 22 questions that had been taken from the Northwick Park Neck Pain Questionnaire (NPQ), Neck Pain Disability Index Questionnaire (NDI) and Schiff Neck Pain Questionnaire which they had to answer along with the consent for participation in research. After the distribution of these questionnaire forms among the whole population of drivers who were working in TUF at that time, we received 33 filled forms after some days on which statistical analysis was done.

Data collection tools:

1. Northwick Park Neck Pain Questionnaire (NPQ): was established to evaluate the neck pain and the disability of the patients. The questionnaire has been intended to give the information about the NP and how NP has affected the person's life. The questionnaire has good short-term repeatability and internal reliability.[13]

2. Neck Pain Disability Index Questionnaire (NDI): The Neck Disability Index (NDI) was developed by Dr. Howard Vernon in the late 1980's and was first published in 1991. The NDI was developed as the modification of the Oswestry Low Back Pain Disability Questionnaire. This questionnaire is used in 1276 researches.[14]

The questionnaires were translated into Urdu for the convenience of target population. Previously, NDI and NPQ have been translated into Spanish, German, Chinese and Portugal languages. Interclass correlations of translated questionnaires were found to be 95%, 92%, 94%, 96% respectively. The filled questionnaires of acute and chronic neck pain were different from each other in scoring.[15,16] Approval for this study was taken from TUF and consent was taken from the subjects participating in this study.

RESULTS

The mean duration of driving hours calculated was 5.303. 18% of drivers complain NP (Graph 1) in which 9% have pain on both sides of the neck and 9% have pain in one sides of neck.12% driver's reports mild pain and 6% reports moderate pain (Graph 3). Other than neck pain, 6% described backache and 6% reported shoulder pain. 6% driver's pain resolves within an hour and 9% exhibits off and on pain. 15% of drivers informed that their character of neck pain was dull, in contrary 3% reports that their character is of other type than dull.

The reported problems due to neck pain were balance, headache, ADL's, concentration, sleep and numbness. 3% of the drivers suffer from balance problems, 12% from mild headache and 3% from severe headache. 6% drivers were performing their ADL's with pain (graph 4) and 3% exhibited concentration problems. 3% drivers have moderately disturbed sleep and 3% experienced numbness in arms and hands.15% of working drivers experienced accidents during driving.

The adopted driving posture, 3% executed leaning forward posture,3% exhibited racer posture,15% were multi tasker posture and 79% have pimps posture (Graph 5). Pain is exaggerated in 9% of drivers by moving their head, 3% by moving arms, 6% by driving and 3% of the drivers pain is not affected.

DISCUSSION

Our study settled that 18% drivers experience neck pain along with the presence of LBP in 6% of drivers and also superior back pain in 6% drivers. This finding is supported by Alperovitch, he concluded that among the bus drivers of Israel neck ache was present in 21.2% drivers, followed by the elbow 3%, shoulder 14.7%, wrist 3% and upper back 8.3%. The incidence of neck ache was linked with poor ergonomics or uncomfortable seats.[10]

However, Rehan, employing ISO 2631-1 information report and modified self-made questionnaire reported that 34% drivers experienced neck pain both for the last 12 months and last 7 days. However, more than half of the drivers complained both of neck pain and arm pain and also showed that there was no considerable association among neck pain and whole body vibration (WBV) exposure.[17]

Fernandez focused on musculo skeletal symptoms in a sample of 35 vehicle drivers and came to the result that there are more episodes of musculo skeletal diseases in drivers, in which 69% accounts for the neck pain, 60% accounts for low back pain, 57% accounts for superior back ache and 43% accounts for knee pain.[18]

Ehrlichand George reported that leaning forward posture, pimps posture, racer's posture and multi tasker posture are the postures that the drivers mostly execute during

FIGURE 1: Presence of Neck Pain

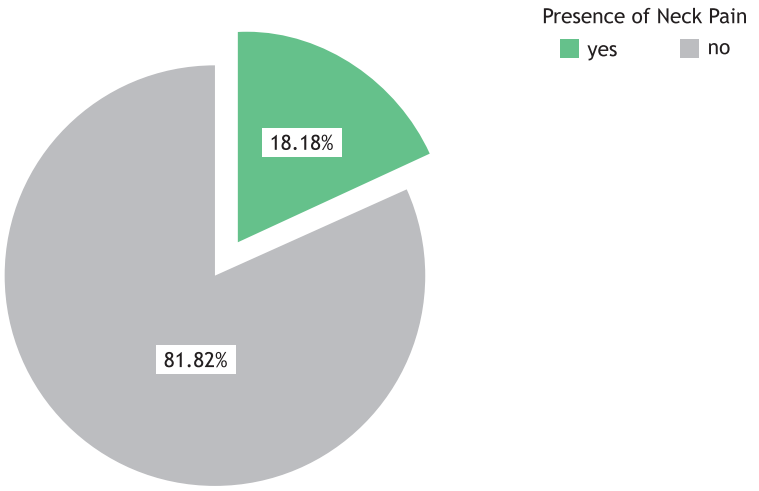


FIGURE 2: Side of the Neck which Hurts more

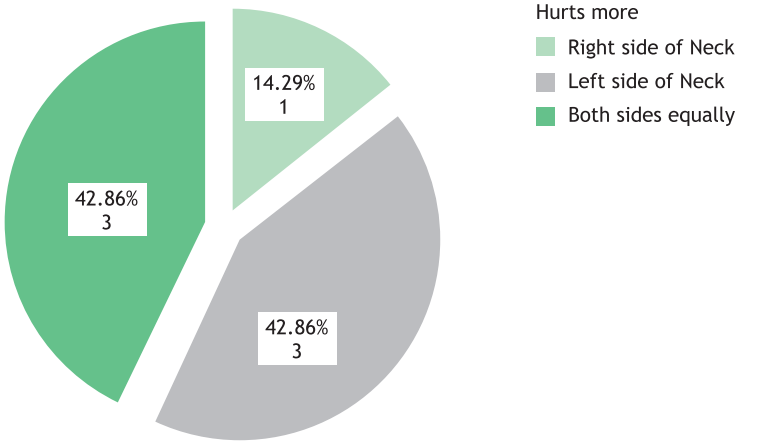
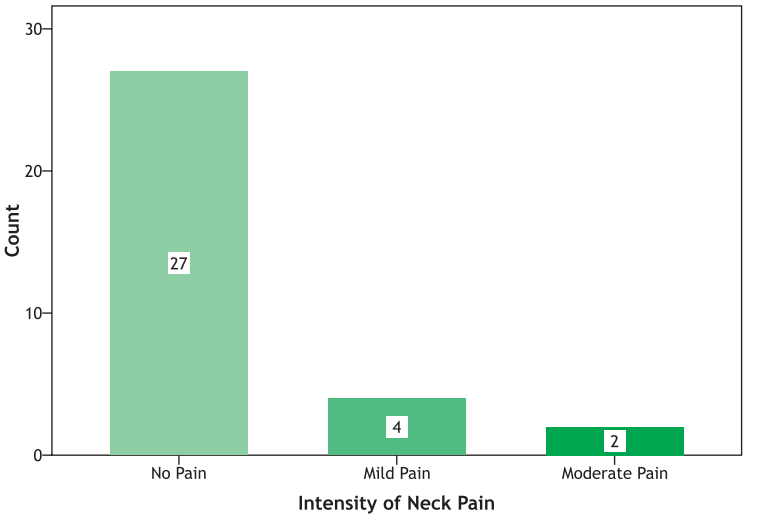


FIGURE 3: Intensity of Neck Pain



driving.[2] Whereas Porter measured the prevalence of these postures among the drivers during driving and concluded that 37% drivers execute leaning forward posture, 26% exhibit multi tasker posture, 19% racer and 8% exhibit pimps posture.[6]

Current research shows 18% frequency of neck pain among the drivers. However, 82% drivers were pain free. This finding is similarly reported in another study, which concluded that 21.2% of drivers experience neck pain.[9] In addition to this, it is further concluded that 34% drivers experienced neck pain both for the last 12 months and last 7 days.[10]

However, contrary to this Fernandez et al, in their research work concluded that 69% of driver's experienced neck pain. This is a much higher percentage from our research because of difference in settings, location, atmosphere, and demographics and due to adaptation of different driving postures during driving in our country.[15]

This conducted study shows that 3% of university driver's drive had leaning forward posture, 15% multi tasker, 3% racer and 79% pimps posture. In contrary to this, Porter conducted a study in which he analyzed the prevalence of driving postures, which is mostly executed by the professional drivers. The results showed that 37% drivers executed leaning forward posture, 26% exhibited multi tasker posture, 19% racer and 8% exhibited pimps posture. This is because of difference in driving environment as well as driving ergonomics and various other environmental and driving factors.[19]

This survey is only limited to the drivers working in The University of Faisalabad. There are many other demographics, educational, cultural and ecological differences between Faisalabad and other areas of Pakistan so this study cannot be applied to other university drivers or other professional bus drivers who might have different frequency of problem. The results cannot be generalized to drivers of cars and nonprofessional drivers

FIGURE 4: Problem in Performing ADL's

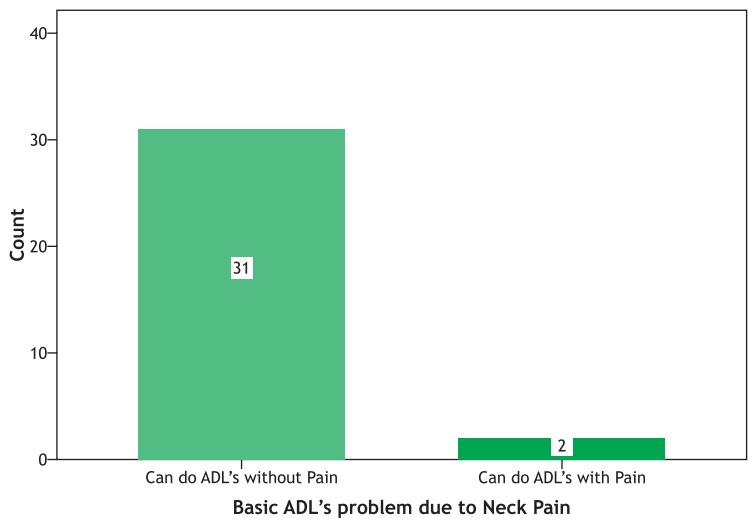
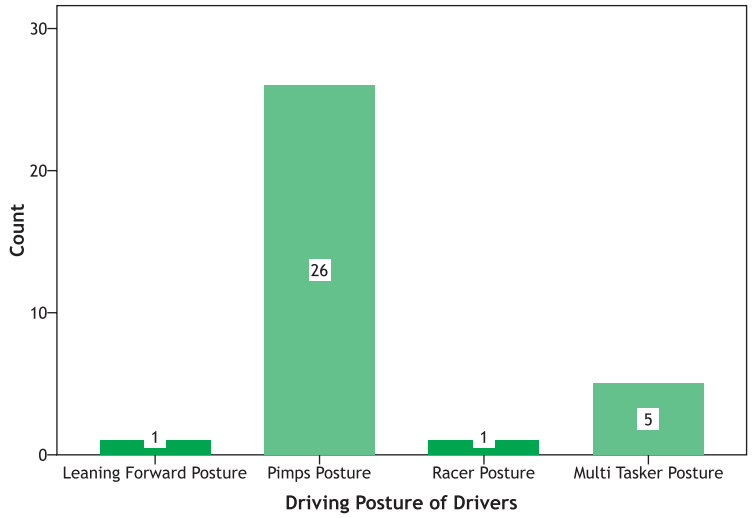


FIGURE 5: Posture



CONCLUSION

The results of this conducted research showed less number of drivers experiencing neck pain. According to this research, 6 drivers (18%) had NP whereas 27 (82%) drivers were pain free and 3% of university drivers drove in leaning forward posture, 15% had multi tasker position, 3% in racer position and 79% drove in pimps' posture respectively.

Guidance to drivers regarding postural awareness, maintaining healthy driving posture, relaxation period between the continuous driving hours, and seat adjustment according to the driver's physique, all shall be helpful in preventing neck pain.

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NOTES ON CONTRIBUTORS

All the authors contributed significantly to the research that resulted in the submitted manuscript.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

ETHICS APPROVAL

The approval/permission was obtained from University of Faisalabad Research and Ethics Board.

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