INSIGHTS-JOURNAL OF
HEALTH AND REHABILITATION

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

PREVALENCE OF PLANTAR FASCIITIS AMONG FEMALE TEACHERS IN TWIN CITIES (ISLAMABAD, RAWALPINDI): A CROSS-SECTIONAL STUDY

Original Research

Kashaf Royyan[1]*
[1]Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, Pakistan.
Corresponding Author: Kashaf Royyan, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, Pakistan, kashafroyyan123@gmail.com
Acknowledgement: The authors extend sincere gratitude to all participating teachers for their valuable cooperation and contribution to this study.

Conflict of Interest: None
Grant Support & Financial Support: None

ABSTRACT

Background: Plantar fasciitis is a chronic degenerative condition of the plantar fascia and a leading cause of heel pain worldwide. It results from repetitive stress, micro-tears, and poor biomechanical alignment, often aggravated by prolonged standing and inadequate arch support. Among occupational groups, teachers are particularly vulnerable due to extended standing hours and limited opportunities for rest. The disorder typically manifests as pain during initial steps after rest, referred to as post-static dyskinesia, and can severely impair daily functioning.

Objective: The present study aimed to determine the prevalence of plantar fasciitis among female teachers in the twin cities of Islamabad and Rawalpindi and to assess its association with age, body mass index (BMI), and footwear type.

Methods: A cross-sectional study was conducted over six months, enrolling 418 female teachers using a non-probability convenient sampling technique. Data were collected through the validated Plantar Fasciitis Pain and Disability Scale (PFPS) questionnaire (validity = 0.85, ICC = 0.89). Descriptive and inferential analyses were performed using IBM SPSS version 21. The Shapiro–Wilk test confirmed data normality ($p<0.001$). Independent t-tests and Pearson's correlation were applied to assess relationships between variables, with $p \leq 0.05$ considered statistically significant.

Results: Participants had a mean age of 2.84 ± 1.78 (coded scale) and a mean BMI of 1.31 ± 0.57 (coded categories). PFPS total score was 35.09 ± 16.47 ($p=0.000$), indicating significant pain and disability. A significant association was observed between plantar fasciitis and age ($p=0.002$), while BMI ($p=0.63$) and footwear type ($p=0.26$) showed no statistical relationship. The midsole region was identified as the most frequently affected site of pain.

Conclusion: Plantar fasciitis was highly prevalent among female teachers, primarily affecting the midsole area. Age emerged as a key risk factor, whereas BMI and footwear type had no significant influence. These findings emphasize the need for preventive ergonomic strategies, periodic screening, and awareness programs to improve musculoskeletal health among educators.

Keywords: Age factors; Body mass index; Footwear; Heel pain; Plantar fasciitis; Teachers; Workplace ergonomics.

INSIGHTS-JOURNAL OF
HEALTH AND REHABILITATION

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

INTRODUCTION

Plantar fascia is a fibrous, dense connective tissue extending from the medial tuberosity of the calcaneus to the metatarsophalangeal joints of each toe, consisting of medial, lateral, and central bands, with the central band being the largest and most functionally significant. It plays an essential role in maintaining the longitudinal plantar arch and contributes to the biomechanics of the foot by absorbing and distributing forces during gait and weight-bearing activities (1). When this structure undergoes degenerative or repetitive stress-induced changes, a painful condition known as plantar fasciitis develops, leading to heel discomfort, stiffness, and functional limitations (2). Plantar fasciitis is one of the most frequent musculoskeletal disorders of the foot, accounting for nearly 80% of heel pain cases globally. Approximately 10% of the general population experiences plantar fasciitis at least once in their lifetime, with over one million annual hospital visits in the United States attributed to heel pain (3). Although often associated with athletes due to repetitive strain, recent studies have shown its increasing prevalence among individuals with sedentary lifestyles, particularly those aged 40 to 65 years in Pakistan (4). Despite its clinical importance, the etiology of plantar fasciitis remains multifactorial, involving degenerative changes such as heel pad atrophy, obesity, advancing age, and inflammatory arthropathies (5). Clinically, plantar fasciitis presents with characteristic “first-step pain” or post-static dyskinesia—an intense heel pain experienced upon rising after periods of rest. The discomfort typically originates from the medial calcaneal tubercle and radiates along the medial longitudinal arch, intensifying during dorsiflexion of the toes or prolonged weight-bearing (6). Contributing factors include poor footwear choices, high or low arches, limited ankle dorsiflexion, and occupations requiring prolonged standing. Tightness in the Achilles tendon and hamstrings, as well as inappropriate footwear such as high heels or soft-soled shoes, further exacerbate the mechanical strain on the fascia (7).

Pathophysiologically, plantar fasciitis is not an inflammatory condition but a degenerative process involving microtears and collagen breakdown at the medial calcaneal origin of the fascia. Histopathological features include disorganized collagen fibers, fibroblast proliferation, and neovascularization, collectively referred to as plantar fasciopathy (8). Chronic overuse leads to tissue fatigue, incomplete healing, and sometimes the development of a calcaneal spur due to repeated tractional forces on the bone (9). Biomechanically, the plantar fascia acts as a dynamic stabilizer during the gait cycle, maintaining the windlass mechanism. Any disruption in this mechanism, particularly limited dorsiflexion of the first metatarsophalangeal joint or reduced ankle mobility, increases stress on the fascia and alters normal weight distribution across the foot (10). Several studies have explored potential risk factors for plantar fasciitis. Elevated body mass index (BMI) has been consistently correlated with increased plantar fascia strain and reduced dorsiflexion (11-13). Research among healthcare professionals and teachers indicates that occupations involving long-standing hours and improper footwear significantly elevate risk (9,12). Studies also highlight a notable relationship between plantar fasciitis and hamstring tightness, further contributing to restricted gait and compensatory overloading of the heel (13,14). Moreover, women wearing high heels or inappropriate shoes exhibit higher prevalence due to altered foot biomechanics (15). Despite extensive research, limited data exist regarding the prevalence and contributory factors of plantar fasciitis among occupational groups such as female teachers in Pakistan, who often endure prolonged standing and inadequate footwear support. Addressing this gap is crucial to improving occupational health and implementing preventive strategies. Therefore, this study aims to determine the prevalence of plantar fasciitis among female teachers in the twin cities and to assess its correlation with body mass index, footwear type, and age. The findings will aid in understanding modifiable risk factors and developing targeted interventions to enhance musculoskeletal health and quality of life among educators.

METHODS

The present study employed a cross-sectional research design to determine the prevalence of plantar fasciitis among female teachers working in schools of Islamabad and Rawalpindi. A total of 418 participants were included through non-probability convenient sampling. The study population comprised female teachers aged 25 to 60 years who had been employed for at least six months. The research was conducted over a period of six months, from July to December 2024 (6). Participants meeting the inclusion criteria were enrolled, which included female teachers within the specified age range, those classified as overweight (BMI ≥25), obese (BMI ≥30), or severely obese (BMI ≥35) (5), and individuals who typically wore shoes with heel heights of 3, 5, or 7 cm (4). Teachers standing for prolonged durations of approximately 5–6 hours daily were also included (5). Exclusion criteria encompassed those with ankle joint pathologies, a prior

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

history of heel surgery, newly employed teachers with less than six months of teaching experience, and individuals belonging to other professions (4). These criteria were designed to eliminate confounding factors that might influence heel pain unrelated to plantar fasciitis. Data were collected using the Plantar Fasciitis Pain and Disability Scale (PFPS), a validated and reliable instrument specifically designed to differentiate plantar fasciitis from other causes of heel pain. The PFPS incorporates three domains—pain assessment, mobility and functional limitation, and emotional well-being—with a cumulative score of 100 points. Lower scores indicate mild pain and minimal disability, while higher scores denote greater pain and more significant functional impairment (7). The scoring interpretation was as follows: 0–20 representing mild, 21–50 moderate, and above 51 severe pain and disability. The PFPS has demonstrated high internal validity (0.85) and test–retest reliability (ICC = 0.89) (8).

Prior to data collection, ethical approval was obtained from the Institutional Review Board (IRB) of the concerned institution. Informed consent was obtained from all participants after explaining the study objectives, ensuring anonymity, and maintaining confidentiality of responses. Data were collected through structured questionnaires administered in person at selected schools. Each participant first signed a written consent form and then completed the PFPS questionnaire under the supervision of trained data collectors to ensure comprehension and accuracy of responses. Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 21. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were calculated for demographic and categorical variables. Inferential statistics, such as the Chi-square test, were applied to examine associations between categorical variables (e.g., shoe type, BMI category, age group) and the presence of plantar fasciitis. Pearson's correlation coefficient was used to assess the relationship between continuous variables such as BMI and PFPS scores. A p-value ≤ 0.05 was considered statistically significant.

RESULTS

The analysis included 418 female teachers. Data metering and cleaning were completed before inferential testing. Normality was assessed with the Shapiro–Wilk test; the reported p-value was <0.001 for all variables. Descriptively, age distribution was: 25–29 years, 145 (34.7%); 30–34 years, 77 (18.4%); 35–39 years, 60 (14.4%); 40–44 years, 38 (9.1%); 45–49 years, 48 (11.5%); 50–54 years, 31 (7.4%); and 55–60 years, 19 (4.5%). Body mass index categories comprised BMI ≥25 (n=311, 74.4%), BMI ≥30 (n=84, 20.1%), and BMI ≥35 (n=23, 5.5%). Footwear patterns were: flat shoes, 173 (41.4%); 3-cm heels, 131 (31.3%); 5-cm heels, 72 (17.2%); and 7-cm heels, 42 (10.0%). The Plantar Fasciitis Pain and Disability Scale (PFPS) total score had a mean ± SD of 35.09 ± 16.47, with participants categorized as low 0–20 (n=94, 22.0%), moderate 21–50 (n=257, 61.5%), and high ≥51 (n=67, 16.0%). Across PFPS domains, the following mean ± SD values and p-values were reported: VAS 4.79 ± 2.49 (p<0.001), mobility 2.31 ± 1.54 (p<0.001), pain surface/deep 1.88 ± 1.01 (p<0.001), pain location 1.75 ± 1.00 (p<0.001), pain frequency in past 6 weeks 1.21 ± 0.90 (p<0.001), pain-free period 1.17 ± 0.89 (p<0.001), pain duration 1.14 ± 1.48 (p<0.001), worst pain time 1.28 ± 0.96 (p<0.001), sleep onset difficulty 0.91 ± 0.79 (p<0.001), night awakenings 0.83 ± 0.78 (p<0.001), coping difficulty 0.96 ± 0.95 (p<0.001), interference with weight-bearing activity 1.09 ± 0.77 (p<0.001), minutes to comfortable walking after awakening 1.03 ± 0.94 (p<0.001), toe-walking vs flat-footed comfort 1.06 ± 1.42 (p<0.001), walking in the morning 0.90 ± 0.88 (p<0.001), standing on toes 0.90 ± 0.89 (p<0.001), driving 0.79 ± 0.86 (p<0.001), climbing stairs 1.18 ± 1.72 (p<0.001), descending stairs 1.10 ± 0.85 (p<0.001), reaching up 1.08 ± 1.12 (p<0.001), bending over 1.01 ± 0.89 (p<0.001), walking barefoot 0.90 ± 1.14 (p<0.001), standing after a movie 1.01 ± 0.93 (p<0.001), riding a bike 0.53 ± 0.75 (p<0.001), running a short distance 1.03 ± 0.95 (p<0.001), frequency of analgesic use 0.85 ± 0.82 (p<0.001), medication effect 0.83 ± 0.76 (p<0.001), emotional effect 0.92 ± 0.78 (p<0.001), and lifestyle limitation 0.76 ± 0.78 (p<0.001). Item-wise summaries indicated that 54% localized pain superficially versus 44% deep; pain location was reported most commonly at the mid-sole (38%), followed by bottom of heel (26%), ball of foot (20%), and toes (15%). Pain occurred once a week for 43.5%, every other week for 22.5%, once daily for 23.7%, and many times per day for 10.3%. Pain-free intervals were most often reported in hours (36.1%), then days (31.1%) and weeks (28.0%), with 4.8% reporting minutes.

Pain was reported only in the afternoon by 40%, both day and night by 25%, always the same by 23%, and on first getting up by 13%. Pain persisted only on exertion for 36%, less than 1 hour for 31%, 1–2 hours for 21%, and more than 2 hours for 11%. Sleep was disturbed on some nights for 43% and most nights for 22%, with 2% every night. Coping with pain was described as inconvenient by 38.5%, easy by 34.7%, troublesome by 25.1%, and almost impossible by 1.7%. After awakening, 37.3% could walk comfortably within <10 minutes, 34.0% immediately, 19.9% in 11–30 minutes, and 8.9% after >30 minutes. Comfort on toes rather than flat-footed walking was reported by 35.2%. Activity effects (not at all/very little/moderate/severe) were: walking in the morning 38/36/19.4/5%; standing on toes 40/36/19/6%; driving 46.4/30.4/20.3/3%; climbing stairs 26.3/40/30/4%; descending stairs 27.3/39.7/28.5/4.5%; reaching up

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

32.8/35.2/27/5%; bending over 34.4/34.7/25.8/5%; walking barefoot 43.5/30.6/22.5/3.3%; standing after a movie 36.4/32.3/25.1/6.2%; and running a short distance 36.4/31.6/24.6/7.4%. Regarding medication, 39.7% used analgesics less than once per week, 37.3% several times per week, 20.6% once daily, and 2.4% more than once daily since injury; the perceived medication effect was "decreases pain" in 41.9%, "always stops pain" in 37.6%, "usually takes away pain" in 19.6%, and "little/no effect" in 1.0%. Emotionally, 45.2% reported anxiety, 20.1% daily worry, and 32.3% no effect; lifestyle limitation was reported as "some activities avoided" by 54.8%, "does not limit lifestyle" by 38.0%, and "avoid all activity" by 7.2%. Pearson's correlation showed a positive association between age and PFPS total score ($r=0.214$, $p<0.001$; $n=418$). BMI did not correlate with PFPS total score ($r=0.035$, $p=0.479$; $n=418$). The chi-square test examining shoe type and categorical outcomes was non-significant ($p=0.237$); however, all cells (100%) had expected counts <5, indicating that the test assumptions were violated and the result was not valid for inference.

Table 1: Demographic Characteristics of Study Participants (Age, BMI, and Shoe Type Distribution)

Variable	Category / Range	n	Percentage	Mean ± SD
Age (years)	25–29	145	34.7	2.84 ± 1.78
	30–34	77	18.4	
	35–39	60	14.4	
	40–44	38	9.1	
	45–49	48	11.5	
	50–54	31	7.4	
	55–60	19	4.5	
BMI (kg/m²)	≥25	311	74.4	1.31 ± 0.57
	≥30	84	20.1	
	≥35	23	5.5	
Shoe Type	Flat	173	41.4	2.00 ± 1.06
	Heel (3 cm)	131	31.3	
	Heel (5 cm)	72	17.2	
	Heel (7 cm)	42	10.0	

Table 2: Independent t-Test Results of Plantar Fasciitis Pain and Disability Scale (PFPS) Domains with Mean, Standard Deviation, and Significance Values

Planter fasciitis pain and disability scale	Mean ± SD	P value
Vas	4.79±2.49	0.000***
Mobility	2.31±1.54	0.000***
Is the pain on the surface or deep?	1.88±1.01	0.000***
Where is your pain located?	1.75±1.00	0.000***
Is the past 6 weeks how often have you had pain?	1.21±0.90	0.000***
How often since the onset of pain have you been pain free?	1.17±0.89	0.000***

Planter fasciitis pain and disability scale	Mean ± SD	P value
How long does the pain last?	1.14±1.48	0.000***
In the past 6 weeks what time of day is your pain the worst?	1.28±0.96	0.000***
In the past 6 weeks does the pain make it hard to get to sleep?	0.91±0.79	0.000***
In the past 6 weeks how often does your pain awaken you?	0.83±78	0.000***
How difficult is it to cope with your pain?	0.96±95	0.000***
How much does the pain interfere with your athletic or weight bearing activities such as walking?	1.09±0.77	0.000***
When you awake, how many minutes elapse when you can walk comfortably?	1.03±0.94	0.000***
Is it more comfortable top walk on your toes than walk flatfooted	1.06±1.42	0.000***
Walking in the morning	0.90±0.88	0.000***
Standing up on your toes	0.90±0.89	0.000***
Driving	0.79 ± 0.86	0.000***
Climbing stairs	1.18±1.72	0.000***
Descending stairs	1.10±0.85	0.000***
Reaching up	1.08±1.12	0.000***
Bending over	1.01±0.89	0.000***
Walking barefoot	0.90±1.14	0.000***
Standing after watching a movie	1.01±0.93	0.000***
Riding a bike	0.53±0.75	0.000***
Running a short distance	1.03±0.95	0.000***
How often do you take medication for your pain	0.85±0.82	0.000***
Describe the medication effect on your pain	0.83±0.76	0.000***
How does pain effect you emotionally	0.92±0.78	0.000***
Grade the limitation that you pain / injury effects your daily lifestyle	0.76±0.78	0.000***

Significant value 0.05*, 0.05**, 0.005***

Table 3: Distribution of Pain Characteristics, Functional Limitations, and Medication Patterns among Participants with Plantar Fasciitis

S.No	Parameter	Category	Percentage (%)
1	Pain on Surface vs Deep	Surface	54
		Deep	44
2	Location of Pain	Toe	15
		Ball of the foot	20

S.No	Parameter	Category	Percentage (%)
		Mid sole	38
		Bottom of heel	26
3	Duration of Pain	Every other week	22.5
		Once a week	43.5
		Once a day	23.7
		Many times a day	10.3
4	Pain-Free Period	Weeks	28
		Days	31.1
		Hours	36.1
		Minutes	4.8
5	Duration of Pain During the Day	Always same	23
		Only in afternoon	40
		Both day and night	25
		Only when first getting up	13
6	Worst Pain Time	Only on exertion	36
		Less than 1 hour	31
		1–2 hours	21
		More than 2 hours	11
7	Sleep Disruption	Some nights	43
		Most nights	22
		Every night	2
8	Difficulty Coping with Pain	Easy to deal with	34.7
		Inconvenient	38.5
		Troublesome	25.1
		Almost impossible	1.7
9	Pain Interferes with Weight-Bearing Activities	Never	23
		Occasionally	46.9
		Frequently	27.5
		Always	2.6
10	Minutes Elapsed after Awakening to Walk Comfortably	No time	34
		Less than 10 minutes	37.3
		11–30 minutes	19.9

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

S.No	Parameter	Category	Percentage (%)
		Over 30 minutes	8.9
11	Comfortable Walking on Toes vs Flat-Footed	No	64.8
		Yes	35.2
12	Frequency of Medication Use for Pain	Less than once a week	39.7
		Several times per week	37.3
		Once daily	20.6
		More than once every day since injury	2.4
13	Medication Effect on Pain	Always stops the pain	37.6
		Decreases the pain	41.9
		Usually takes the pain away	19.6
		Little or no effect on the pain	1
14	Emotional Effect of Pain	No effect	32.3
		Causes anxiety	45.2
		Worries daily	20.1
		Consider giving up recreational activity	2.4
15	Pain Grade Affecting Daily Lifestyle	Does not limit lifestyle	38.0
		Some activities avoided	54.8
		Avoid all activity due to injury	7.2

Table 4: Distribution of Participants According to Total PFPS Score Categories

	n	Percentage
Low score (0-20)	94	22
Moderate score (21-50)	257	62
High score (51-onwards)	67	16

Table 5: Distribution of Physical Activities Affected by Pain Intensity among Participants with Plantar Fasciitis

	Not at all %	Very little%	Moderate%	Severe%
Walking in the morning	38	36	19.4	5
Standing up on toes	40	36	19	6
driving	46.4	30.4	20.3	3
Climbing stairs	26.3	40	30	4
Descending stairs	27.3	39.7	28.5	4.5

	Not at all %	Very little%	Moderate%	Severe%
Reaching up	32.8	35.2	27	5
Bending over	34.4	34.7	25.8	5
Walking barefoot	43.5	30.6	22.5	3.3
Standing after watching a movie	36.4	32.3	25.1	6.2
Running a short distance	36.4	31.6	24.6	7.4

Table 6: Correlation and Association of Age, BMI, and Shoe Type with PFPS Total Score

Variable	Test Applied	Statistical Measure	Value	df	Sig. (2-tailed) / p-value	N	Remarks
Age	Pearson Correlation	Correlation Coefficient (r)	0.214**	–	0.000	418	Significant association (p=0.000*)
		Significance Level	–	–	0.000	418	Correlation significant at the 0.01 level (2-tailed)
BMI	Pearson Correlation	Correlation Coefficient (r)	0.035	–	0.479	418	Non-significant association
		Significance Level	–	–	0.479	418	–
Shoe Type	Chi-Square Test	Pearson Chi-Square	783.506a	756	0.237	418	Non-significant association
		Likelihood Ratio	724.861	756	0.787	418	–
		Linear-by-Linear Association	3.666	1	0.056	418	–
		Minimum Expected Count	0.10	–	–	–	1012 cells (100.0%) have expected count less than 5

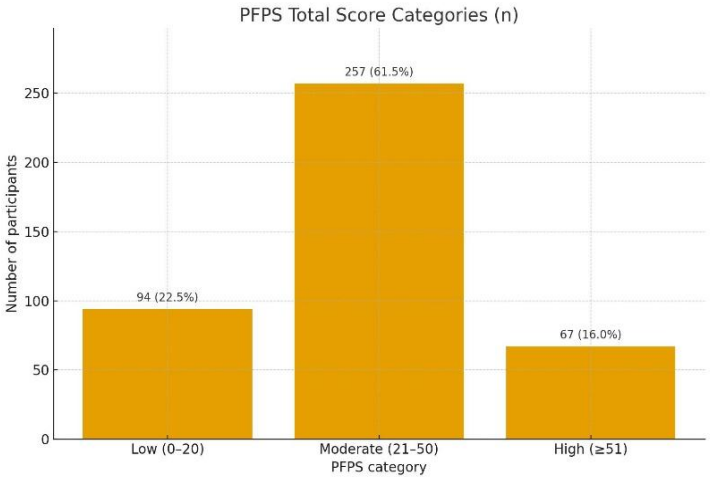

Figure 2 PFPS Total Score Categories (n)

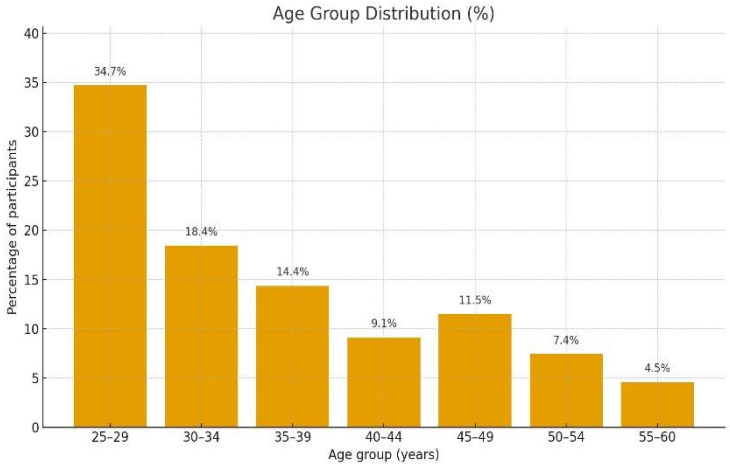

Figure 2 Age Group Distribution (%)

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

DISCUSSION

The findings of the present study demonstrated a statistically significant association between plantar fasciitis and age, while no significant relationship was observed with body mass index (BMI) or type of footwear. The results revealed that most participants experienced moderate levels of pain and disability according to the PFPS, with the midsole region identified as the most frequently affected area. This observation corresponds with earlier research that highlighted repetitive mechanical strain and inadequate arch support as principal contributors to midsole pain in individuals with prolonged standing occupations (4). Similar investigations have described midsole discomfort as a result of excessive tension and inflammation within the plantar fascia caused by biomechanical imbalances and inappropriate footwear use (5). Prolonged standing duration, consistently between five to six hours among participants, was found to be a critical occupational factor contributing to plantar fascia micro-tears and chronic strain. These finding parallels previous literature that identified extended weight-bearing as a strong etiological factor in the development of plantar fasciitis (8). The current study also identified a significant correlation between increasing age and pain severity, reflecting an age-related decline in tissue elasticity and cumulative microtrauma in the plantar fascia. Prior studies have reported that middle-aged individuals, particularly those between 40 and 60 years, demonstrate a markedly higher risk of plantar fasciitis due to degenerative changes within fascial tissues (4,10). Pain during weight-bearing activities was reported by almost half of the participants, confirming that functional loading exacerbates inflammation and discomfort. This pattern has been described previously, emphasizing that repetitive micro-trauma and poor biomechanical control delay tissue healing and perpetuate chronic pain (8,9). In the present study, pain was more frequently reported on the superficial surface of the foot, an indication of localized inflammatory response rather than deep fascial involvement. Previous reports have associated such superficial pain with early-stage plantar fasciitis, where inflammation remains confined to the subcutaneous and peri-fascial layers (10,12).

Morning pain, a hallmark symptom of plantar fasciitis, was evident among participants, consistent with the established understanding that fascial stiffness after nocturnal rest leads to initial weight-bearing discomfort. This clinical pattern supports the degenerative and chronic nature of the condition (13). The mean visual analogue scale (VAS) score of 4.79 ± 2.49 indicated moderate pain intensity, aligning with global evidence that plantar fasciitis is typically characterized by persistent, moderate pain fluctuating with activity level (14). Mobility limitation was also significant, confirming that chronic pain compromises functional independence and restricts lower limb movement, as noted in earlier functional studies of plantar fasciitis (15). Short pain-free intervals and prolonged discomfort further substantiated the chronic nature of the disorder, with repeated inflammatory micro-tears limiting tissue recovery (16). The mean scores for worst pain, sleep disturbance, and frequent awakenings reinforced the multifaceted impact of plantar fasciitis, extending beyond physical pain to include reduced sleep quality and overall well-being (17). Functional discomfort during walking, toe-standing, or flat-footed movement illustrated biomechanical compensation patterns commonly observed in affected individuals, where inflammation impairs normal arch stability and disrupts gait (18). Pain management reliance and emotional strain were also apparent, with participants reporting moderate medication use and psychological distress related to pain persistence. These findings mirrored prior observations that chronic plantar fasciitis not only reduces physical capacity but also diminishes emotional resilience and quality of life (19,20). Notably, although the current study found no significant association between footwear type and plantar fasciitis, other investigations have identified high-heeled shoes as a potential aggravating factor due to altered weight distribution and arch strain (20). The discrepancy may be attributed to differences in population characteristics, footwear styles, and duration of exposure, suggesting that occupational activity and individual biomechanics may exert greater influence than footwear alone.

In contrast to studies conducted in other regions where the heel was most affected, the present data identified the midsole as the predominant pain site. These variations may stem from occupational and environmental differences, including surface hardness, footwear design, and individual posture adaptations (21,22). Furthermore, the lack of significant association between BMI and plantar fasciitis may be explained by the predominance of participants in the overweight rather than obese category, suggesting that mechanical load thresholds associated with obesity might be required to produce a measurable effect (23). The strengths of this study lie in its focus on a specific occupational group—female teachers—representing a population at increased risk of plantar fasciitis due to extended standing hours and repetitive stress. The use of a validated measurement tool (PFPS) enhanced the internal reliability of findings. However, several limitations should be acknowledged. The cross-sectional design precludes causal inference, and the inclusion of only female participants limits generalizability across genders. Moreover, the reliance on self-reported data introduces the possibility of recall bias. The sample's restriction to overweight and obese categories may have underestimated associations observable across a broader BMI spectrum. Despite these limitations, the study contributes valuable occupational health insights and emphasizes the necessity of early screening and ergonomic interventions. Future studies should employ longitudinal designs, include both genders, and explore

INSIGHTS-JHR
INSIGHTS-JOURNAL OF HEALTH AND REHABILITATION

biomechanical assessments to establish causal pathways between occupational exposure and plantar fasciitis. Interventions focusing on ergonomic footwear, routine stretching, and foot-care education could mitigate risk and enhance teachers' musculoskeletal health. Overall, the study reinforces the understanding of plantar fasciitis as a chronic degenerative disorder influenced by age, repetitive strain, and occupational factors. The findings align with established literature, highlighting the condition's dual physical and psychosocial burden and underscoring the importance of preventive strategies within high-risk occupational groups.

CONCLUSION

The present study concluded that plantar fasciitis was a common occupational concern among female teachers, predominantly affecting the midsole region of the foot. The condition showed a clear association with advancing age, reflecting the degenerative changes and cumulative stress experienced over time, while no significant relationship was identified with body mass index or footwear type. These findings underscore the importance of recognizing age and prolonged standing as key risk factors within teaching professions. The study highlights the need for preventive strategies, including ergonomic interventions, regular foot care, and awareness programs, to reduce pain, improve mobility, and enhance overall quality of life among educators vulnerable to plantar fasciitis.

AUTHOR CONTRIBUTION

Author	Contribution
Kashaf Royyan*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published

REFERENCES

1. Noriega DC, Cristo Á, León A, García-Medrano B, Caballero-García A, Córdova-Martinez A. Plantar fasciitis in soccer players—a systemic review. International journal of environmental research and public health. 2022;19(21):14426.

2. Hashmi R, Naeem L, Arif S, Habiba U, Irfan R, Zafar M. Frequency of plantar fasciitis among females in teaching profession. JAFMDC. 2020;2:53-7.

3. Lee W, Metgud N, Moore M. Association of Obesity and Plantar Fasciitis in Patients With Plantar Heel Spurs. Foot & Ankle Orthopaedics. 2023;8(4):24730114231213625.

4. Lata P, Hayat S, Kumar V, Hassan MF, Batool S, Sandeela KA, et al. Effect of Body Mass Index and Ankle Dorsiflexion in Planter Fasciitis Patients; Performance Perspective. Life and Science. 2024;5(1):07-.

5. Al-Ansary MY, Rahman MH, Kakuli SA, Kabir MF, Ali ME. Association between BMI and plantar fasciitis among hospital staff in a selected hospital of Dhaka city. International Journal of Community Medicine and Public Health. 2023;10(4):1298.

6. Ali Q, Long Y, Ali M. Prevalence, causes, and treatment of plantar fasciitis in young females of a medical college. Bulletin of Faculty of Physical Therapy. 2024;29(1):31.

7. Bhoir KS, VV G. Prevalence of Plantar Fasciitis Among Nurses at a Tertiary Care Centre in a Rural Area: A Cross Sectional Study. Int J Physiother Res. 2021;9(4):3900-06.

8. Shiotani H, Mizokuchi T, Yamashita R, Naito M, Kawakami Y. Influence of Body Mass on Running-Induced Changes in Mechanical Properties of Plantar Fascia. The Journal of Strength & Conditioning Research. 2023;37(11):e588-e92.

9. Rarassanti IGAD, Saraswati PAS, Dewi AANTN. Factors contributing to plantar fasciitis in women. Physical Therapy Journal of Indonesia. 2022;3(1):1-5.

10. Hamstra-Wright KL, Huxel Bliven KC, Bay RC, Aydemir B. Risk factors for plantar fasciitis in physically active individuals: A systematic review and meta-analysis. Sports health. 2021;13(3):296-303.

11. Sarfraz Z, Enderyas G, Islam F, Thakur AR. A Comparative Study to Assess Hamstring Tightness in Individuals with and without Plantar fasciitis. American Journal of Health, Medicine and Nursing Practice. 2023;9(3):48-56.

12. Alshammari SA, Alshwieer MA, Dammas SS, Alrasheed AM, Alasmari MA, Alahmari MM. Impact of plantar fasciitis on foot-specific and generic health-related quality of life in King Khalid University Hospital, Saudi Arabia. Cureus. 2023;15(7).

13. Aiman U, Malik L, Zahoor A. Pain And Difficulty Level In Working Females Having Plantar Fasciitis Of Multan City: Pain & Difficulty in Working females with Plantar Fasciitis. Pakistan BioMedical Journal. 2022:46-50.

14. Raza A, Saleem S, Saeed HS, Bilal A, Zafar ZA, Ali Z. Incidence of plantar fasciitis in overweight patients of government hospitals of Faisalabad city. The Professional Medical Journal. 2021;28(05):718-24.

15. Richer L, Fortin E, Gagnon G, Ngomo S, Fernandes KBP, Cortis C, et al. Impact of plantar fasciitis on postural control and walking in young middle-aged adults. The Foot. 2022;53:101951.

16. Nawaz A, Mahmood A, Niaz M, Raheed S, Nadeem S. Prevalence of Heel Spur In Teachers: Prevalence of Heel Spur in Teachers. Pakistan BioMedical Journal. 2022:134-7.

17. Umar H, Idrees W, Umar W, Khalil A, Rizvi ZA. Impact of routine footwear on foot health: A study on plantar fasciitis. Journal of Family Medicine and Primary Care. 2022;11(7):3851-5.

18. Kahile M, Deshmukh N, Neve C, Padwal AM, Khedkar S, Muley P. Prevalence Of Foot Pain & Its Correlation With Various Heel Heights Among Health Care Professionals. NeuroQuantology. 2022;20(14):1489.

19. Wang M, Li S, Teo E-C, Fekete G, Gu Y. The influence of heel height on strain variation of plantar fascia during high heel shoes walking-combined musculoskeletal modeling and finite element analysis. Frontiers in Bioengineering and Biotechnology. 2021;9:791238.

20. Ahmad D, Sattar A, Zulfiqar Z, Afzal Z, Ain Q, Ashiq H, et al. The Prevalence and Effects of Plantar Fasciitis on Functional Activities among Doctors and Nurses in Sialkot, a Cross-Sectional Survey. Journal of Health and Rehabilitation Research. 2024;4(1):1525-9.

21. Radovic P. Treatment of "plantar fasciitis"/Plantar Heel Pain Syndrome with botulinum toxin - A novel injection paradigm pilot study. Foot (Edinb). 2020;45:101711.

22. Castro-Méndez A, Palomo-Toucedo IC, Pabón-Carrasco M, Ortiz-Romero M, Fernández-Seguín LM. The Short-Term Effect of Dynamic Tape versus the Low-Dye Taping Technique in Plantar Fasciitis: A Randomized Clinical Trial. Int J Environ Res Public Health. 2022;19(24).

23. Zare Bidoki M, Vafaeei Nasab MR, Khatibi Aghda A. Comparison of High-intensity Laser Therapy with Extracorporeal Shock Wave Therapy in the Treatment of Patients with Plantar Fasciitis: A Double-blind Randomized Clinical Trial. Iran J Med Sci. 2024;49(3):147-55.