

Prevalence of Disability Due to Low Back Pain in MSRTC Bus Drivers of Pune, India

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ABSTRACT

Background- Back pain is a highly prevalent disabling musculoskeletal condition which affects almost everyone at some point in their life. With the changing lifestyle, incidence of Work-Related Musculoskeletal Disorders (WRMSDs) is increasing. Since, bus drivers are constantly exposed to many stressors including long hours of travelling, prevalence of Low Back Pain is very common in this occupation. This study aimed to evaluate the prevalence of Disability due to low back pain in MSRTC bus drivers.

Methods - 180 bus drivers were approached of which 164 gave consent to participate, further 153 drivers sufficing inclusion criteria were recruited into the study. Data obtained was analysed using descriptive statistics.

Results - According to the Modified Oswestry Low back pain Disability Index, out of 153 samples 70% population suffered from Moderate disability secondary to low back pain followed by 25% population suffering from severe disability and only 5% suffering from minimal disability due to various work-related factors.

Conclusion - Using the Modified Oswestry Low back pain Disability Index the study concluded that maximum bus drivers suffer from moderate to severe disability due to Low back pain.

Keywords – Bus Drivers, Low Back pain, Disability, Work Related Musculoskeletal Disorders, Modified Oswestry Disability Rating Scale.

INTRODUCTION

Low back pain (LBP) is experienced in 60%–80% of adults at some point in their lifetime. Various studies found that LBP has the highest incidence in the third decade of life. Some define Chronic back pain as the back pain which lasts for more than 7-12 weeks. Also, some classify frequently recurring low back pain as chronic pain because it intermittently affects an individual over a long period of time.^[1] The biopsychosocial model of pain suggests that along with biology, various other factors such as psychological, socio-economic, environmental, and cultural factors also

contribute to the incidence and persistence of symptoms of low back pain.

In the recent times, Work Related Musculoskeletal Disorders (WRMSDs) have become a major public health problem affecting worldwide population accounting for between 42% and 58% of all work-related illness. Work related musculoskeletal disorders are defined as the impairments in the musculoskeletal systems which are contributed, or aggravated, by work itself or by the environment in which work is performed.^[2] These disorders are developing day by day with increase in the number of WRMSDs. Low back pain is now considered as a causative factor for

disability, causing limitation in functional ability and work absenteeism. [3] It is affecting a large number of working populations which in turn affects the individual as well as the community with huge economic loss to both. [4] Many musculoskeletal conditions start in middle-age and require assistance from the health care professionals over long period of time. [5]

Driving is an occupation which involves bus drivers to use repetitive muscular effort to perform various occupational tasks such as using steering, changing gears and applying breaks continually and repeatedly. Often, the bus drivers work for longer shift hours resulting in continuous work without any rest or meal breaks. Hence, interstate bus drivers who need to cover long routes are at a remarkably high risk for developing low back pain due to the various reasons such as abnormal sitting posture while driving, continuous exposure to vibrations during driving mainly to the lower spine, sitting for long hours, inappropriate cushioning of the seat, ergonomic mismatch with the physical environment and condition of vehicle seat. [6]

The individual factors of the bus drivers which include their age, hours of driving, addictions, years of driving also play considerably important role in determining the incidence of low back pain. [6] Psychological stress which is present in drivers that occurs because of excess work hours, traffic congestion, passenger hostility can cause tightness of muscle and fatigue as well. All these factors contribute to aggravate the low back pain. [4]

Therefore, after considering all the above factors this study is aimed to find out the disability due to prevalence of Low Back Pain in MSRTC Bus drivers in Pune to identify the percentage of disability due to low back pain in Bus Drivers in Pune, India.

METHODOLOGY

The survey-based study was approved by Institutional Ethical Committee, Department of Physiotherapy,

Tilak Maharashtra Vidyapeeth, Pune. The aims and objectives of study were explained to the bus drivers. Around 180 Bus drivers were approached from various Bus Depots across Pune City, India of which 164 Bus Drivers gave consent to participate in the study and were scrutinized for the inclusion and exclusion criteria. The participants included in the study were Male Bus Drivers, aged between 30-50 years, who were in regular driving routine (8-hour shift), suffered from low back pain and were serving as MSRTC driver for more than five years. The drivers who reported low back pain due to other factors except mechanical low back pain, the ones who were currently undergoing treatment for low back pain, and the drivers not willing to participate were excluded from the study. Total 153 bus drivers sufficing the criteria were recruited for the study.

A brief explanation was given about the scales to be used. Consent form was given to those who wished to participate in the study. Based on inclusion and exclusion criteria the Self-reported Modified Oswestry Scale questionnaire was explained to them. Demographic details like Age, Gender, Hours of driving was taken. All the bus drivers were provided with the Modified Oswestry Disability Index scale for assessing percentage of disability. It was made sure that the participants responded to every criterion given in the scale and were asked to give single best response. The doubts were solved, and questionnaire was submitted. Errors were resolved with the approval from the Institutional Ethical Committee and Guide. Data obtained was analysed using descriptive statistics.

MODIFIED OSWESTRY LOW BACK PAIN DISABILITY QUESTIONNAIRE

Section 1: To be completed by patient.

Active-Duty Hours _____

Non-Active-Duty Hours _____

Name: _____

Age: _____ Date: _____

Occupation: _____

Number of days of back pain: _____ (this episode)

Section 2: To be completed by patient.

This questionnaire has been designed to give your therapist information as to how your back pain has affected your ability to manage in everyday life. Please answer every question by placing a mark on the line that best describes your condition today. We realize you may feel that two of the statements may describe your condition, but please tick mark only the line which most closely describes your current condition.

Pain Intensity

- 0. The pain is mild and comes and goes.
- 1. The pain is mild and does not vary much.
- 2. The pain is moderate and comes and goes.
- 3. The pain is moderate and does not vary much.
- 4. The pain is severe and comes and goes.
- 5. The pain is severe and does not vary much.

Personal Care (Washing, Dressing, etc.)

- 0. I do not have to change the way I wash and dress myself to avoid pain.
- 1. I do not normally change the way I wash or dress myself even though it causes some pain.
- 2. Washing and dressing increases my pain, but I can do it without changing my way of doing it.
- 3. Washing and dressing increases my pain, and I find it necessary to change the way I do it.
- 4. Because of my pain I am partially unable to wash and dress without help.
- 5. Because of my pain I am completely unable to wash or dress without help.

Lifting

- 0. I can lift heavy weights without increased pain.
- 1. I can lift heavy weights, but it causes increased pain.
- 2. Pain prevents me from lifting heavy weights off the floor, but I can manage

if they are conveniently positioned (ex. on a table, etc.).

- 3. Pain prevents me from lifting heavy weights off the floor, but I can manage light to medium weights if they are conveniently positioned.
- 4. I can lift only exceptionally light weights.
- 5. I cannot lift or carry anything at all.

Walking.

- 0. I have no pain when walking.
- 1. I have pain when walking, but I can still walk my required normal distances.
- 2. Pain prevents me from walking long distances.
- 3. Pain prevents me from walking intermediate distances.
- 4. Pain prevents me from walking even short distances.
- 5. Pain prevents me from walking at all.

Sitting

- 0. Sitting does not cause me any pain.
- 1. I can only sit if I like providing that I have my choice of seating surfaces.
- 2. Pain prevents me from sitting for more than 1 hour.
- 3. Pain prevents me from sitting for more than 1/2 hour.
- 4. Pain prevents me from sitting for more than 10 minutes.
- 5. Pain prevents me from sitting at all.

Standing

- 0. I can stand as long as I want without increased pain.
- 1. I can stand as long as I want but my pain increases with time.
- 2. Pain prevents me from standing more than 1 hour.
- 3. Pain prevents me from standing more than 1/2 hour.
- 4. Pain prevents me from standing more than 10 minutes.
- 5. I avoid standing because it increases my pain right away.

Sleeping

- 0. I get no pain when I am in bed.

1. I get pain in bed, but it does not prevent me from sleeping well.
2. Because of my pain, my sleep is only 3/4 of my normal amount.
3. Because of my pain, my sleep is only 1/2 of my normal amount.
4. Because of my pain, my sleep is only 1/4 of my normal amount.
5. Pain prevents me from sleeping at all.

Social Life

0. My social life is normal and does not increase my pain.
1. My social life is normal, but it increases my level of pain.
2. Pain prevents me from participating in more energetic activities (ex. sports, dancing, etc.)
3. Pain prevents me from going out very often.
4. Pain has restricted my social life to my home.
5. I have hardly any social life because of my pain.

Travelling

0. I get no increased pain when traveling.
1. I get some pain while traveling, but none of my usual forms of travel make it any worse.
2. I get increased pain while traveling, but it does not cause me to seek alternative forms of travel.
3. I get increased pain while traveling which causes me to seek alternative forms of travel.
4. My pain restricts all forms of travel except that which is done while I am lying down.
5. My pain restricts all forms of travel.

Employment/Homemaking

0. My normal job/homemaking activities do not cause pain.
1. My normal job/homemaking activities increase my pain, but I can still perform all that is required of me.
2. I can perform most of my job/homemaking duties, but pain prevents me from performing more

- physically stressful activities (ex. lifting, vacuuming)
3. Pain prevents me from doing anything but light duties.
4. Pain prevents me from doing even light duties.
5. Pain prevents me from performing any job or homemaking chores.

Section 3: FOR OFFICE USE ONLY

Score: /50 x 100 = ____% points

INTERPRETATION

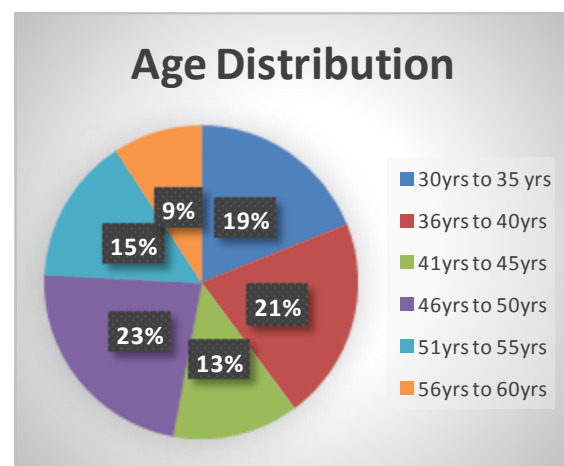
0% –20%: Minimal disability.
 21%–40%: Moderate Disability.
 41%–60%: Severe Disability.
 61%–80%: Crippling back pain.
 81%–100%: These patients are either bed-bound or have an exaggeration of their symptoms.

RESULT

Table 1- Demographic Data

VARIABLES	MEAN ± SD
AGE (IN YEARS)	43.7 ± 7.9
YEARS OF SERVICE (IN YEARS)	14.9 ± 8.1
ADDICTION- TOBACCO (IN YEARS)	7.9 ± 10.0
NUMBER OF DAYS OF BACK PAIN (IN YEARS)	2.6 ± 1.6
ACTIVE-DUTY HOURS / DAY	12.6 ± 1.6

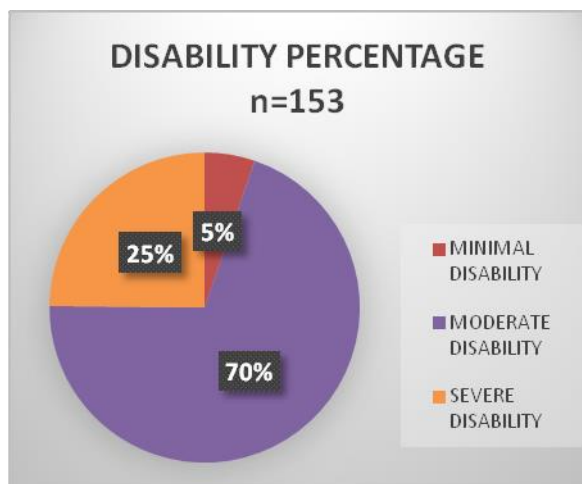
Table 1 shows Demographic data of bus drivers participated in the study.



Graph 1- Age Distribution

Graph 1 shows Age Distribution (30yrs- 60 yrs.) in which maximum study

population of bus drivers (23%) belonged to the age group of 46-50 years followed by 36- 40 years (21%) and 50-55 years(19%).



Graph 2- Percentage of Disability in Bus Drivers due to Low Back pain.

Graph 2 interprets that according to Modified Oswestry Disability Index, out of 153 samples 70% population suffered from Moderate disability secondary to low back pain followed by 25% population suffering from severe disability and only 5% suffering from minimal disability due to low back pain.

DISCUSSION

This study was conducted to find out the prevalence of the disability caused due to low back pain among MSRTC bus drivers of Pune city. The candidates included in study belonged to the age group of 30 years to 50 years and were on service for more than 5 years. The mean age of drivers participated in the study was 43.7 ± 7.9 years while their experience was 14.9 ± 8.1 years. The natural history of LBP is not fully understood yet. In this study also no specific age distribution of LBP was found. These drivers worked for 12.6 ± 1.6 hours as a part of their active-duty hours. The number of years for which they suffered from back pain was found out to be 2.6 ± 1.6 years. According to the pilot study which we conducted, maximum people i.e., 70% of bus drivers had moderate level of disability secondary to low back pain while 25% drivers suffered from severe form of

disability. The remaining 5% drivers had minimal level of disability due to low back pain according to Modified Oswestry disability scale. The cause of maximum people suffering from moderate to severe level of disability due to low back pain may be the amount of vibrations which are transmitted to lower spine during the prolonged driving hours (12.6 ± 1.6 hours), continuous abnormal sitting posture, inappropriate seats, poor ergonomic arrangement. The risk factors like whole body vibrations, awkward postures, night shifts, continuous sitting in one posture and a smaller number of breaks may further lead to low back pain. In our study we found out that maximum drivers had tobacco addiction (48.7%) Some studies have shown association between low back pain and Addictions such as alcohol consumption and chewing tobacco.

For occupation related low back pain following 5 factors namely heavy physical work, lifting and forceful movements, bending and twisting (awkward postures), whole-body vibration (WBV) and static work postures are primarily considered to be significantly important. Out of the above 5 factors the bus drivers are most affected by the last 3 factors. These factors highly expose them with the risk of developing low back pain at some point. They are not aware of these risk factors which increase the chances of developing the symptoms and worst part is none of them have the exact idea of the amount of risk they are exposed to due to this⁷.

Some studies show the causes of low back pain are the vibrations which are transmitted to the lower back during driving causes back pain problems because of the failure of tissue to transmit the load or from metabolic interference, or a combination of both. Also, it is shown that the continuous exposure to ill- factors causes accumulation over a long period of time which eventually overcomes the protective mechanisms at microscopic levels in the tissues of spine. After a period of prolonged exposure to vibrations, the end-arteries tend to constrict

for prolonged duration or permanently which further leads to hypo-perfusion of the spinal tissues and para-spinal muscles. The hypo-perfusion or reduced blood supply eventually causes weakening and degeneration of the spinal tissues and paraspinal muscles causing the low back pain⁴. The activities such as sitting for long hours and continuous exposure to the vibrations causes increased loading on the intervertebral discs along with excess compressive forces on vertebral discs and a greater creep in the lumbar soft tissues and fatigue of the back muscles. All these above changes later lead to degeneration of the lumbar spine.⁸

CONCLUSION

Our Study concluded that 70 percent of Bus Drivers suffered from Moderate level of Disability due to low back pain.

Clinical Implication

Understanding the prevalence of low back pain in drivers will help us to formulate policies to prevent low back pain by educating the drivers about ergonomics and importance of exercises to avoid low back pain and disability caused because of it.

Conflict of Interest

The authors declare that there is no conflict of interest

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Ethical Approval: Approved

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