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RESEARCH ARTICLE

ASSOCIATION OF LOW BACK PAIN AND FUNCTIONAL STATUS IN TWO – WHEELER RIDERS

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ABSTRACT

Low back pain is defined when the pain happens in the area just below the ribs to the hips in normal human being in the back. This condition that can be caused by many causes like muscle and ligament injury or overuse. Whereas, Functional status refers to the ability of an individual to perform activities of daily living without any difficulty. If the individual experiences any kind of discomfort while performing these activities, that could be the result of many conditions and low back pain is one of them. The aim of this study is to find the prevalence and severity of low back pain among the population of two wheeler riders and assess its association with functional status. A survey was done among 50 two wheeler riders in Delhi. The questionnaire used for this study to detect the presence of low back pain and factors affecting the functional status was ODI (Oswestry Disability Index) and FSQ (Functional Status Questionnaire). Data analysis was done on Microsoft excel to find the result. Out of 50 respondents, the study determined that about 72% of the subjects experience disability and the 28% have no disability under which 36% subjects presented with mild disability, 24% with moderate disability, 10% with severe disability and 2% with the ODI score 35-50 as completely disabled. The prevalence of low back pain was more in the age group of 20-30 years. The study determined medium prevalence of low back pain in two wheeler riders and large strength of association was found between low back pain and functional status.

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INTRODUCTION

Low Back Pain is the type of pain which originates in the lower area of the back and may radiate towards one or both legs. It may last for 24 hours and more (12). This can be classified as acute, sub-acute and chronic on the basis of onset and duration which may differ from dull constant ache to abrupt severe pain, restricting the basic activities of daily living of the individual. It can also be categorized as mechanical and radicular pain. Mechanical pain is the most common type which is localized to the lower back, hips and is primarily from muscles, ligaments, joints and bones around the spine. Radicular pain on the other hand follows a nerve root pattern as it is mainly caused due to nerve impingement, mainly affecting one leg. It occurs mainly in association with some occupations like manual handling, driving and the activities which involve improper body movements (13). It is one of the common conditions for one visits doctor. It is more prevalent in age groups between 30 to 50 years.

This is somewhat because of the changes that occur in body with the aging process like reduction in the fluid content of the vertebrae. Acute back pain gets better on its own and mostly treated with medications, gentle stretching and heat and ice therapy, on the other hand the chronic back pain is mostly treated with stepped care approach. Two - wheel vehicles are considered as the basic means of transport mainly because of their low fuel consumption, low maintenance and effortless movements in the most congested areas amongst the lower and middle class individuals (14). Despite these advantages, two wheel riding is bit of a complex and bit risky process (15, 16, 17). Two -wheel riders are usually exposed to various hazards and several spine related problems. Several articles and studies contributed to the fact that there is a higher back pain present in two - wheel riders. Reviews are evident that overweight, low physical activities, smoking and drug abuse are the modifiable causative factors of the same whereas, non - causative ones include spinal complications, history of trauma and older age (19, 20, 21).

The pressure within the disc in the lower back can be more serious while sitting position mostly seen in motorcycle riders rather than in standing is reported in many studies. Therefore, they are the main population at the risk of low back pain (22, 23). It is evident that in seated position there is flattening of lumbar lordosis, posterior backwards rotation of the pelvis and the intradiscal pressure in the lumbar spine is also increased. It is observed that the prolonged utilization of two -wheel riders expose them to various problems like low back pain, spinal damage and disc prolapse. Talking of functional status, it is an ability to perform the activities of daily living required to fulfill the basic needs, mental health and well being. It comprises of concepts of functional capacity and functional performance. Low Back Pain is one the factors causing halt to smooth and effortless functional status of the being.

AIM AND OBJECTIVE OF THE STUDY: To measure the prevalence of low back pain in two wheeler riders and to assess its association with functional status.

METHODOLOGY

Study Design: Quantitative cross sectional study

Population and Sample

Study Population: Two wheeler riders in Delhi

Selection Criteria: Inclusion criteria:

- Age group 20-50 years.
- Two wheeler riders.
- Riding for at least 2 hours a day.
- With no history of any musculoskeletal disorder or trauma due to riding.

Exclusion criteria

- Age group below 20 years and above 50 years.
- Those riding less than 2 hours in a day.
- With the history of musculoskeletal disorder or trauma due to riding.
- Riders not willing to take part in this study

SAMPLE SIZE: 50 two wheeler riders

SAMPLE METHOD: Non- Probability Sampling

PROCEDURE: The consent was taken from the participants before the data collection in a written manner. The aim of the study was explained to all the participants prior the data collection. The privacy of every participant was preserved throughout the whole procedure and after the data collection also. All the participants of the study were two wheeler riders. Oswestry Disability Index was used to assess the disabilities in activities of daily living in the population having low back pain. Also, functional status questionnaire was used asit provides information about one's physical, psychological, social and role functions which evaluated patient's basic and instrumental activities and their mobility.

DATA ANALYSIS AND SUMMARIZATION: The data is analyzed, arranged and entered in Microsoft excel. The data is presented in the form of pie charts and graph bar. Frequency distribution was used to show the information of the participants. Pearson's correlation coefficient was used to assess the association of low back pain and functional status.

RESULTS

This study has the findings of prevalence of low back pain among two wheeler riders of age group 20-50 years in Delhi. Two wheeler riders participated in the study and gave their data. Total 50 subjects participated in the study and all of their findings were included. The analysis and the study are presented by addressing each objective of the study in data form. Prevalence of low back pain in two wheeler riders and its association with functional status was analyzed.

In Figure I, among 50 participants 46 riders were male (92%) and 4 riders were female (8%). In Figure, II the ratio of number of hours driven was shown of each participant who is a part of this study. In Figure III there is a master chart representing the ODI score of the population of the riders. In Figure IV, a master chart showing the readings of FSQ was attached. In Figure V & VI, the measure of disability was shown using bar graphs for both ODI and FSQ scores.

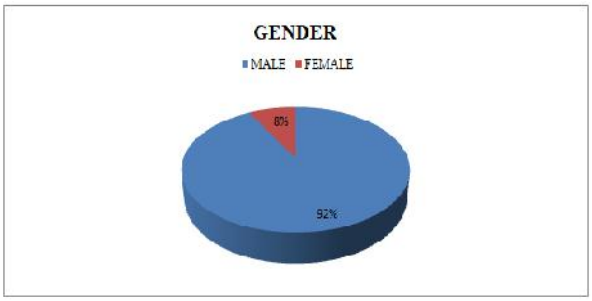

Figure I. Among 50 participants 46 riders were male (92%) and 4 riders were female (8%)

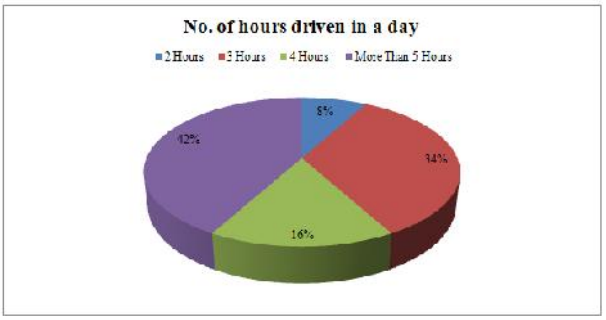

Figure II

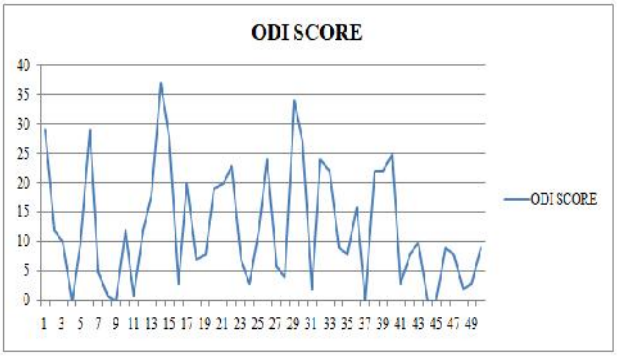

Figure III, There is a master chart representing the ODI score of the population of the riders

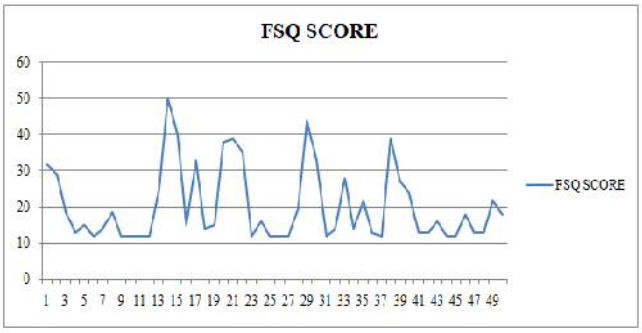

Figure IV. A master chart showing the readings of FSQ is attached

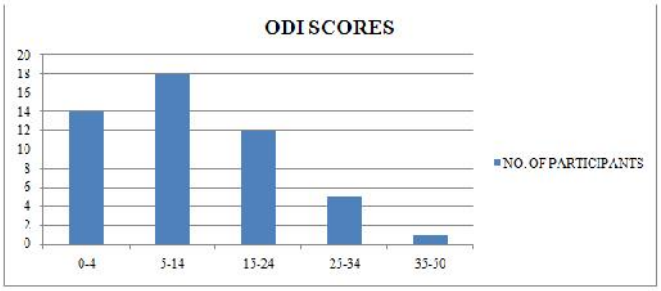

Figure V. Measure of disability found in the participants according to the ODI Questionnaire.

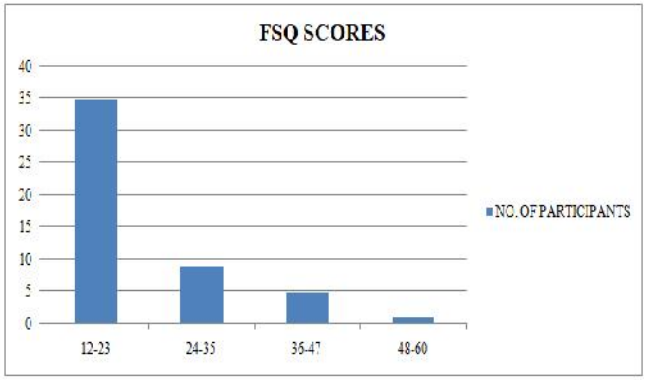

Figure VI. Measure of disability found in the participants according to the FSQ Questionnaire

DISCUSSION

Two wheeler riders are prone to variety of hazards in their surroundings because of the more extent of exposure. They often tend to have certain postures while riding that might lead to further complications in their spine indirectly affecting their day to day functioning as well. The previous studies are evident that there is about 10-60% of low back pain prevalence in two wheeler riders, also while riding the rider attains a flexed posture which causes increment in the strain of lumbar spine [6]. They also indicated the association of rider's joint angles and position with ROM [8].This study was conducted to examine strength of the association of low back pain and functional status in you wheeler riders. This was done using a population of about 50 riders riding at least 2 hours a day. The survey was conducted using two different questionnaires i.e., ODI ad FSQ. The scoring of both the questionnaires was recorded and evaluated using Pearson's Correlation Coefficient(r) to find out the correlation between the two variables. The resultant value of r was 0.727or 0.7 showing large strength of association.

This study was evident of the association between variables i.e., the low back pain and functional status or discomforts specifically in two wheeler riders. Also , study done by ShamsulBahriMohd TAMRIN, Kazuhito YOKOYAMA, Juliana JALALUDIN, Nasaruddin Abdul AZIZ, Nizam JEMOIN, Rusli NORDIN, Ayub Li NAING, Yunus ABDULLAH, Mazlan ABDULLAH stated the association of some risk factors like tension- anxiety , depression dejection, anger-hostility , fatigue and confusion present with the complain of low back pain in commercial vehicle drivers. Binoosh, S A & Anoop, Ga. (2019). A Study on Musculoskeletal Disorders among Two-Wheeler Riders of Kerala State in India. Stated the high risk of low back pain and other musculoskeletal disorders like upper back pain, shoulder pain and neck pain due to the requirement of maintaining static posture and for balancing the vehicle. Many studies indicated prevalence of low back pain and it as the reason of functional disability in population of athletes, women due to poor posture or lack of rest. The study hence performed is an add on to the prevalence of low back pain and functional discomfort in two wheeler riders and it also proves the association between the two variables.

The previously done studies on the topic stated the prevalence of the two variables whereas this study states it with the proof but in a different population. Hence, there is a high risk of developing low back pain due to common overuse injury, which could be somewhat corrected using back rest or lumbar supports [22]. According to many studies modifications in the design of vehicle and changes in the riding postures is required to prevent discomfort among two wheeler riders [10]. Driving on uneven roads on regular basis can cause permanent injuries to both neck and back therefore, therapeutic exercises should be brought into practise for preventing excessive damage [4]. One study done by Zavier Zomalhèto 1, Rose Christelle Nayeton Mikponhoué 2, Armand Wanvoègbe 3, Ivanovich Adikpéto 1, Paul Ayélo 2 found that the prevalence of low back pain was 68.89% among the riders. The riders who drive for more than 6 hours a day tend to suffer from low back pain. These results were somewhat similar in presenting the prevalence of low back pain in the population of two wheeler riders as in this study.

Limitation- In this study, other factors like neck disabilities and limb disabilities associated with low back pain were not explained and there was an uneven ratio of male and female.

Conflict of Interest: There is no conflict of interest among authors.

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