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Prevalence Of Planter Fasciitis Among School Teachers In Lahore, Pakistan

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Abstract

Plantar fasciitis is one of the most common musculoskeletal disorders of the foot and a leading cause of heel pain, particularly among individuals exposed to prolonged weight-bearing activities. School teachers are considered a high-risk occupational group due to extended standing hours and repetitive mechanical stress on the plantar fascia. The present study aimed to determine the prevalence of plantar fasciitis among school teachers in Lahore and to identify its associated demographic, clinical, and occupational factors. A quantitative cross-sectional study was conducted among 574 school teachers from various government and private schools in Lahore, Pakistan, using a non-probability convenience sampling technique. Participants aged 25–60 years were included, and data were collected using a structured questionnaire, the Plantar Fasciitis Pain/Disability Scale (PFPS), and the Visual Analogue Scale (VAS), while the Windlass test was used as a clinical assessment tool. Data were analysed using SPSS version 20, employing descriptive statistics and inferential tests including chi-square test, independent t-test, correlation analysis, and binary logistic regression.

The results showed that the prevalence of plantar fasciitis was 41.3% (n = 238). Among participants, 376 (65.5%) were aged 25–40 years and 198 (34.5%) were aged 41–60 years. Females were slightly more represented (52.3%) than males (47.7%). Plantar fasciitis was significantly more common in females (50.6%) compared to males (31.7%), and in the older age group (41–60 years: 68.1%) compared to younger participants (27.3%) ($p < 0.001$). The most affected individuals reported deep heel pain (69.7%), mainly at the bottom of the heel (61.3%), with pain occurring many times daily (61.8%) and most severe during first morning steps (56.3%). Mean VAS scores were significantly higher in affected participants (7.8 ± 2.1) compared to non-affected participants (4.9 ± 2.3), while PFPS scores were also higher in the plantar fasciitis group (48.6 ± 8.5 vs 36.2 ± 7.9) ($p < 0.001$). Significant positive correlations were found between VAS, PFPS, and functional limitation scores ($r = 0.69–0.81$, $p < 0.001$). Logistic regression analysis revealed that female gender (OR = 2.08, 95% CI: 1.42–3.05), age above 40 years (OR = 3.31, 95% CI: 2.15–5.09), higher VAS scores (OR = 1.81, 95% CI: 1.37–2.40), and higher PFPS scores (OR = 1.11, 95% CI: 1.05–1.17) were significant predictors of plantar fasciitis.
In conclusion, plantar fasciitis was found to be highly prevalent among school teachers in Lahore, affecting 41.3% of participants, with significantly higher occurrence in females and older age groups. The condition was strongly associated with increased pain severity, functional disability, and occupational strain. These findings highlight the need for ergonomic interventions, early screening, and physiotherapy-based preventive strategies in school settings to reduce the burden of plantar fasciitis

Introduction

Plantar fasciitis is recognised as one of the most prevalent musculoskeletal disorders affecting the foot and is considered a major cause of inferior heel pain worldwide. The condition involves degeneration and irritation of the plantar fascia, a thick fibrous connective tissue extending from the calcaneal tuberosity to the proximal phalanges of the toes. The plantar fascia plays an essential role in maintaining the longitudinal arch of the foot and in absorbing mechanical stress during standing, walking, and running activities. Patients with plantar fasciitis typically complain of sharp heel pain during the first steps taken in the morning or after prolonged periods of rest. Although the pain may temporarily subside with movement, it frequently recurs following extended standing or physical exertion (Werner, 2010).

The precise pathophysiology of plantar fasciitis remains incompletely understood; however, repetitive mechanical overload and excessive tensile stress on the plantar fascia are considered primary contributing factors. Continuous stress may result in microscopic tears at the calcaneal insertion of the fascia, ultimately leading to degeneration of collagen fibres and fascial thickening. Contemporary literature suggests that plantar fasciitis is predominantly a degenerative rather than an inflammatory condition, and therefore terms such as *plantar fasciopathy* or *plantar fasciosis* are increasingly preferred in scientific discourse (Shashua, 2015).

Several intrinsic and extrinsic risk factors have been associated with the development of plantar fasciitis. Occupational activities involving prolonged standing, walking on hard surfaces, and repetitive weight-bearing movements significantly increase stress on the plantar fascia. Similarly, athletes, runners, dancers, and individuals engaged in high-impact physical activities are more susceptible to developing the condition. Structural abnormalities of the foot, including pes planus (flat feet), pes cavus (high arches), and abnormal gait biomechanics, may further predispose individuals to plantar fascial strain. In addition, obesity, advancing age, sedentary lifestyle, restricted ankle dorsiflexion, and chronic lower limb injuries have been identified as contributing risk factors (Abidin, 2019).

Footwear also plays a crucial role in the onset and progression of plantar fasciitis. Shoes lacking appropriate arch support, cushioning, or shock absorption properties may

increase mechanical stress on the heel and plantar fascia. Prolonged use of thin-soled shoes, high heels, or poorly fitted footwear can disturb normal foot biomechanics and contribute to repeated fascial microtrauma (Spurs, 2022). Such repetitive strain may eventually impair the foot's natural shock-absorbing capacity, resulting in chronic heel pain and functional limitations.

Plantar fasciitis constitutes a substantial public health concern because of its high prevalence and negative impact on quality of life. Epidemiological evidence indicates that more than one million individuals seek treatment for plantar fasciitis annually, accounting for approximately 11–15% of foot-related disorders requiring medical attention. The disorder is particularly common among middle-aged adults, military personnel, healthcare workers, and occupations requiring prolonged standing (Abidin, 2019). Persistent symptoms may adversely affect mobility, occupational performance, and participation in routine daily activities, thereby significantly reducing both physical and psychological well-being (Hansen, 2018).

Clinical diagnosis of plantar fasciitis is primarily based on patient history and physical examination findings, particularly tenderness at the anteromedial aspect of the heel and pain aggravated during weight-bearing activities. Diagnostic investigations such as ultrasonography and radiography may assist in excluding alternative causes of heel pain and in evaluating fascial thickening. Various conservative treatment modalities are commonly utilised, including stretching exercises, orthotic devices, taping techniques, night splints, cryotherapy, strengthening exercises, and non-steroidal anti-inflammatory medications. In resistant cases, corticosteroid injections and surgical interventions may be considered (Aiman U, 2022).

Teachers constitute an occupational group particularly vulnerable to plantar fasciitis because of prolonged standing hours, continuous walking during teaching activities, and inadequate opportunities for rest during working hours. Despite the occupational burden associated with heel pain, limited evidence is available regarding the prevalence of plantar fasciitis among school teachers in Lahore. Therefore, the present study aims to determine the prevalence of plantar fasciitis among school teachers in Lahore and to evaluate the associated occupational and lifestyle-related risk factors. The findings of this study may contribute towards early identification, preventive interventions, and improved occupational health strategies for teachers suffering from plantar fasciitis.

Materials and Methods

Study Design: A quantitative cross-sectional survey design was employed to determine the prevalence of plantar fasciitis among school teachers in Lahore. The cross-sectional approach was considered appropriate as it allows the assessment of the prevalence of a health condition and its associated factors within a defined population at a specific point in time.**Study Setting:**The study was conducted in private and government schools situated in different regions of Lahore, Pakistan. Data were collected from schools located in Thokar Niaz Baig, Sabzazar, Karim Block, Township, Johar Town, Wahdat Road, Chungi Amar Sidhu, and Qainchi. These areas were selected to ensure participation from teachers belonging to diverse educational and socioeconomic backgrounds. **Study Duration**The research was completed over a period of six months following the approval of the research synopsis and ethical clearance.**Sample Size:** The sample size for the present study was calculated using Epi-Tool software to ensure adequate statistical precision and reliability of the findings. The calculation was based on an assumed true prevalence of 10%, with a sensitivity of 70% and specificity of 90%. A desired precision level of 5% and a 95% confidence interval were applied during the estimation process. Based on these parameters, the minimum required sample size was determined to be 574 participants. This sample size was considered sufficient to estimate the prevalence of plantar fasciitis among school teachers in Lahore with acceptable accuracy and confidence. **Sampling Technique:** A non-probability convenience sampling technique was utilised for participant recruitment. Teachers who

fulfilled the eligibility criteria and were willing to participate were included in the study. **Sample Selection:** The study included school teachers aged between 25 and 60 years, both male and female, working in private and government schools in Lahore who routinely stood for more than two hours during working hours, while newly employed teachers and those with a history of conditions that could affect lower limb function were excluded, including neurological disorders, Achilles tendinopathy, peripheral vascular disease, diabetes mellitus, and previous heel surgery, in order to minimize confounding factors and ensure the homogeneity of the study sample.

Tools:

The Visual Analogue Scale (VAS) is a simple and widely accepted tool used to measure subjective pain intensity, which was used in the present study to assess participants' pain levels. It consists of a 10 cm horizontal line with two anchors, where 0 cm represents "no pain" and 10 cm represents "worst imaginable pain." Participants marked a point on the line corresponding to their perceived pain intensity, and the score was obtained by measuring the distance from the "no pain" anchor in centimeters or millimeters. The scores were interpreted as 0–1 cm indicating no pain, 1–3 cm mild pain, 4–6 cm moderate pain, and 7–10 cm severe pain. The VAS has demonstrated strong validity through high correlation with other established pain measurement scales and excellent test-retest reliability ($r = 0.80–0.95$). It is also highly sensitive to changes in pain over time, making it suitable for use in clinical and interventional research studies.

The Windlass test is a clinical diagnostic maneuver used to identify plantar fasciitis and was used in the present study as a supportive assessment tool. It is performed in a weight-bearing position by passively dorsiflexing the great toe, which increases tension in the plantar fascia. The test is considered positive if heel pain is reproduced, especially at the medial calcaneal region. It is a qualitative test with results recorded as positive or negative. The Windlass test has good clinical validity but moderate specificity, and its reliability depends on examiner technique and experience, so it is mainly used as a supportive rather than definitive diagnostic tool.

The Plantar Fasciitis Pain/Disability Scale (PFPS) is a 19-item questionnaire developed in 2009 specifically to evaluate heel pain and functional limitations associated with plantar fasciitis. It assesses 12 pain-related and 7 functional-related items, providing a comprehensive overview of symptom severity and disability. The tool uses a 0–100 scoring scale, where higher scores indicate greater pain intensity and functional impairment, allowing for a detailed measurement of the impact of plantar fasciitis on daily life. A score above 35 points is used to diagnose plantar fasciitis in this study.

Data Collection Procedure

Data collection was conducted using a structured assessment procedure consisting of two sections. Demographic and occupational information was initially obtained from all participants. Subsequently, the Plantar Fasciitis Pain and Disability Scale (PFPS) was administered to assess symptoms related to plantar fasciitis. The questionnaire included items related to heel pain severity, functional limitations, and the impact of pain on activities of daily living. A Visual Analogue Scale (VAS) was also incorporated to evaluate pain intensity.In addition, the Windlass test was performed on each participant to assist in the clinical identification of plantar fasciitis. During the test, passive dorsiflexion of the great toe was applied while the participant was in a weight-bearing position. Reproduction of heel pain during this manoeuvre was considered indicative of plantar fasciitis. **Data Analysis**: The collected data were entered and analysed using the Statistical Package for Social Sciences (SPSS) version 2020. Descriptive statistics including frequencies, percentages, tables, and graphical presentations were used to summarise the findings and present the distribution of variables. **Ethical Considerations:** Ethical approval for the study was obtained prior

to data collection. Written informed consent was obtained from all participants after explaining the purpose and procedure of the study. Confidentiality and anonymity of participants were strictly maintained throughout the research process, and participation was entirely voluntary.

Results:

Table 1 presents the demographic characteristics of the participants. A total of 574 participants were included in the study. The majority of participants belonged to the 25–40 years age group, accounting for 376 individuals (65.5%), while 198 participants (34.5%) were in the 41–60 years age group. Females were slightly more represented with 300 participants (52.3%) compared to 274 males (47.7%). Regarding plantar fasciitis, 238 participants (41.3%) were diagnosed with the condition, whereas 336 participants (58.5%) were not affected.

Figure 1 demonstrates the distribution of plantar fasciitis according to gender. Out of the 238 participants diagnosed with plantar fasciitis, 152 were females and 87 were males, indicating a greater proportion of affected females compared to males.

Table 2 shows the association between age group and plantar fasciitis. Among participants aged 25–40 years, 103 (27.3%) had plantar fasciitis while 273 (72.6%) did not have the condition. In contrast, among participants aged 41–60 years, 135 (68.1%) were diagnosed with plantar fasciitis and 63 (31.8%) were unaffected. The p-value of 0.000 demonstrated a statistically significant association, indicating that plantar fasciitis was more common among older participants.

Table 3 presents the association between gender and plantar fasciitis. Among males, 87 participants (31.7%) had plantar fasciitis while 187 (68.3%) did not. Among females, 152 participants (50.6%) were diagnosed with plantar fasciitis and 148 (49.4%) were unaffected. The p-value of 0.0001 indicated that females were significantly more affected than males.

Table 4 describes the clinical characteristics of pain among participants with plantar fasciitis. Deep pain was reported by the majority of participants, accounting for 166 individuals (69.7%), while 72 participants (30.3%) experienced superficial pain. The bottom of the heel was the most common site of pain, reported by 146 participants (61.3%), followed by the mid sole in 52 participants (21.8%). Pain occurring many times daily was reported by 147 participants (61.8%), and the worst pain was most commonly experienced during the first morning steps, reported by 134 participants (56.3%).

Table 5 compares the mean scores between participants with and without plantar fasciitis. The mean age was higher in the plantar fasciitis group (34.2 ± 4.1 years) compared to the non-affected group (28.1 ± 3.2 years). Similarly, the mean VAS score was higher among participants with plantar fasciitis (7.8 ± 2.1) than those without the condition (4.9 ± 2.3). The PFPS score also showed higher values in participants with plantar fasciitis (48.6 ± 8.5) compared to non-affected participants (36.2 ± 7.9). The differences were statistically significant with p-values of 0.001 for age and 0.000 for both VAS and PFPS scores.

Table 6 presents pain severity based on VAS scores. A total of 92 participants (16.0%) experienced mild pain, 248 participants (43.2%) had moderate pain, and 234 participants (40.8%) reported severe pain. These findings indicate that the majority of participants experienced moderate to severe pain intensity.

Table 7 illustrates the severity of functional disability based on PFPS scores. Mild disability was observed in 71 participants (29.8%), moderate disability in 123 participants (51.7%), and severe disability in 44 participants (18.5%). The findings suggest that moderate disability was the most common level of functional impairment among affected participants.

Table 8 demonstrates the impact of plantar fasciitis on daily activities. Most participants reported very little to moderate difficulty in activities such as walking in the morning,

standing on toes, driving, climbing stairs, descending stairs, bending over, walking barefoot, riding a bicycle, and running short distances. However, a considerable proportion also reported severe difficulty, particularly in physically demanding activities such as descending stairs, reaching up, and running for short distances.

Table 9 shows the impact of plantar fasciitis on sleep quality and emotional well-being. Difficulty sleeping on some nights was reported by 95 participants (39.9%), while pain awakening participants from sleep on some nights was reported by 83 participants (34.9%). Anxiety was the most commonly reported emotional effect, affecting 88 participants (37.0%), followed by daily worry in 71 participants (29.8%).

Table 10 presents the pattern of medication usage and its perceived effectiveness among participants with plantar fasciitis. A total of 88 participants (37.0%) used medication several times per week, while 66 participants (27.7%) used medication once daily. Regarding medication effectiveness, 120 participants (50.4%) reported that medication decreased pain, whereas only 37 participants (15.5%) experienced complete pain relief.

Table 11 demonstrates the correlation between pain severity, disability, and functional limitation. VAS and PFPS scores showed a strong positive correlation ($r = 0.74$, $p = 0.000$), while VAS scores were also positively correlated with functional limitation scores ($r = 0.69$, $p = 0.000$). The strongest correlation was observed between PFPS and functional limitation scores ($r = 0.81$, $p = 0.000$), indicating that greater disability was associated with higher levels of functional impairment.

Table 12 presents the binary logistic regression analysis identifying predictors of plantar fasciitis. Female participants had 2.08 times higher odds of developing plantar fasciitis compared to males (OR = 2.08, 95% CI: 1.42–3.05, $p = 0.001$). Participants aged above 40 years had 3.31 times higher odds of plantar fasciitis (OR = 3.31, 95% CI: 2.15–5.09, $p = 0.000$). Higher VAS scores (OR = 1.81, 95% CI: 1.37–2.40, $p = 0.000$) and higher PFPS scores (OR = 1.11, 95% CI: 1.05–1.17, $p = 0.002$) were also significantly associated with increased odds of plantar fasciitis.

Table 1 :Demographics of the participants of the Participants (n=574)

Variable	Category	Frequency (n)	Percentage (%)
Age Group	25–40 years	376	65.5
	41–60 years	198	34.5
Gender	Male	274	47.7
	Female	300	52.3
Plantar Fasciitis	Yes	238	41.3
	No	336	58.5

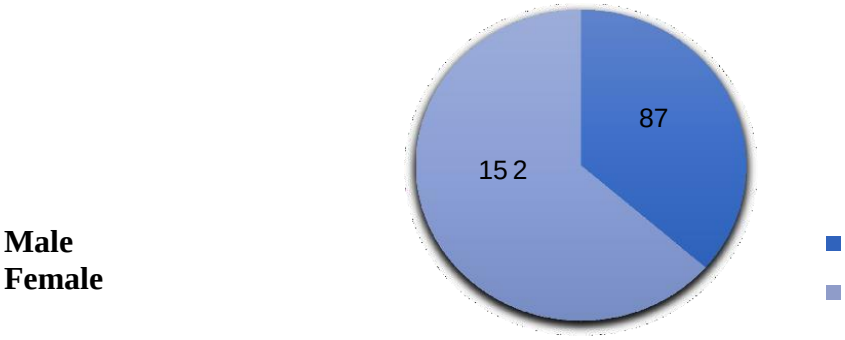

Figure 1 Plantar Fasciitis distribution by Gender

Table 2 Association of Age with Plantar Fasciitis:

Age Group	PF Present n (%)	PF Absent n (%)	Total	p-value
25–40 yrs	103 (27.3%)	273 (72.6%)	376	
41–60 yrs	135 (68.1%)	63 (31.8%)	198	**0.000**

Table 3 Association of Gender with Plantar Fasciitis:

Gender	PF Present n (%)	PF Absent n (%)	Total	p-value
Male	87 (31.7%)	187 (68.3%)	274	
Female	152 (50.6%)	148 (49.4%)	300	**0.0001**

Table 4 Clinical Characteristics of Pain Among Participants with Plantar Fasciitis:

Variable	Category	Frequency	Percentage (%)
Pain Depth	Surface	72	30.3
	Deep	166	69.7
Pain Location	Toes	9	3.8
	Ball of foot	31	13.0
	Mid sole	52	21.8
	Bottom of heel	146	61.3
Frequency of Pain	Once weekly	18	7.6
	Once daily	73	30.7
	Many times daily	147	61.8
Worst Time of Pain	Afternoon	38	16.0
	Day & night	66	27.7
	First morning steps	134	56.3

Table 5 Comparison of Mean Scores Between PF and Non-PF Groups:

Variable	PF Present (Mean ± SD)	PF Absent (Mean ± SD)	p-value
Age	34.2 ± 4.1	28.1 ± 3.2	0.001
VAS Score	7.8 ± 2.1	4.9 ± 2.3	0.000
PFPS Score	48.6 ± 8.5	36.2 ± 7.9	0.000

Table 6 Pain Severity Based on VAS Score

Severity Level	VAS Range	Frequency (n)	Percentage (%)
Mild	1–3	92	16.0
Moderate	4–6	248	43.2
Severe	7–10	234	40.8

Table 7 Functional Disability Severity Based on PFPS Score:

PFPS Severity	Score Range	Frequency	Percentage (%)
Mild Disability	0–25	71	29.8
Moderate Disability	26–50	123	51.7
Severe Disability	>50	44	18.5

Table 8 Impact of Plantar Fasciitis on Daily Activities:

Activity	0=Not at all	1=Very little	2= Moderate	3= Severe
Walking in morning	77(14.8%)	266(46.2%)	171(32.9%)	60(11.6%)
Standing on toes	102(19.7%)	196(34.0%)	176(33.9%)	100(14.3%)
Driving	132(25.4%)	205(35.6%)	157(29.3%)	85(16.4%)
Climbing stairs	139(26.8%)	104(18.0%)	127(24.5%)	107(20.0%)
Descending stairs	126(24.3%)	199(34.6%)	127(24.5%)	122(23.5%)
Reaching up	132(25.4%)	103(17.9%)	115(22.2%)	124(23.9%)
Bending over	132(25.4%)	178(30.9%)	150(28.9%)	114(22.0%)

Walking bare foot	158(30.4%)	103(17.9%)	119(22.9%)	94(18.1%)
Standing after watching movie	128(24.7%)	191(33.2%)	153(29.5%)	102(19.7%)
Riding a Bike	171(32.9%)	196(34.0%)	125(24.1%)	82(15.8%)
Running for short distance	121(23.3%)	206(35.8%)	136(26.2%)	111(21.4%)

Table 9 Sleep Disturbance and Emotional Impact of Plantar Fasciitis:

Variable	Category	Frequency	Percentage (%)
Difficulty Sleeping	Never	83	34.9
	Some nights	95	39.9
	Most nights	40	16.8
	Every night	20	8.4
Pain Awakens from Sleep	Never	102	42.9
	Some nights	83	34.9
	Most nights	34	14.3
	Every night	19	8.0
Emotional Impact	No effect	49	20.6
	Anxiety	88	37.0
	Daily worry	71	29.8
	Activity avoidance	30	12.6

Table 10 Medication Usage and Pain Relief Pattern:

Variable	Category	Frequency	Percentage (%)
Medication Frequency	Less than once/week	50	21.0
	Several times/week	88	37.0
	Once daily	66	27.7
	More than once daily	34	14.3
Medication Effect	Completely relieves pain	37	15.5

	Decreases pain	120	50.4
	Usually relieves pain	55	23.1
	Little/no effect	26	10.9

Table 11 Correlation Between Pain Severity, Disability, and Functional Limitation

Variables	Correlation coefficient (r)	p-value
VAS vs PFPS	0.74	0.000
VAS vs Functional Limitation Score	0.69	0.000
PFPS vs Functional Limitation Score	0.81	0.000

Table 12 Logistic Regression Analysis for Predictors of Plantar Fasciitis:

Variable	Odds Ratio (OR)	95% CI	p-value
Female Gender	2.08	1.42–3.05	0.001
Age >40 years	3.31	2.15–5.09	0.000
Higher VAS Score	1.81	1.37–2.40	0.000
Higher PFPS Score	1.11	1.05–1.17	0.002

Discussion:

The present study was conducted to determine the prevalence of plantar fasciitis among school teachers in Lahore and to examine its association with demographic and clinical variables. A cross-sectional study design was employed, and data were collected from a total sample of 574 teachers using a non-probability convenience sampling technique. Participants included male and female teachers aged between 25 and 60 years who reported standing for more than two hours daily, while individuals with systemic diseases, previous heel surgery, or neurological conditions were excluded. Data collection involved the use of the Plantar Fasciitis Pain Scale (PFPS), Visual Analogue Scale (VAS), and the Windlass test for diagnosis. Statistical analysis was performed using SPSS version 20, where descriptive statistics (frequencies and percentages) and inferential tests (Chi-square and independent t-tests) were applied to identify associations. The study primarily aimed to evaluate prevalence, pain severity, and functional limitations associated with plantar fasciitis, as well as its relationship with age and gender.

The present study reported a prevalence of plantar fasciitis of 41.3% (n=238/574) among school teachers, indicating a considerable occupational burden of the condition. This relatively high prevalence may be attributed to prolonged standing and repetitive mechanical stress. In comparison, a study by Cotchett et al. (2022) reported a prevalence of 33.5% among occupations involving prolonged standing ($p<0.01$), which is slightly lower than the present findings. Similarly, Riel et al. (2023) reported a prevalence of 36.2% in working populations exposed to mechanical loading, suggesting that the prevalence in the current study is comparatively higher. These differences may

be explained by longer standing durations and limited ergonomic practices in the study population.

A statistically significant association between age and plantar fasciitis was observed in this study (p=0.000), with older participants (41–60 years) showing a prevalence of 68.1% compared to 27.3% in younger individuals. This indicates a clear age-related increase in risk. Comparable findings were reported by Martin et al. (2022), where individuals above 40 years had a significantly higher prevalence (62.4%, p=0.002) compared to younger groups. Similarly, Rasenberg et al. (2022) found that increasing age was associated with plantar fasciitis (OR=1.8, 95% CI: 1.3–2.5, p<0.01). The slightly higher prevalence in the present study may be due to combined effects of occupational exposure and age-related degenerative changes.

The study also found a significant association between gender and plantar fasciitis (p=0.0001), with females showing a higher prevalence (50.6%) compared to males (31.7%). These findings are consistent with Almutairi et al. (2023), who reported a prevalence of 48.9% in females versus 29.4% in males (p=0.001). Similarly, Irving et al. (2022) reported that females had significantly higher odds of developing plantar fasciitis (OR=1.6, p=0.003). These consistent findings suggest that biomechanical and hormonal factors may contribute to increased susceptibility in females.

Pain severity analysis revealed that the mean VAS score among affected individuals was 7.8 ± 2.1 compared to 4.9 ± 2.3 in non-affected individuals (p=0.000), indicating significantly higher pain levels in the plantar fasciitis group. These results are in agreement with Babatunde et al. (2022), who reported a mean VAS score of 7.2 ± 1.9 in affected patients, significantly higher than controls (p<0.001). Likewise, Riel et al. (2023) reported similar pain scores of 7.5 ± 2.0, supporting the present findings. This consistency indicates that plantar fasciitis is commonly associated with moderate to severe pain intensity.

The comparison between affected and non-affected participants showed that individuals with plantar fasciitis had a higher mean age (34.2 ± 4.1 vs 28.1 ± 3.2, p=0.001), higher VAS scores (7.8 ± 2.1 vs 4.9 ± 2.3, p=0.000), and higher PFPS scores (48.6 ± 8.5 vs 36.2 ± 7.9, p=0.000). These findings indicate a strong association between disease presence, increased pain, and greater disability. Similar results were reported by Cotchett et al. (2022), who observed significantly higher PFPS scores in affected individuals (mean difference = 10.8, p<0.001). Martin et al. (2022) also reported a strong association between higher disability scores and plantar fasciitis (p<0.001).

Functional limitations in daily activities further highlight the clinical impact of plantar fasciitis. In the present study, most participants reported moderate to severe difficulty in activities such as walking, standing, and stair climbing. Similar findings were reported by Riel et al. (2023), where over 65% of individuals experienced moderate functional impairment (p<0.01). Irving et al. (2022) also reported significant reductions in mobility and daily functioning among affected individuals (p<0.001).

Footwear and biomechanical factors may also contribute to the development of plantar fasciitis. Although not directly measured, prolonged standing and inadequate support likely increased strain on the plantar fascia. Supporting this, Nigg et al. (2022) reported that inappropriate footwear increased plantar fascia strain by up to 28% (p<0.01), thereby increasing injury risk. This aligns with the occupational demands observed in teachers.

The implications of this study are important for occupational health practice. The high prevalence (41.3%) and significant functional impairment highlight the need for preventive strategies. Similar recommendations have been made by Martin et al. (2022), who emphasised workplace modifications and early physiotherapy interventions as effective approaches in reducing the burden of plantar fasciitis (p<0.05).

Overall, the findings demonstrate that plantar fasciitis is a common and clinically significant condition among school teachers, with strong associations with increasing

age, female gender, pain severity, and functional disability. The results are consistent with existing literature, confirming that occupational exposure to prolonged standing plays a key role in its development. Implementation of ergonomic modifications, early screening, and structured management strategies may help reduce its burden.

Conclusion

This study concludes that plantar fasciitis is a common condition among school teachers, with significant associations observed with increasing age, female gender, and higher pain severity levels. The condition is particularly more prevalent among middle-aged female teachers and is linked with greater functional limitations, indicating that prolonged standing and occupational stress are key contributing factors.

Limitations

The study has certain limitations. The use of a non-probability convenience sampling technique restricts the generalisability of the findings to the wider population. The cross-sectional study design does not allow for the establishment of causal relationships between risk factors and plantar fasciitis. Data were collected from a single city (Lahore), which may not represent teachers from other regions. In addition, self-reported measures such as PFPS and VAS may introduce response bias and subjective variation. Furthermore, important occupational variables such as type of footwear, exact duration of standing, and body mass index were not quantitatively assessed.

Recommendations

Future studies are recommended to use probability sampling techniques and include larger, more diverse populations to improve generalisability. Longitudinal study designs should be conducted to establish causal relationships between risk factors and plantar fasciitis. Workplace interventions such as ergonomic modifications, use of anti-fatigue mats, and scheduled rest breaks should be implemented to reduce strain on the plantar fascia. Awareness programmes should be conducted to educate teachers regarding appropriate footwear and preventive exercises. Early screening and physiotherapy-based management programmes should also be introduced to reduce pain severity and functional limitations associated with plantar fasciitis.

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