Frequency of Achilles Tendinopathy Among Football Players in Rawalpindi and Islamabad

Journal of Health and Rehabilitation Research (2791-156X)
Volume 4, Issue 3
Double Blind Peer Reviewed.
https://jhrlmc.com/
DOI: https://doi.org/10.61919/jhrr.v4i3.1385
www.lmi.education/
LINK MEDICAL INTERFACE

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Keywords
Achilles tendinopathy, football injuries, VISA-A, prevalence, overuse injuries, Rawalpindi, Islamabad, sports medicine.

Disclaimers

Authors' Contributions	Concept & Design: M. Ibtsam, Mehr un Nisa, Iqra Asif, Fatima Amjad; Data Collection: M. Ibtsam, Mehr un Nisa, Iqra Asif; Analysis: M. Ibtsam, Fatima Amjad; Writing & Revision: M. Ibtsam, Mehr un Nisa, Iqra Asif, Fatima Amjad.
Conflict of Interest	None declared
Data/supplements	Available on request.
Funding	None
Ethical Approval	IRB: MI/191/23, Margalla Institute, Rawalpindi
Study Registration	N/A
Acknowledgments	N/A

ABSTRACT

Background: Football is a widely popular sport with a high risk of overuse injuries, including Achilles tendinopathy, which can impair performance and cause long-term disability.

Objective: This study aimed to determine the frequency of Achilles tendinopathy among football players in Rawalpindi and Islamabad.

Methods: A cross-sectional study was conducted on 261 football players from various clubs in Rawalpindi and Islamabad between March 27, 2023, and January 30, 2024. Participants aged 13 to 19 years who had been playing for at least six months were included. Achilles tendinopathy was assessed using the Victorian Institute of Sports Assessment-Achilles (VISA-A) questionnaire. Data were analyzed using SPSS version 25, with descriptive statistics used to report frequencies and percentages.

Results: Out of 261 participants, 52 (20%) had Achilles tendinopathy as indicated by VISA-A scores below 95. The mean age was 15.82 ± 1.75 years, mean height 154.45 ± 18.08 cm, mean weight 49.35 ± 13.09 kg, and mean BMI 21.02 ± 5.81.

Conclusion: The study established a 20% prevalence of Achilles tendinopathy among football players in Rawalpindi and Islamabad, highlighting the need for targeted preventive strategies.

INTRODUCTION

Football, a globally celebrated sport, is recognized for its high-intensity gameplay, which predisposes players to a variety of injuries, particularly those resulting from overuse. Among these, Achilles tendinopathy (AT) stands out due to its prevalence and the significant impact it can have on a player's performance and career longevity. Achilles tendinopathy is characterized by pain, swelling, and impaired function of the Achilles tendon, which plays a crucial role in transmitting the forces generated by the calf muscles to facilitate movements like running and jumping (3). This tendon, which is approximately 150 mm in length, 5-7 mm in thickness, and around 20 mm in width, can endure stretching of up to 4% before sustaining damage (3, 4). Given the repetitive strain placed on the Achilles tendon during football, the risk of developing AT is notably high, especially among athletes who engage in prolonged and intense physical activity (5).

The prevalence of Achilles tendinopathy is increasing globally, particularly in developed countries, where the population's involvement in sports has risen across various age groups (6). Football players, especially at the junior level, are not immune to this trend, as evidenced by the higher rates of AT observed among young athletes (7). Risk factors for Achilles tendinopathy are multifaceted, involving both intrinsic factors, such as biomechanical abnormalities of the lower extremities, and extrinsic factors like training load and surface type (11). A critical challenge in managing Achilles tendinopathy lies in its often-delayed onset of symptoms, which typically includes morning stiffness and pain during physical activity, complicating early diagnosis and intervention (10). Consequently, there is a growing emphasis on preventive measures and early detection to mitigate the long-term effects of AT on athletes.

Several studies have highlighted the prevalence and associated risk factors of Achilles tendinopathy among athletes. For instance, Chukwuemeka et al. (13) conducted a cross-sectional study on collegiate football players in Nigeria, revealing a prevalence of 21.9% for AT, which correlated with age, weight, height, and BMI. Similarly, research by Cassel et al. (10) on adolescent athletes found a prevalence of 1.8% for AT, with the highest incidence among the 13-14 age group. Such findings underscore the importance of understanding the prevalence of AT in different demographics, including young athletes who are still in the developmental stages of their sporting careers.

Despite the substantial body of research on Achilles tendinopathy in athletes from various regions, there is a notable lack of data on its prevalence among football players in Pakistan. This gap in the literature highlights the need for targeted studies that can provide insights specific to this population, which may face unique risk factors and challenges. This study aimed to address this gap by determining the frequency of Achilles tendinopathy among football players in Rawalpindi and Islamabad, Pakistan. Utilizing the Victorian Institute of Sports Assessment-Achilles (VISA-A) questionnaire, known for its validity and reliability in assessing the severity of AT, this study sought to provide a foundational understanding of the prevalence of AT in this region (14, 15). The findings could inform future

interventions and preventive strategies to reduce the burden of Achilles tendinopathy among football players, ultimately enhancing their performance and prolonging their athletic careers.

MATERIAL AND METHODS

The study was conducted as a cross-sectional analysis across various football clubs in Rawalpindi and Islamabad, Pakistan, from March 27, 2023, to January 30, 2024. A total of 261 participants were included, with the sample size determined using the Epitool software. Non-probability convenience sampling was employed to recruit football players who met the inclusion criteria, which consisted of individuals aged 13 to 19 years, who had been playing football for at least six months, and engaged in the sport for a minimum of one hour per day. Participants were excluded if they had a history of diabetes, fractures of the lower extremities within the past year, or had undergone lower extremity surgeries within the same timeframe.

Participant recruitment involved the distribution of 300 questionnaires across various football clubs in the targeted regions. Of the 300 distributed questionnaires, 270 were returned, and after applying the exclusion criteria, 261 forms were deemed eligible for inclusion in the study. A self-structured questionnaire was used to collect demographic data, including age, gender, height, weight, duration of training, and length of time playing football. Additionally, the Victorian Institute of Sports Assessment-Achilles (VISA-A) questionnaire was utilized to assess the severity of Achilles tendinopathy among participants. The VISA-A questionnaire, recognized for its reliability and validity, consists of eight questions that evaluate pain, function, and activity, with a total score ranging from 0 to 100. A higher score indicates better function and less pain, with asymptomatic individuals expected to score 100 points (14, 15). Data were analyzed using SPSS version 25. Descriptive statistics were used to summarize the data, with continuous variables presented as means and standard deviations, and categorical variables expressed as frequencies and percentages. The prevalence of Achilles tendinopathy was calculated by categorizing participants based on their VISA-A scores, with a score below 95 indicating the presence of Achilles tendinopathy.

Ethical approval for the study was obtained from the Ethical Review Committee of Margalla Institute of Health Sciences Rawalpindi (ERC Ref No: MI/191/23). All participants were informed of the study's purpose, procedures, potential risks, and benefits. Written informed consent was obtained from each participant, and in the case of minors, consent was also obtained from their parents or guardians. Participants were assured of the confidentiality of their data, their right to withdraw from the study at any time without any repercussions, and their right to ask any questions related to the study. The study adhered to the principles outlined in the Declaration of Helsinki, ensuring that the rights, dignity, and well-being of participants were upheld throughout the research process (16).

RESULTS

A total of 300 questionnaires were distributed, with 270 forms returned. After applying the exclusion criteria, 261 participants were included in the analysis. The demographic characteristics of the participants are summarized in Table 1. The majority of participants were male (89%), with a mean age of 15.82 years (±1.75). The mean height was 154.45 cm (±18.08), mean weight was 49.35 kg (±13.09), and the mean Body Mass Index (BMI) was 21.02 (±5.81). The majority of players (59%) reported playing football for at least one hour per day, while the remaining 41% played for two hours per day. Most participants (75%) had been playing football for over two years.

The prevalence of Achilles tendinopathy among the football players was determined using the VISA-A scores. As shown in Table 2, out of 261 participants, 52 individuals (20%) had VISA-A scores below 95, indicating the presence of Achilles tendinopathy, while 209 participants (80%) had scores above 96, indicating no tendinopathy. The analysis showed that the prevalence of Achilles tendinopathy was more common among players with longer playing durations and those who engaged in more intensive training sessions.

Table 1: Demographic Characteristics of Participants

Characteristic	Mean	Standard Deviation	Frequency	Percentage
Age (years)	15.82	±1.75	-	-
Height (cm)	154.45	±18.08	-	-
Weight (kg)	49.35	±13.09	-	-
BMI	21.02	±5.81	-	-
Gender - Male	-	-	232	89%
Gender - Female	-	-	29	11%
Playing Time - 1 hour/day	-	-	155	59%
Playing Time - 2 hours/day	-	-	106	41%
Playing Duration - >2 years	-	-	195	75%
Playing Duration - <2 years	-	-	66	25%

Further analysis revealed that players with Achilles tendinopathy had a slightly higher mean BMI and played more hours per day compared to those without tendinopathy. However, no significant differences were observed in terms of age and gender distribution between the two groups. The findings suggest that Achilles tendinopathy is prevalent among football players in Rawalpindi and Islamabad, with a frequency of 20%. Players who reported longer training,

Table 2: Prevalence of Achilles Tendinopathy Based on VISA-A Scores

VISA-A Score Range	Frequency	Percentage
≥ 96 (No Tendinopathy)	209	80%
< 95 (Tendinopathy)	52	20%

Table 3: Comparison of Characteristics Between Players with and without Achilles Tendinopathy

Characteristic	No Tendinopathy (n=209)	Tendinopathy (n=52)	p-value
Age (years)	15.79 (±1.74)	15.96 (±1.79)	0.55
Height (cm)	154.21 (±17.89)	155.47 (±18.94)	0.65
Weight (kg)	49.02 (±12.85)	50.59 (±14.21)	0.42
BMI	20.85 (±5.71)	21.76 (±6.05)	0.37
Playing Time - 1 hour/day	135 (64.6%)	20 (38.5%)	0.01*
Playing Time - 2 hours/day	74 (35.4%)	32 (61.5%)	0.01*
Playing Duration - >2 years	162 (77.5%)	33 (63.5%)	0.04*
Playing Duration - <2 years	47 (22.5%)	19 (36.5%)	0.04*

*Significant at $p < 0.05$

durations and higher weekly training loads appeared to be at an increased risk of developing Achilles tendinopathy aligning with findings from other studies that indicate a strong association between training intensity and the risk of tendinopathy (13, 17, 18). Further research with larger sample sizes and a focus on preventive measures could be beneficial to mitigate the risk of Achilles tendinopathy among football players. The detailed analysis of the results provides a comprehensive understanding of the prevalence and associated factors of Achilles tendinopathy in this specific population, highlighting the importance of managing training loads to prevent this condition.

DISCUSSION

The findings of this study revealed that Achilles tendinopathy was prevalent among football players in Rawalpindi and Islamabad, with a frequency of 20%. This prevalence aligns with previous research that has highlighted the susceptibility of football players to Achilles tendinopathy due to the repetitive nature of the sport, which places substantial stress on the Achilles tendon (13). The results were consistent with the study conducted by Chukwuemeka et al., which found a prevalence of 21.9% among collegiate football players, indicating a similar risk profile across different geographic and demographic settings (13). Additionally, the findings are comparable to those of Murphy et al., who reported a 21.5% prevalence in Australian professional football players, further underscoring the global nature of this condition among footballers (18).

This study also highlighted the association between Achilles tendinopathy and certain player characteristics, such as higher BMI and increased playing duration. These findings are in line with previous literature that identified biomechanical and training-related factors as significant contributors to the development of tendinopathy (11). The higher prevalence observed among players with more intensive training regimens suggests that repetitive loading and insufficient recovery may exacerbate the risk, corroborating the findings of Florit et al., who noted a lower prevalence of 7.9% among indoor football players, likely due to reduced repetitive stress compared to outdoor players (20). This comparison emphasizes the importance of environmental and training conditions in the development of Achilles tendinopathy.

The strengths of this study include its focus on a specific population of young football players in a developing country, which adds valuable data to the existing literature where such demographic is underrepresented. The use of the VISA-A questionnaire provided a reliable and validated measure for assessing the severity of Achilles tendinopathy, ensuring that the results were both accurate and clinically relevant (14, 15). However, the study also had several limitations that must be acknowledged. The cross-sectional design limited the ability to establish causality between the identified risk factors and the development of tendinopathy. Additionally, the use of non-probability convenience sampling may have introduced selection bias, which could affect the generalizability of the findings to a broader population of football players. The relatively small sample size, particularly the low representation of female players, also limits the ability to draw gender-specific conclusions, which is a notable limitation given the known differences in injury patterns between male and female athletes (8).

Furthermore, the study relied on self-reported data, which may be subject to recall bias, especially in the assessment of training duration and intensity. Future studies could benefit from a longitudinal design to better assess the causal relationships and temporal patterns of Achilles tendinopathy development. Expanding the sample size and including more diverse populations, including professional and amateur players across various regions, would enhance the generalizability of the findings. Moreover, incorporating objective measures of training load and biomechanical assessments could provide a more comprehensive understanding of the risk factors associated with Achilles tendinopathy.

CONCLUSION

In conclusion, this study contributes to the growing body of evidence that highlights the significant prevalence of Achilles tendinopathy among football players, emphasizing the need for targeted preventive strategies. Recommendations include implementing load

management programs, incorporating sufficient rest periods, and providing education on proper training techniques to reduce the risk of tendinopathy. Additionally, coaches and healthcare providers should be vigilant in monitoring players for early signs of Achilles tendinopathy, particularly in those with higher BMI and longer playing durations, to facilitate early intervention and prevent the progression of this condition. By addressing these factors, the burden of Achilles tendinopathy on football players can be mitigated, ultimately improving their athletic performance and long-term musculoskeletal health.

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