Original Article

Association between Hip and Knee Pain among Occupational Motorcycle Riders in Rawalpindi and Islamabad

Muhammad Haroon,[1] Misbah Marryam,[2] Muhammad Mufeez Ul Hassan Shah,[3] Muhammad Ali[4]

Abstract

Objective: To determine the frequency and analyze the association between hip and knee pain among occupational motorcycle riders in Rawalpindi and Islamabad.

Study design: It was a corelational descriptive study

Place and duration of study: The study was conducted in Rawalpindi and Islamabad, from April 2023 to September 2023.

Material and Methods: A corelational descriptive study was done on occupational motor bike riders of Rawalpindi and Islamabad. The study duration was 6 months. The total sample size was 357 occupational motorbike riders with age more than 20 years, having more than one year of bike riding experience and riding hours of about 07 to 08 hours. The sampling technique used was non probability purposive sampling. Data was collected by using a semistructured questionnaire. Data analysis was performed by using SPSS ver 21.

Results: The mean age of population was 34.5±12 years. Out of 357 motorbike riders, 320(89.6%) complained of either hip or knee pain. Hip assessment shows positive log roll test in 125(39.1%) riders, mostly in right hip i.e. 48(38.4%). While most of riders complained of moderate pain i.e. 102(81.6%) Knee Assessment shows positive patellar grind test in 195 (60.9%) of the with 85 (43.5%) riders having knee pain on the left side. Most riders have moderate knee pain i.e. 148 (75.9%) Association of hip with knee pain in occupational motor bike riders was found to be significant as p value was less than 0.05.

Conclusion: The study concluded that there is high frequency of both hip and knee pain in occupational motor bike riders of Rawalpindi and Islamabad with knee pain more common than hip pain. Also there is a strong association of hip with knee pain.

Keywords: Hip pain, Knee Pain, Motorbike riders, Occupational injuries

1. Introduction

In many middle- and low-income nations, motorbikes constitute the primary form of transportation, and the motorcycle industry is one of the fastest expanding in the world because they are more affordable and nimble than other modes of transportation.[(1)]

Despite the ease provided by motorbikes, there are several setbacks of motorbike riding when it is used for prolonged period of times especially for professional purposes. It is seen that professional drivers have a significant prevalence of musculoskeletal discomfort; the low back was the area of the body that was most frequently affected, followed by the neck, upper back, shoulder, knee, hip/thigh, wrist, ankle, and elbow.[(2)] Bike riders have reduced lumbopelvic muscle power and lumbar spine ROM than non bike riders as maintaining inappropriate sitting posture on a bike for a longer duration increases the fatigue level of the lumbopelvic muscles.[(3)]

Driving fatigue is related to maintaining a specific body posture that varies from absorbing the road impact to the generation of the necessary forces in order to control the motorcycle. The mechanisms for development of fatigue vary in motor bike riders. When analysis of fatigue is done in motorbike riders, the following factors were observed; driver or motorbike rider himself, vehicle or machine (motorbike), environment (climatic and physical conditions of the road), distance of driving , driving attitude, and maneuvers used for driving.[(4)] Motorbike riders experience a lot of external discomfort due to the inertia of the engine, inadequate structural design of the motorbike, and different road conditions.[(5)]

Physiotherapist Internee, DHQ Hospital, Chakwal,[1] Physiotherapist, DHQ Hospital, Chakwal,[2] Physiotherapist Internee, AFIRM,[3] Physiotherapist Internee, Islamabad Orthopedic and spine clinic.[4]

Correspondence: Misbah Marryam, Physiotherapist, DHQ Hospital, Chakwal **Email:** physiomisbah@gmail.com

A variety of symptoms were reported in motorbike riders like back and finger pain, shoulder, hip, knee and ankle pain. As a result of which there is increased cost of health for motorbike riders as compare to non bike riders.[6]

The main purpose of current study was to find the frequency of hip and knee pain in occupational motorbike riders of Rawalpindi and Islamabad and to find the association between hip and knee pain in occupational motor bike riders.

2. Materials & Methods

It was a correlational descriptive study done on occupational motor bike riders of Rawalpindi and Islamabad. The study duration was 6 months, (April 2023-Sep2023) after the approval of the synopsis. The total sample size was 357 as calculated by Rao soft sample size calculator, keeping CI 95% and margin of error 5% and taking total registered population of occupational motor bike riders i.e.5000. The sampling technique used was non probability purposive sampling. The inclusion criteria for sample selection was all male occupational motorbike riders of Islamabad and Rawalpindi with age more than 20 years, having more than one year of bike riding experience as an occupation. In addition motor bike riders must be having minimum duration of daily motorbike riding of 07 – 08 hours. Whereas those who have already diagnosed illness of hip and knee joint like osteoarthritis, rheumatoid arthritis, ligamentous or muscular injury were excluded from the study. Data was collected by using a semi structured questionnaire containing Log Role Test for Hip Pain, Patellar Grind Test for Knee Pain, questions from Hip and Knee Pain Questionnaire by Dr. Adam Rosen and Nadim and Visual Analogue Scale for pain assessment. Data was collected once only keeping all ethical values under consideration and by taking appropriate consent from the participants. After collection data analysis was performed by using SPSS version 21. For qualitative data, frequencies and percentages were used and for finding association between variables chi square test was used.

3. Results

The mean age of population was 34.5±12 years. A total of 357 male occupational riders were included in study, out of which 37 (10.36%) riders did not report any kind of hip or knee pain where as 320(89.6%) complained of either hip or knee pain. During assessment of hip, log roll test was positive in 125(39.1%) riders and negative in 195(60.9%). Those presenting with positive log roll test have symptoms mostly in right hip i.e. 48(38.4%), followed by left hip i.e. 42(33.6%) and those having bilateral symptoms were 35(28%). 102(81.6%) participants reported moderate pain, 16(12.8%) reported worst pain where as 7(5.6%) presented with only mild pain. The common cause of hip pain reported by riders was musculoskeletal factors 51 (40.8%), 42 (33.6%) had hip pain due to neuropathic factors and only 32 (25.6%) had hip pain after having some kind of accident in past.

Knee Assessment shows positive patellar grind test in 195 (60.9%) of the riders and negative in 125 (39.1%). 85 (43.5%) riders had knee pain on the left side, 73 (37.6%) had knee pain on the right side and 37 (18.9%) had knee pain on both sides.148 (75.9%) had moderate knee pain followed by 29 (14.8%) having mild knee pain, where as only 18 (9.3%) had worst knee pain. The common cause of knee pain reported was musculoskeletal factors i.e. 82 (42.1%). Other causes were neuropathic factors 87 (13.8%) and 86 (44.1%) had previous accidents. Association of hip and knee pain in occupational motor bike riders was found to be significant as p value was less than 0.05.

4. Discussion

The current study showed high frequency of hip and knee pain in occupational motor bike riders with knee pain more frequent than hip pain. Also an association of hip and pain was found in occupational motor bike riders of Rawalpindi and Islamabad.

Motorbike riders have a variety of ergonomic difficulties, such as sitting for extended periods of time with their knees and hips bent, feeling vibrations from the road through their limbs, and negotiating uneven

terrain that requires frequent adjustments and weight transfers. These particular work-related demands have a big impact on how often and where musculoskeletal discomfort occurs. Stress, poor posture, and repetitive motions of the body when driving are the causes of musculoskeletal problems associated with driving.[7] The upper and lower body regions that motorcyclists most commonly feel discomfort in are the neck, head, shoulders, upper back, arms, hands, low back, and buttocks as reported in high powered bike riders of motorway police.[8] The results of current study are similar as it also found that hip and knee pain in motorbike riders which is most probably due to poor ergonomics and long working hours.

Raj et al. conducted research to ascertain the frequency of symptoms related to lower limb musculoskeletal pain during stop-and-go driving. The study's goal was to find out how common musculoskeletal pain symptoms are, particularly the knee pain that drivers encounter in traffic. The results demonstrated that the targeted drivers were more likely to report foot discomfort and knee pain when operating a vehicle in the assessed condition.[9] Similarly, in the current study knee pain was found more frequent in occupational motor bike drivers.

A study was conducted by Qazi Farhan et al. in Peshawar to find out how common musculoskeletal discomfort is among occupational motorcycle riders and its effects on productivity and long-term healthcare. Overall research indicates that up to 82% of people who ride motorcycles for work have musculoskeletal diseases, with a higher proportion of riders between the ages of 25 and 40. Among occupational motorcyclists, hip discomfort was reported in 5.6% of cases, and knee pain in 5.3%. As discomfort from motorcycle riding has a long-term impact on musculoskeletal problems in riders, particularly professional riders, it is a problem that needs to be addressed.[1] Biomechanical elements are also connected to the emergence of physical discomfort. For instance, the distribution of pressure while sitting, joint angles, postures, and muscle contractions. Prolonged riding can cause problems with musculoskeletal issues.[10] The current study also reported hip and knee pain in occupational motorbike riders that may have occurred as a result of poor posture and improper ergonomics of the body, however current study found knee pain more frequent than hip pain this contradiction might have occurred due to difference in working hours of the riders or different style of riding that needs further evaluation.

Limitations of study included detailed objective assessments of all regions of body so that exact pain area could be localized. Detailed ergonomic assessments were missing in the study. More factors regarding riding timings, distances, regions where riding is being done should be evaluated in relation to hip and knee pain in future studies. It is recommended to conduct awareness sessions of riders for maintaining proper ergonomic postures during riding along with the companies involved in manufacturing of motor bikes.

Conclusion:

The study concludes that there is high frequency of both hip and knee pain in occupational motor bike riders with knee pain more common than hip pain in occupational motor bike riders of Islamabad and Rawalpindi. This can be attributed to the demands of riding a motorbike for periods, which puts strain on the joints due to frequent abnormal postures required for maneuvering. There is a connection between hip or knee pain and its negative impact on the activities of these riders. By taking measures to alleviate hip and knee discomfort and improve the quality of life for these individuals, a more efficient workforce within this particular occupation while enhancing overall welfare can be obtained.

Disclosure /Conflict of interest:

Authors declare no conflict of interest.

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