



PREVALENCE AND RISK FACTORS OF UPPER LIMB FUNCTIONAL ABILITY AMONG AUTO-RICKSHAW DRIVERS IN MIRAJ CITY

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Abstract: INTRODUCTION: Auto-rickshaw drivers are at risk of developing number of health problems as a direct result of the occupational environment in the form of exposure to the air pollutants, higher temperature, effects of seasonal variation irregular, erratic working hours and duration, shift work, poor posture, improper dietary habits, and other work-related stress factors. The aim of the study is to find the prevalence and risk factors of upper limb functional ability among auto-rickshaw drivers in miraj city. MATERIAL AND METHODOLOGY: It is a prevalence study which consists of 300 males. Study included subjects were 20-55 years of age and more than 5 years of experience. Subjects were given written informed consent and questionnaire were filled such as CMDQ and UEFI. These were then collected and analysed. RESULTS: It was found that 75(25%) had neck pain, 33(11%) had right shoulder, 73(24%) had pain in upper back region, 18(6%) had right upper arm pain, 7(2%) had left upper arm pain, 82(27%) had pain in lower back region, 28(9%) had right forearm pain, 9(3%) had left forearm pain, 58(19%) had pain in right wrist whereas 12(4%) had left wrist pain and so on. CONCLUSION: In this paper, an assessment of musculoskeletal discomfort and upper limb functional mobility among auto rickshaw drivers was conducted. Musculoskeletal discomfort was seen in neck, lower back, upper back and right wrist majorily. Therefore, this study states that the auto rickshaw drivers along with musculoskeletal disorders have involvement of hampered upper limb mobility and function.

Index Terms - Autorickshaw drivers, Cornell Musculoskeletal Discomfort questionnaire, Upper Extremity Functional Index.

I. INTRODUCTION

Different forms of public transportation, including cars, buses, and three-wheeled auto rickshaws, are available in urban, suburban, and rural parts of India. Auto-rickshaws are the most affordable and accessible form of public transportation in the entire nation.¹ In urban areas of India, autorickshaws are the primary form of public transportation. Work and health have always been strongly related. The majority of drivers' time is spent in a dirty, loud, and hazardous environment.² Due to their jobs, auto drivers are exposed to hazardous environments including polluting gases, constant noise, and whole-body vibration as well as unhealthy lifestyles like irregular eating habits, poor posture when driving, and demanding work environments.² These work-related factors may be linked to a variety of musculoskeletal, cardiovascular, pulmonary, hearing, and other issues that may have an impact on driving safety.²

India is home to around 75 percent of the world's auto rickshaws. The compact size and narrow body of this three-wheeled vehicle is ideal for navigating the highways because there is significant traffic in India.³ Driving as a task involves prolonged sitting, a fixed posture and vibration, any of which could directly lead to musculoskeletal trouble. Drivers sit while driving, but more importantly have to sit for long hours while waiting for fares.³ Neck, shoulder, elbow, hand, waist, knee, muscular cramping, lower back pain, and poor blood circulation in the leg and buttock are among the musculoskeletal problems. (Umang, 2012). Therefore, the concern for human wellness today is occupational health and safety, especially considering the tremendous growth in the transportation industry that has led to workplace health issues.⁴

Auto-rickshaw drivers are at risk of developing number of health problems as a direct result of the occupational environment in the form of exposure to the air pollutants, higher temperature, effects of seasonal variation irregular, erratic working hours and duration, shift work, poor posture, improper dietary habits, and other work-related stress factors. There is only little appreciable research by Indian researchers on the upper limb functional ability among auto-rickshaw drivers therefore due to the dearth of knowledge this study is being carried out. The aim of this study is to find the prevalence and risk factors of upper limb functional ability among auto-rickshaw drivers in Miraj city.

METHODOLOGY:

- Study Design: A Descriptive Study.
- Study Setting: Auto-rickshaw in Miraj city.
- Sample Size: 300 Subjects.
- Sampling Method: Convenient Sampling.
- Outcome Measure: Cornell Musculoskeletal Discomfort Questionnaire, Upper Extremity Functional Index.

MATERIALS:

- Cornell Musculoskeletal Discomfort Questionnaire.
- Upper Extremity Functional Index.
- Consent Form.
- Writing pad.
- Pen / Pencil.

INCLUSION CRITERIA

- Participants from 20-55 years of age.
- Participants driving autorickshaw for at least 5 years continuously.
- Willingness of participants.

EXCLUSION CRITERIA

- Participants with past history of injuries or trauma.
- Participants with congenital musculoskeletal morbidities.
- Participants with previous history of limb surgery.

PROCEDURE:

- Ethical clearance was granted from the Institutional Ethical Committee.
- All the subjects were selected based on the inclusion and exclusion criteria.
- Prior to the study the subjects were briefed about the study.
- Baseline demographic data was collected.
- A written informed consent was taken from the subjects.
- The subjects were given both the questionnaire to fill out.
- They were then collected and analysed.

CMDQ was used to collect data related to subjects' musculoskeletal disorders. Its reliability and validity have been checked.⁵ The UEFI consists of 20 items, used to collect data about upper extremity function. Its reliability and validity have been checked.⁶

III. RESULTS:

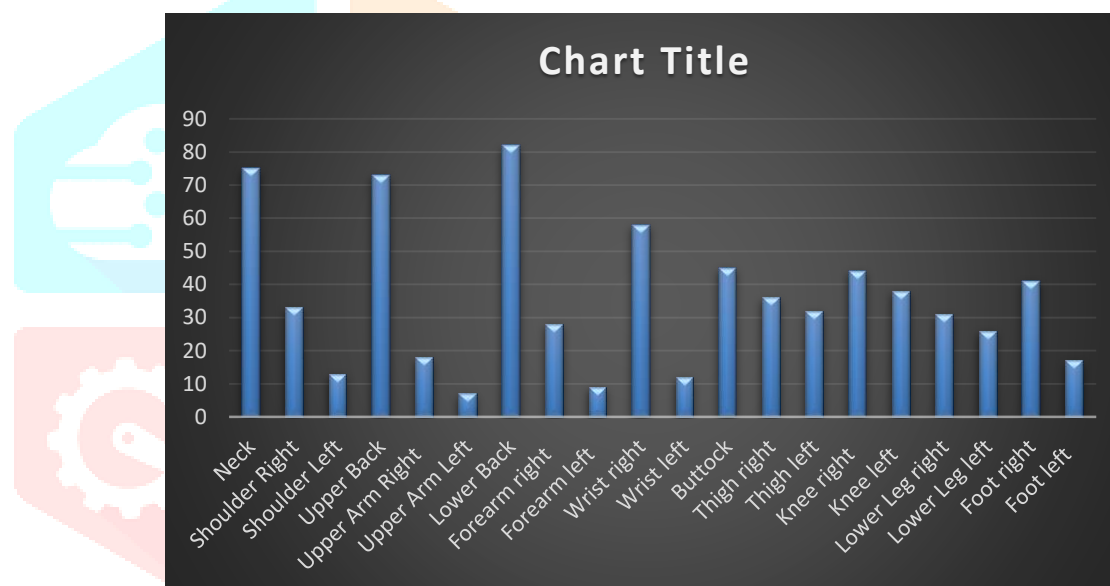
Data was analysed using the Open epi version 3.01. Chi square test was done to check the association between age groups and upper limb risk factors of auto-rickshaw drivers. It was found that there was association between age groups and risk factors of upper limb in auto-rickshaw drivers ($p=0.08$).

Table. 1 and Fig. 1 shows sites of work-related musculoskeletal disorder of Auto-rickshaw drivers in Miraj city by using Cornell Musculoskeletal Discomfort questionnaire.

It was found that 75(25%) had neck pain, 33(11%) had right shoulder pain, 13(4%) had left shoulder pain, 73(24%) had pain in upper back region, 18(6%) had right upper arm pain, 7(2%) had left upper arm pain, 82(27%) had pain in lower back region, 28(9%) had right forearm pain, 9(3%) had left forearm pain, 58(19%) had pain in right wrist whereas 12(4%) had left wrist pain, 45(15%) pain in buttocks, 36(12%) had pain in right thigh, 32(11%) had pain in left thigh, 44(15%) had pain in right knee, 38(13%) had pain in left knee, 31(10%) had pain in right lower leg, 26(9%) had pain in left lower leg, 41(14%) had pain right foot and 17(6%) had pain in the left foot.

Table 1: Sites of work related Musculoskeletal disorders in auto-rickshaw drivers.

SITE	FREQUENCY	PERCENTAGE
Neck	75	25%
Right Shoulder	33	11%
Left Shoulder	13	4%
Upper Back	73	24%
Upper Arm Right	18	6%
Upper Arm Left	7	2%
Lower Back	82	27%
Forearm Right	28	9%
Forearm Left	9	3%
Wrist Right	58	19%
Wrist Left	12	4%
Buttock	45	15%
Thigh Right	36	12%
Thigh Left	32	11%
Knee Right	44	15%
Knee Left	38	13%
Lower Leg Right	31	10%
Lower Leg Left	26	9%
Foot Right	41	14%
Foot Left	17	6%

Fig 2: Sites of work related Musculoskeletal disorders in auto-rickshaw drivers.**Table 2: Associated risk factors in Auto-rickshaw drivers.**

RISK FACTORS	FREQUENCY	PERCENTAGE
PRESENT	253	84.3%
ABSENT	47	15.6%
TOTAL	300	100

It was found that incidence of work-related musculoskeletal disorders in auto-rickshaw drivers in Miraj city was 84.3%.

Table 3: Association between age groups and risk factors of Auto-rickshaw drivers.

AGE	PRESENT	ABSENT	TOTAL	Chi square test	p value
20-30	53	5	58	6.625	0.08
31-40	84	12	96		
41-50	69	15	84		
51-55	47	15	62		
Total	253	47	300		

Chi square test was done to check the association between age and risk factors of auto-rickshaw drivers. It was found that there was no statistical association between age and upper limb risk factors of auto-rickshaw drivers. ($p=0.08$).

Chi square test was done to check the association between age groups and upper limb risk factors of auto rickshaw drivers. It was found that there was no association between age groups and risk factors of auto rickshaw drivers ($p=0.08$). So, we can say that, age is not the criteria for upper limb risk factors in auto rickshaw drivers in Miraj city.

IV. DISCUSSION:

A total of 350 auto rickshaw drivers were included in the study out of which 50 did not give consent for the study. 300 subjects participated in the study and all were male. Majority of them were below 40 years of age (32%). This study stated prevalence of various musculoskeletal disorders in auto rickshaw drivers of Miraj city with majority of involvement in neck, upper back, lower back and right wrist pain. Mohokar AP et al (2018) also found out that MSD was reported at shoulder joints, neck and in lower back.³ In a study conducted among taxi drivers in Nigeria, by Onawumi A. et al (2012) about 67% of drivers reported discomfort in neck, 18% & 20% reported symptoms in right & left wrist joints respectively, 29% in upper back, 30% in lower back, and 19% in hip joints.⁷ Jadhav A. et al (2016)¹², in their study found out lower back pain and neck pain as the most prevalent musculoskeletal impairments among bus drivers.⁷ According to research, occupational drivers—especially auto rickshaw drivers—are more likely than the general population to experience musculoskeletal problems because of the poor ergonomics of the vehicle. This could be because drivers are more likely to experience back and neck pain caused by prolonged vibration exposure, poor road conditions, and vehicle shock up mechanisms, frequent and heavy lifting. Frequent lifting coupled with prolonged vibration exposure results in the joint pain is most likely to occur (neck, shoulders, lower back and knees).³ This study also states that the involvement of upper limb functional mobility is affected due to continuous driving of the auto rickshaw for longer hours and repetitive movements of the wrist to accelerate the speed may lead to further musculoskeletal disorders. As the result states age is not majorly associated for upper limb functional mobility but repetitive movements may lead to wear and tear of the underlying soft tissues which in turn gives rise to discomfort. Earlier, a study has been carried out by Melwani V et al, which states that the importance of frequent medical checkups and health promotion must be made more widely known.² This study represents the first attempt to report on the Prevalence and risk factors on upper limb functional mobility among Auto rickshaw drivers in Miraj. Nevertheless, numerous studies have been conducted on the same worldwide. This study showed that the auto rickshaw drivers experience more work-related musculoskeletal disorders and upper limb functional mobility disorders in early stages (<40 years), this may be due to the working conditions and the environment, it may also vary because of poor infrastructure of the auto rickshaw which may lead to the discomfort. The repetitive tasks of operating the left and right hands to change gears and accelerate the vehicle are part of the duties of an auto rickshaw driver. The human body parts most commonly impacted by RSI are the neck, shoulders, wrists, and hands (distal upper extremities). Activities demanding strong effort for an extended amount of time without rest or recovery time, poor ergonomic posture, working in low-temperature environments, and vibrating equipment are other causes that raise the risk of RSI. Stress on muscles and tendons results from improper ergonomic postures used for an extended period of time.⁸

V. CONCLUSION:

In this paper, an assessment of musculoskeletal discomfort and upper limb functional mobility among auto rickshaw drivers was conducted. Musculoskeletal discomfort was seen in neck, lower back, upper back and right wrist majorly. Upper limb risk factors were calculated by UEFI which was present in 253 subjects. Therefore, this study states that the auto rickshaw drivers along with musculoskeletal disorders have involvement of hampered upper limb mobility and function.

VI. ACKNOWLEDGEMENT: None**REFERENCES**

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