PREVALENCE OF KNEE PAIN IN FEMALE FOOTBALLERS

MAHNOOR IFTIKHAR

DPT, Islamabad College of Physiotherapy, Margalla Institute of Health Sciences, Quaid e Azam Avenue, Gulraiz Phase 3, Rawalpindi, Pakistan.

MUHAMMAD NAZIM FAROOQ

PhD, Dean, Faculty of Allied Health and Biological Sciences, Ibadat International University, Islamabad, Pakistan.

FATIMA AMJAD *

MS-SPT, Islamabad College of Physiotherapy, Margalla Institute of Health Sciences, Quaid e Azam Avenue, Gulraiz Phase 3, Rawalpindi, Pakistan. * Corresponding Author Email: fatimaamjad@live.com

ZAINA MALIK

DPT, Islamabad college of Physiotherapy, Margalla Institute of Health Sciences, Quaid e Azam Avenue, Gulraiz Phase 3, Rawalpindi, Pakistan.

RAFIA SHAKEEL

DPT, Islamabad college of Physiotherapy, Margalla Institute of Health Sciences, Quaid e Azam Avenue, Gulraiz Phase 3, Rawalpindi, Pakistan.

RAFIYA TANVEER

DPT, Islamabad college of Physiotherapy, Margalla Institute of Health Sciences, Quaid e Azam Avenue, Gulraiz Phase 3, Rawalpindi, Pakistan.

Abstract

Objective: To find out prevalence of knee pain in female footballers of twin cities i.e., Rawalpindi and Islamabad. **Methods:** Cross-sectional study from March 2022 to June 2022, was carried out at multiple football clubs in Rawalpindi and Islamabad. Sample comprised 249 female football players aged between 10 and 25 years. A non-probability convenience sampling method was employed. Data collection was carried out using a self-structured close-ended questionnaire. Data analysis was performed using SPSS version 25. To explore association between knee pain and dominant leg, chi-square test was utilized. **Results:** Findings presented estimates of knee pain prevalence across different time frames. Point prevalence of knee pain was reported at 29%, while rates for past month, three months, six months, and one year were 45%, 57%, 65%, and 73% respectively. Moreover, lifetime prevalence of knee pain among participants was found to be 82%. Among participants, 82% had a dominant right leg, while 18% had a dominant left leg. Of those experiencing knee pain, 58% reported pain in right knee, while 23% reported pain in left knee. These findings demonstrate a significant correlation between knee pain and the dominant side of the body ($p < 0.01$). **Conclusion:** Study's findings confirmed a high prevalence of knee pain among female footballers, with a noteworthy association between knee pain and dominant leg.

Keywords: Female, Football, Knee, Pain, Injuries, Patellofemoral Pain Syndrome.

INTRODUCTION

Knee pain is one of the most common musculoskeletal symptoms, affecting people of all ages and genders, and requires proper medical care. Knee pain is typically caused by the constant weight exerted on the knees, resulting in strain and wear and tear of the

cartilage, ligaments, and muscles surrounding the knee.[1] These conditions can further lead to knee injuries.[2] According to statistics, 17% of injuries among professional football players involve the knee.[3] Football, also known as soccer, involves irregular running that transmits forces from the ground to the knee, making it more prone to injuries.[4] In addition to overall traumatic acute injuries, the continuous micro trauma and joint overloading experienced during football matches and training can have detrimental effects on the knee.[5]

In the current era of women empowerment, the participation of women in football is increasing tremendously worldwide.[6] According to one survey, 7 million of the 17 million football players in the United States are female.[7] Although men and women play soccer with the same expertise and follow the same set of rules, certain factors, including physiological joint laxity, hormones, ligament size, pelvis width, and the angle of a woman's leg to the knee, put them at an extra risk of developing knee pain.[8] Underdeveloped gluteus medius muscles and the fact that females rely heavily on their quadriceps while quickly changing directions at high speed during play are additional factors that make women more susceptible to knee pain.[8]

The average age of injury for female football players is 19 years, indicating that compared to male football players, female players experience knee injuries at a younger age. In junior soccer, girls are estimated to have a 4-5 times higher risk of suffering an ACL injury than boys of the same age. [7] Twisting and planting in football put athletes, mainly girls, at an extra risk of developing an ACL tear.[9]

In a cross-sectional study conducted by Bhakti et al.[10] in Thane, India, the objective was to determine the prevalence of knee pain among 250 football players of different age groups.

The results indicated that 56.4% of the population experienced knee pain, with 39.2% of them being female. Furthermore, the findings suggested a higher prevalence of pain in the dominant knee.

In another cross-sectional study conducted by Parisa et al.[11] in Tehran, Iran, the focus was on female soccer athletes and the prevalence of patellofemoral pain syndrome (PFPS), a common cause of anterior knee pain in football players. The study included 26 soccer players aged 15 to 35, and the prevalence of PFPS was found to be approximately 13.6%.

In the Pakistan, the participation of women in football is rising steadily, leading to the establishment of dedicated fields and designated times for female players in many sports clubs. However, with the increasing participation comes a heightened risk of injuries. While studies have explored the frequency of knee pain among male football players, there is limited information available regarding women.

This study aimed to fill this knowledge gap by examining the prevalence of knee pain exclusively among female footballers, providing valuable insights into this important area of research.

METHODOLOGY

This cross-sectional study was conducted at various football clubs located in the twin cities of Rawalpindi and Islamabad over a period of four months, from March 2022 to June 2022. Non-probability convenience sampling was used to include female football players aged 10 to 25 years who played more than three sessions per week for a total of more than 1.5 hours per week. Exclusion criteria encompassed players who had undergone lower extremity surgery or experienced accidents within the past six months, as well as those with a history of congenital deformity, anterior cruciate ligament repair, meniscal repair, Achilles tendon repair, ankle and patella fractures, and those currently undergoing physical therapy for musculoskeletal injuries.

After obtaining written consent, a self-structured questionnaire was distributed to collect demographic information from the female football players, including details about their dominant leg.

Sample Size: With population size of 3000, a sample size of 249 was calculated by Rao soft software. The margin of error was 5%, confidence level was 90% and the response distribution was 50%.

Ethical Approval: All the work was done after the approval from ethical review committee of Margalla Institute of Health Sciences, Rawalpindi (Ref. No. MI/141/22, dated April 13, 2022). All the data was gathered after written consent from players/parents and was used for research purpose only.

Players had their right to ask any question regarding study or to terminate their participation at any point.

Data Analysis: For the analysis of data SPSS 25 software (SPSS Inc. Chicago IL, USA) was used. Descriptive statistics were used to examine the data collected through questionnaires (e.g., mean and standard deviation). Data was presented in graphical and tabular form. Chi square test was used in order to find the association between painful knee and dominant leg.

RESULTS

A total of 410 questionnaires were distributed across various football clubs for participation in the study. Out of these, 395 questionnaires were completed and returned. Among the returned questionnaires, 146 forms did not meet the inclusion criteria and were subsequently excluded. Therefore, data from the remaining 249 forms were included in the analysis for this study.

The mean of age of the female players included in the study was determined to be 19.8 ± 2.96. Furthermore, their mean height, weight, and BMI were found to be 164.14 cm, 56.20 kg, and 20.90, respectively. Table 1 shows the prevalence of knee pain.

When asked to identify their painful knee, 143 (58%) participants indicated their right knee, while 58 (23%) claimed their left knee as the source of pain.

Table 1: Prevalence of Knee Pain

Prevalence	Percentage	Frequency
Point prevalence	29%	72
Last month prevalence	45%	113
Three months prevalence	57%	142
Six months prevalence	65%	163
Last year prevalence	73%	181
Lifetime prevalence	81%	201

It was found that 82% (203) players used right leg as a dominant leg. The remaining 18% (46) of the players used left leg as dominant leg. A significant association was found between dominant leg and the knee pain (p<0.01)

DISCUSSION

The present study investigated the prevalence of knee pain among female footballers of Rawalpindi and Islamabad. The results showed a point prevalence of knee pain at 29%, which is slightly lower than the 39% reported by Bhakti et al.[10] This difference may be attributed to the age variations in the study populations. Bhakti et al. included female football players up to the age of 35 years, while the current study included participants up to the age of 25 years. As age increases, degenerative processes in the knee joint may contribute to a higher prevalence of knee pain.

Furthermore, the prevalence of knee pain in the current study was inconsistent with the findings of Parisa et al.[11] who reported a point prevalence of 13.68% in female soccer players. This discrepancy may be attributed to differences in playing time. They specifically selected players who participated in three sessions per week, whereas the current study included players who engaged in more than three sessions. Increased playing time and higher training intensity may contribute to a higher proportion of players experiencing knee pain.

It is worth noting that Bhakti et al.[10] found dominance to be a significant factor in the prevalence of knee pain, which aligns with the results of the present study. Similar to past research, the current study demonstrated a positive correlation between knee pain and the dominant side of the body.

This further supports the notion that the dominant leg is subjected to greater mechanical stress during football-related activities, increasing the risk of knee injuries and subsequent pain.

The results suggest that knee pain is a significant concern in this population, warranting attention to injury prevention strategies and proper management. Understanding the factors contributing to knee pain can guide the development of targeted interventions and support the long-term participation and well-being of female footballers. Further research is needed to explore these factors in more depth and validate the findings with a larger and more diverse population.

LIMITATIONS OF STUDY

However, several limitations should be acknowledged in the present study. The small sample size and age limitation (10-25 years) restrict the generalizability of the findings to a larger population.

CONCLUSION

In conclusion, the findings of this research highlight the prevalence of knee pain in female football players and a significant association was found between painful knee and dominant leg.

PREVALENCE OF KNEE PAIN IN FEMALE FOOTBALLERS

Football presents injury risks for female athletes, which can limit their participation in the sport. One of the areas of vulnerability is the knee, which is highly susceptible to impact injuries. Research conducted in neighboring countries and the western world has shown that knee pain is a prevalent issue among female football players.

The findings of our study contribute valuable insights to the existing body of literature by demonstrating that knee pain is also a common problem among female footballers in Rawalpindi and Islamabad, Pakistan. These results hold significance for clinical practice as they highlight the need to pay greater attention to the health and well-being of female athletes. With the increasing participation of women in sports, it is crucial to address the unique challenges they face.

Moreover, our study serves as an encouraging call to action for other researchers to conduct further investigations in various cities across Pakistan. It is essential to explore the potential risk factors that contribute to knee pain in female football players, thereby advancing our understanding of this issue and promoting better preventive measures and treatments.

Conflict of Interest

Authors declare no conflict of interest.

References

1) Knee pain Mayo Clinic25th Jan, 2023 [cited 2023 23rd May]. Available from: https://www.mayoclinic.org/diseases-conditions/knee-pain/symptoms-causes/syc-20350849.

2) Vasdev DA. Knee Pain: Precautions, Causes and Treatment of Knee Injuries Medanta19 Oct 2018 [cited 2023]. Available from: https://www.medanta.org/patient-education-blog/an-athletes-guide-to-knee-pain/.

3) Engström B, Johansson C, Tornkvist H. Soccer injuries among elite female players. The American journal of sports medicine. 1991;19(4):372-5. DOI: 10.1177/036354659101900408

4) Ferguson M, Collins R. Knee injuries in football: Knee injuries are particularly common in football. Continuing Medical Education. 2010;28(5):202-6.

5) Fernandes GS, Parekh SM, Moses J, Fuller C, Scammell B, Batt ME, et al. Prevalence of knee pain, radiographic osteoarthritis and arthroplasty in retired professional footballers compared with men in the general population: a cross-sectional study. British journal of sports medicine. 2018;52(10):678-83. DOI: 10.1136/bjsports-2017-097503

6) Williams J. A beautiful game: Internaitonal perspectives on women's football: A&C Black; 2007.

7) Lohmander L, Östenberg A, Englund M, Roos H. High prevalence of knee osteoarthritis, pain, and functional limitations in female soccer players twelve years after anterior cruciate ligament injury. Arthritis & Rheumatism: Official Journal of the American College of Rheumatology. 2004;50(10):3145-52. DOI: 10.1002/art.20589

8) Women in Football: Are Female Footballers More Susceptible To Injury? 2015 [cited 2023 15 May]. Available from: https://jubileesportsphysio.com.au/dealing-injuries/women-in-football-are-female-footballers-more-susceptible-to-injury/.

9) Wimmer R, CSMS S. Female Athletes and ACL Reconstruction: Rehabilitation Integrating Acupuncture and Medical Herbology. Acupuncture Today. 2004;5(8):155-64.

10) Naik BM, Akre M, Kumar A. Prevalence of Knee Pain in Football Players of Various Age Group. DOI:10.52403/ijhsr.20210435

11) Nejati P, Forogh B, Moeineddin R, Baradaran HR, Nejati M. Patellofemoral pain syndrome in Iranian female athletes. Acta Medica Iranica. 2011:169-72.