

Prevalence of Musculoskeletal Discomfort in Auto-Rickshaw Driver Dwelling in Pune

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Abstract: ***Background and Purpose:** The economic boom in India is the result of an undeniable rise in transportation activities in all regions. Professional drivers go through a lot of health exposure to the environment at the job. Auto-rickshaw drivers are highly vulnerable of developing work related musculoskeletal disorders in our country exclusively considering road circumstances. The purpose of the study was to study musculoskeletal discomforts in auto-rickshaw drivers in Pune city using Cornell Musculoskeletal discomfort Questionnaire. **Methods:** A study of total 30 participants was carried out amongst randomly selected auto-rickshaw drivers in the city of Pune, after fulfillment of inclusion and exclusion criteria. Cornell musculoskeletal discomfort questionnaire (Sedentary workers male version) was used for data collection. **Result:** Most prevalent and significant anatomical body site of Upper extremity and its interference with work. 81% population, were having discomfort in neck region and interference was 63%. In right shoulder there was 70% - discomfort and interference was 45%. In Lower extremity, most prevalent anatomical site 65% population experienced low back pain and interference is 40%. **Conclusion:** The study concluded that there is high risk for musculoskeletal impairments among auto-rickshaw drivers which had association with the age of the driver, years of driving experience and poor maintenance of the vehicle and its poor ergonomics.*

Keywords: Musculoskeletal Disorders, Auto-rickshaw drivers, Work related disorders

1. Introduction

Musculoskeletal Discomforts (MSDs) encompasses a variety of body aches that drop beneath the spectrum. That can be differentiated based on the level of pain experienced by the patient, varying from mild and intermittent to severe and consistent.¹ The musculoskeletal injury that results from a work-related event determines work-related musculoskeletal discomfort (WRMSD).² “Musculoskeletal disorders” include variety of inflammatory and degenerative conditions impacting structures such as the muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels.³ These embrace clinical syndromes like tendon inflammations and related conditions (tenosynovitis, redness, bursitis), neurological disorder disorders (carpal tunnel syndrome, sciatica), and osteoarthritis, also as less well-standardized conditions like low back pain, and alternative generalized pain syndromes not due to known pathology.¹ Such injuries may occur due to repetitive activities, forces, and vibrations on human body while carrying out specific work activities.²

The economic boom in India is the result of an undeniable rise in transportation activities in all regions. In all customers almost 80% of the load is shared by road transport sector. Professional drivers go through a lot of health exposure to the environment at the job. People working in transport division consume most of their hours in heavy traffic. Professional drivers (bus, auto rickshaw, taxi, and truck drivers etc.), have a daily conduct which is inappropriate to good well-being. They are at possible danger of health issues which is an explicit consequence of occupational environment due to vulnerability to air pollutants, higher temperature, effects of seasonal variation, unusual working hours and duration, shift work,

poor posture, inappropriate dietary habits, and other work related stress factors.³

In India till date, as four and two-wheelers are the main mode of public transport in urban, suburban and rural areas, in spite of this fact, remarkably people use public transport such as buses, trains and auto rickshaws. Like other, the auto-rickshaws (three-wheelers) are cheap and easily available means transport.⁴ Auto rickshaws are suitable form of public transportation in countries like India. Around 75 % of the overall auto rickshaw population is found in India. Nearly 2.5 % auto rickshaw vehicle population has increased form 2016 till 2017 in Maharashtra state.⁵

Auto-rickshaw drivers are highly vulnerable of developing work related musculoskeletal disorders in our country exclusively considering road circumstances, delayed work periods in an inappropriate posture, traffic jams, inconvenient pattern of the auto-rickshaws and low maintenance of the vehicle.³ The driving includes sitting for longer hours in a rigid or fixed posture which can develop discomfort.⁶ Sitting in fixed driving posture applies ample amount of forces on the spine and may lead to complications with musculoskeletal discomfort commonly, back pain, neck troubles, pulled muscles, and general stiffness. Sometimes it may lead to chronic musculoskeletal disorders.⁶

Professor Alan Hedge and Ergonomics students of the Cornell University developed a well-designed statistic collection tool named CMDQ. The Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) was used to assess discomfort. The CMDQ is a 54-item questionnaire which includes a body chart and questions about musculoskeletal ache, pain or discomfort occurrence

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in 20 parts of the body over the past week that is 7 days. This questionnaire has been used previously in working groups such as health care workers and machine operator in the evaluation of musculoskeletal pain. The musculoskeletal discomfort score is figured according to the CMDQ scoring regulations for the calculation of the assessment of discomfort and the evaluation of the discomfort level.⁷

The questionnaire is very effortless to provide amongst people and it gives an impression of MSD in last seven days with detailed history of site and frequency of the discomfort. The discomforts at multiple joints and parts of the body of a person can be reported in CMDQ also its frequency and interference with work.⁸

2.Literature Survey

Study was conducted in TMV Physiotherapy OPD, other rehabilitation center and also Auto-rickshaw stands in and around Pune city.

TARGET POPULATION was working Auto-drivers in and around the city. Drivers were screened based on their postures attained during work and also as per the presence of pain and other discomforts. This study was taken to find out the prevalence of Musculoskeletal Discomfort in this population owing to the long hours of attainment of faulty postures also poor maintenance of vehicles and others to fulfill their professional demands.

Method

- Different institutes were approached and permission was obtained prior to the study.
- The study procedure and aim of the study was explained to the participant.
- 30 participants were selected according to inclusion and exclusion criteria.

Inclusion criteria:

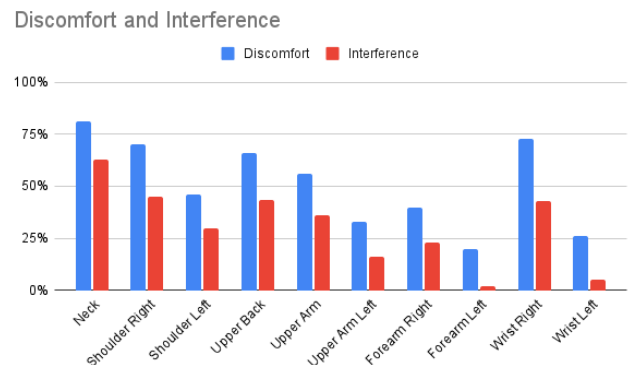
- Male Auto-rickshaw drivers.
- Age group from 18-65
- Duration of driving since 5 years.
- Currently working in the same profession.
- Participants willing to participate in the study.
- Working hours 8-10 (hours).

Exclusion criteria:

- History of any injuries, trauma such as slip/fall injuries, sustained due to any reason apart from professional driving work.
- Congenital musculoskeletal morbidities and previous limb surgery.
- Other neurological and orthopedic conditions.

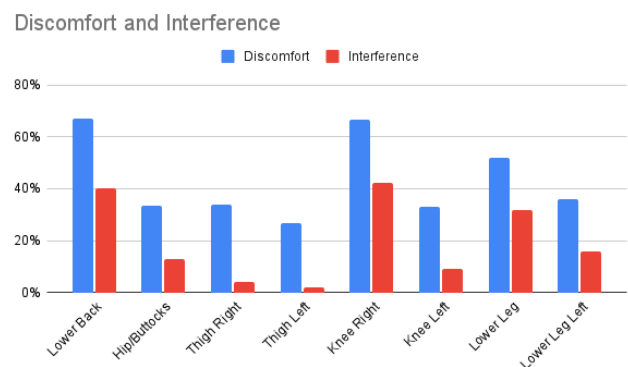
3.Results

Graph no 1:



Interpretation 1: This graph shows that out of 30 samples the most affected body parts of upper extremity and its interference with work is as following, 81% population has discomfort in neck region and interference was 63%. In right shoulder 70% discomfort and interference is 45%. In right wrist 73% and interference 43%.

Graph no 2:



Interpretation 2: This graph shows that out of 30 samples the most affected body parts of lower extremity and its interference with work is as following, 65% population experienced low back pain and interference is 40%. Right knee 64.5% and interference is 42%. Right lower leg 52% and interference 32%.

4.Discussion

The aim of study was to find out the prevalence of the musculoskeletal discomfort and its interference with work among auto rickshaw drivers of Pune City. The Cornell Musculoskeletal Discomfort Questionnaire Sedentary Workers Male Version was used. The participants included in the study belonged to the age group of 18-65 years and duration of driving was more than 5 years. In total 30 participants were included. The mean age of drivers 48.9 ± 8.9 years, among 30 participants there are 8.8% auto-rickshaw drivers in age group of 25-35, there are 26.6% in the age group of 35-45, there are 38.2% in the age group of 45-55 and there are 26.6% in the age group of 55-65; while their experience is 18.6 ± 7.5 , These

drivers worked mean hours of driving 8.9 ± 1.12 as a part of their active duty hours.

Table no 3 and graph no 3 shows that out of 30 samples the most prevalent and significant anatomical body site of Upper extremity and its interference with work was, 81% population has discomfort in neck region and interference was 63%. In right shoulder discomfort was 70% and interference was 45%. In right wrist discomfort was 73% and interference was 43%. Table no 4 and graph no 4 shows that out of 30 samples the most prevalent and significant anatomical body site of Lower extremity and its interference with work was 65% population experienced low back pain and interference is 40%. Whereas in Right knee discomfort was 64.5% and interference was 42%. In Right lower leg discomfort was 52% and interference was 32%.

Anupriya P. Mohokar et al underwent a similar study entitled as "Prevalence & risk factors of musculoskeletal impairments among auto-rickshaw drivers in a city of central India". They concluded that most prevalent MSD was reported at shoulder joints (50.6%), neck (42%) and in lower back (40.7%) during last 12 months. The presence of MSD was significantly associated with age, years of driving, age of vehicle.³

Auto-rickshaw drivers are highly prone of developing work related musculoskeletal disorders in our country exclusively considering road circumstances, delayed work periods in an inappropriate posture, traffic jams, inconvenient pattern of the auto-rickshaws and low maintenance of the vehicle.³ Driving includes variety of activities such as static sitting, a fixed posture and vibration, any of which could directly account to musculoskeletal discomfort. Drivers also sit for longer time for fares. Sitting in prolonged static postures creates forces on the spine and can lead to numerous musculoskeletal systems discomfort. Specifically backaches, neck problems, pulled muscles, and general stiffness. When a vehicle is in motion the body is subjected to variety of forces.⁶

There is an increased possibility of developing musculoskeletal discomforts as compared to normal population, especially auto rickshaw drivers, due to poor ergonomic structure of the vehicle and its maintenance. This could be because of exposure to risk factors such as prolonged vibration exposure, inconvenient roads, poor shock up mechanism of vehicle constant heavy lifting. This amalgamation of exposure and heavy lifting can cause frequent joint pain at various joints example neck, shoulders, lower back and knees.³

5. Conclusion

Most prevalent and significant anatomical body site of Upper extremity and its interference with work. 81% population, were having discomfort in neck region and interference was 63%. In right shoulder there was 70% - discomfort and interference was 45%. In Lower extremity, most prevalent anatomical site 65% population experienced low back pain and interference is 40%.

This study concluded that there is high risk for musculoskeletal impairments among auto-rickshaw drivers which had association with age of the driver, years of driving and poor maintenance of the vehicle poor ergonomics.

6. Future Scope

- Large sample size can be used
- Treatment based study can be done

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