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Prevalence of Plantar Heel Pain among Waitron Staff and Association of Its Severity with the Standing Hours

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KEYWORDS

Plantar heel pain, waitron staff, standing hours, prevalence, VAS, FAAM

ABSTRACT:

Introduction: Plantar heel pain (PHP), or plantar fasciitis, is a common musculoskeletal condition affecting individuals in occupations involving prolonged standing and walking. Although, PHP is studied in various professions, limited data exist on waitron staff, who are particularly vulnerable due to their physically demanding work.

Objectives: To find out the prevalence of plantar heel pain and investigate the association between standing hours and the severity of plantar heel pain among waitron staff.

Methods: A questionnaire-based cross-sectional study was conducted among 95 waiters, aged 25–40 years, working in restaurants, cafes and resto-bars in North Bangalore using convenience sampling. Data were collected through face-to-face interviews using a standardized questionnaire, including demographic data, pain characteristics, standing duration, and outcome measures: Visual Analogue Scale and Foot and Ankle Ability Measure. Ethical approval and informed consent were obtained.

Results: Plantar heel pain prevalence was 62% (n=59), with heel most commonly affected (49.5%). Spearman's rho showed no significant association between standing hours and VAS score (r=0.054, p=0.604), standing hours and FAAM score (r=0.038, p=0.713), or VAS and FAAM scores (r=-0.032, p=0.759).

Conclusions: This study found a high prevalence (62%) of plantar heel pain among waitron staff, indicating a serious occupational health issue with the heel identified as the most commonly affected site. However, standing hours showed no statistically significant association with pain severity or functional ability. Preventive workplace interventions such as ergonomic flooring, appropriate footwear, and shift rotation to reduce the burden of heel pain are recommended.

1. Introduction

Feet play an essential role in maintaining body weight, posture and ambulation. Foot pathologies are quite common affecting between 61-79% of people and provide negative impact on quality of life[1].

Plantar heel pain also known as plantar fasciitis, is a condition characterized by discomfort or tenderness in the heel area, typically originating from the central part of the heel pad or the medial tubercle of the calcaneus, and sometimes extending along the plantar fascia to the medial longitudinal arch of the foot[2].

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PHP is considered as a prevalent problem affecting larger number of adults. It is most commonly seen in elite athletes and runners impacting their level of function and performance. Furthermore, plantar heel pain is a common condition among older adults, affecting nearly one-third of individuals aged over 65 years[3].

The foot is anatomically complex structure composed of numerous bones, joints, ligaments, muscles, and tendons which is responsible for the complex combined movements of gait and our ability to stand upright. The foot is the lower extremity distal to the ankle joint. The ankle joint (sometimes referred to as the tibiotalar joint) is the result of the attachment of the talus and the recess formed by the distal tibia and fibula[4].

The plantar fascia is a broad fibrous triangular aponeurosis which originates from the plantar medial and anterior undersurface of the calcaneum and divides into five slips which insert distally on each of the proximal phalanges. These fibers also merge with surrounding dermis, flexor tendon sheaths and transverse metatarsal ligaments. Plantar fascia lacks elasticity exhibiting maximal elongation of 4% of its length[5].

The condition formerly known as plantar fasciitis has undergone a name change over the past decade. Research revealed that the condition is not inflammatory in nature, especially in its chronic form. As a result, the term ‘‘plantar fasciosis’’ (meaning degeneration of the plantar fascia) emerged. Some authors also use “plantar fasciopathy’’ (meaning pathology of the plantar fascia). However, recent imaging studies suggest that the condition affects more than just the plantar fascia, involving the heel bone and surrounding tissues. Therefore, the use of a general term “plantar heel pain” is appropriate[2].

Plantar fasciitis is one of the common musculoskeletal injuries causing heel pain which is caused due to overuse or repeated trauma of the plantar fascia. Patients experience severe, burning, stabbing pain in posteromedial region of calcaneus and spreading towards the medial dome of the foot. pain is typically worse at morning hours after a rest period with the initial few footsteps being unbearable and slowly improving as the individual walks[6].

External factors like prolonged standing, sitting, walking barefoot and prolonged weight bearing are aggravating risk factors for this condition. Internal factors include obesity, foot deformities like pes cavus which is associated with high arches during weight bearing involving weakness of the intrinsic muscles and pes planus (or flat foot) associated with lower or flat medial arch where foot gets pronated excessively and comes in contact with the floor increasing tensile load within the plantar fascia thereby increasing the chances of small injuries and inflammation[7].

Plantar Heel Pain can lead to lower foot-specific health-related quality of life (HRQoL) as well as higher level of sadness, anxiety and stress. PHP has a long-term course, with 45% of patients still having pain after 10 years, resulting in significant usage of healthcare services and a significant economic burden (HRQO). PHP can negatively affect a person’s quality of life by limiting physical activity, reducing vitality, and leading to social isolation[8].

Long hours of walking, standing, middle age, prolonged exercise as well as tightness in the gastrocnemius are all associated with higher risk of developing plantar fasciitis[9].

There are several physiotherapy managements applicable for treating plantar fasciitis this include Stretching of hamstring, calf and Achilles tendon, strengthening of intrinsic muscles, manual techniques, myofascial release, insoles, foot orthosis, foam roller stretching, manual stretching, extracorporeal shock wave lithotripsy, dry needling, laser, ultrasound etc[6].

Initial treatment for plantar fasciitis focuses on conservative measures such as rest, activity modification, stretching, strengthening exercises, ice massage, and anti-inflammatory medications. Supportive options like orthotics, arch taping, night splints, and physical therapy can enhance recovery. If these are ineffective, corticosteroid or platelet-rich plasma (PRP) injections—often guided by ultrasound—may provide short-term relief, though corticosteroids carry risks like fascia rupture or fat pad atrophy. For persistent cases, extracorporeal shock wave therapy or surgical intervention such as plantar fasciotomy may be considered[10].

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Plantar fasciitis usually occurs in association with work related prolonged weight bearing. People employed in occupations such as military personnel, kitchen staffs, athletes, and waiters which requires persistent standing or walking are known to be at risk of developing plantar fasciitis[2].

According to Werner R et al study conducted in (2009), prolonged time spent in standing and walking or getting in and out of the vehicles frequently can increase the risk of developing plantar fasciitis. A journal by Tae Im Yi et al (2011) stated that occupations which requires long period of standing can increase the risk of Plantar fasciitis[11].

2. Objectives

To find out the prevalence of plantar heel pain and investigate the association between standing hours and the severity of plantar heel pain among waitron staff.

3. Methods

STUDY DESIGN: Cross-sectional study.
STUDY SETTING: Restaurants, Cafes, Hotels and Resto-Bars in North Bangalore area

SOURCE OF DATA: Local restaurants, Cafes, Hotels and Resto-bars in North Bangalore

INCLUSION CRITERIA:

a. Age 25-40 years
b. Both male and female
c. Occupation only waiters
d. Individuals working in restaurants, cafes and hotels
e. Individuals who can read and understand English

EXCLUSION CRITERIA:

a. Individuals who have other issues related to foot i.e. neurological and other inflammatory condition
b. Previous foot trauma
c. Individuals who already have foot pain before joining the job as a waiter

SAMPLING METHOD: Convenience Sampling

SAMPLE SIZE: 95

MATERIALS: Questionnaire

METHOD OF DATA COLLECTION: After obtaining ethical clearance from the Yenepoya ethics committee, following the scientific review board's clearance, this cross-sectional study was carried out from January 2025 to March 2025 at selected restaurants, cafes, hotels and resto-bars in the North Bangalore area.

A total of 95 male and female waiters aged 25-40 years, with a minimum of 6 months of work experience were included using convenience sampling, based on the inclusion and exclusion criteria.

The study was carried out in selected fast-moving restaurants located in the North Bangalore region. These restaurants were selected based on accessibility and high employee turnover, providing an ideal sample of active waitron staffs. Restaurant owners/managers were approached to gain permission for data collection. Once approved, waiters were approached individually, and the purpose of the study was explained to them in detail. A face-to-face interview was conducted with the participants. Hard copies of the informed consent and questionnaire were distributed. Questions were asked clearly and were recorded accordingly; any doubts from the participants were clarified during the interview. The data was collected using a structured questionnaire consisting of three parts:

- **Demographic Information** (age, gender, occupation, years of experience, year of joining the job)
- **Plantar Heel Pain Information: (**pain experience**,** location, type, standing hours)

Outcome measures using a standardised heel pain assessment scale (Foot and Ankle Ability Measure FAAM and Visual Analogue Scale VAS for pain).

Primary Outcome: Visual Analogue Scale (VAS)

Secondary Outcome: Foot and Ankle Ability Scale (FAAM)

Participation was voluntary, and participants were free to withdraw at any time. Participant's confidentiality was maintained throughout the study. Data was safely stored and encrypted. No personal details were used in any reports or publications

STATISTICAL ANALYSIS

Data was collected through a questionnaire and was analysed using IBM SPSS (version 20). Demographic

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factors and the prevalence of heel pain were analysed using descriptive statistics (mean, standard deviation, frequencies and percentages). The association between standing hours and pain severity using VAS scores was examined using Spearman's Rho Correlation. A significance level of $p<0.005$ was considered statistically significant.

4. Results

This study consists of 95 participants with a mean age of 31.54±4.33 years. The descriptive statistics of the studied population is shown in Table 1. Mean ± SD of hours was 7.27±1.34 and VAS was 5.56±1.64 and Days was 6.26±0.56. Out of the total population, 62% of subjects have plantar heel pain, whereas in 38% of individuals, no symptoms of heel pain were reported (Figure 2). The Heel was found to be the most commonly affected area of pain, followed by the ankle with values of 49.5% and 13.7% respectively (Table:2).

Table 1: Descriptive of the studied population (n=95)

Descriptive Parameter	N	Mean	Std. Deviation
AGE	95	31.5474	4.33631
HOURS	95	7.2737	1.34830
DAYS	95	6.2632	.56888
VAS	95	5.5684	1.64803

According to the participants' pain distribution, the heel was the most often reported location, with 49.5% (n = 47) reporting just heel pain. Following that, 13.7% (n = 13) of the individuals reported having ankle discomfort, while 8.4% (n = 8) reported having back pain. Other sites that were reported were the foot (3.2%), the arch of the foot (6.3%), and multiple locations including the arch and heel, the heel and ankle, and the heel and back, each of which made up a smaller percentage (1.1%–3.2%). The knee, leg, shoulder, and wrist were the least common areas to indicate pain with only 1.1% of the total response (as shown in Table:2).

Table 2: Distribution of participants pain location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ankle	13	13.7	13.7	13.7
	Ankle& Heel	1	1.1	1.1	14.7
	Arch	6	6.3	6.3	21.1
	Arch & Heel	3	3.2	3.2	24.2
	Back pain	8	8.4	8.4	32.6
	Back pain& Ankle	1	1.1	1.1	33.7
	Backpain	1	1.1	1.1	34.7
	Foot	3	3.2	3.2	37.9
	Heel	47	49.5	49.5	87.4
	Heel & Ankle	2	2.1	2.1	89.5
	Heel& Ankle	2	2.1	2.1	91.6
	Heel & Arch	1	1.1	1.1	92.6
	Heel& Back	1	1.1	1.1	93.7
	Heel& Foot	1	1.1	1.1	94.7
	Heel& Knee	1	1.1	1.1	95.8
	Knee& Ankle	1	1.1	1.1	96.8
	Leg pain	1	1.1	1.1	97.9
	Rt Shoulder	1	1.1	1.1	98.9
	Rt wrist	1	1.1	1.1	100.0
	Total	95	100.0	100.0	

The gender distribution bar chart (Figure 1) shows that out of 95 participants, 61 (64%) were male and 34 (36%) were female. The male bar is noticeably higher than the female reflecting the sample's prevalence of men.

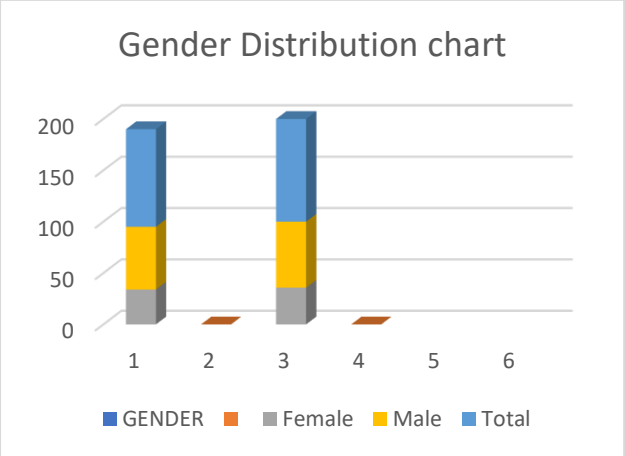

Figure1: Gender distribution of participants (n=95)

Among 95 waitron staff included in the study, 59 participants (62%) reported symptoms of plantar heel pain, whereas 36 participants (38%) did not report any symptoms of plantar heel pain. This shows that more than half of the population is affected, which indicates significant prevalence of plantar heel pain among waiters in the North Bangalore area.

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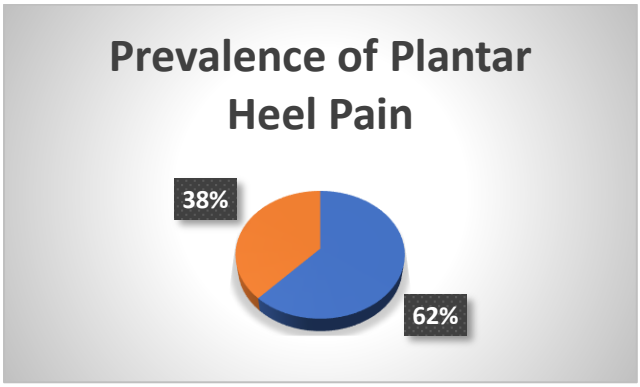

Figure 2: The pie chart below illustrate the percentage of participants with and without plantar heel pain among waitron staffs in north Bangalore area.

To assess the association between standing hours, pain severity (VAS score), and functional ability (FAAM total score) among waitron staff a Spearman's Rho correlation analysis was performed (Table 3). The analysis showed a very weak positive association between standing hours and FAAM total score (p=0.038, p=0.713), indicating no significant association between duration of standing and functional ability. The VAS score and FAAM total score showed a negative association (p=-0.032, p=0.759) indicating no relationship between pain severity and functional constraints. Furthermore, the association between standing hours and VAS score was also very weak and statistically non-significant (p=0.054, p=0.604). According to these findings, there was no significant association between any of the variables.

Table 3: Association between Standing Hours, Pain Severity (VAS), and Functional Ability(FAAM)

			HOURS	VASSCORE	FAAMTOTALSCORE
Spearman's rho	HOURS	Correlation Coefficient	1.000	.054	.038
		Sig. (2-tailed)	.	.604	.713
		N	95	95	95
	VASSCORE	Correlation Coefficient	.054	1.000	-.032
		Sig. (2-tailed)	.604	.	.759
		N	95	95	95
	FAAMTOTALSCORE	Correlation Coefficient	.038	-.032	1.000
		Sig. (2-tailed)	.713	.759	.
		N	95	95	95

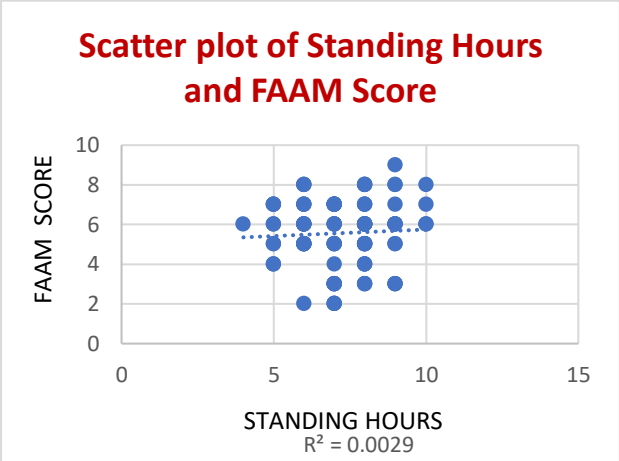

Figure3(a): Scatter Plot Showing the Association Between Standing Hours and FAAM Score

The association between the duration of standing hours and the participants functional capacity (FAAM score) is depicted in this scatter plot. The distribution of data points appears to be scattered without a clear trend. The trend line also indicates a weak positive association (R^2 = 0.0029), suggesting no association between the variables.

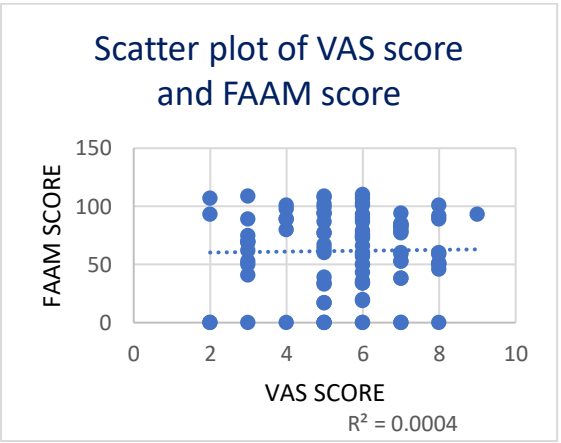

Figure 3(b): Scatter Plot Showing the Association Between VAS score and FAAM Score

The association between the VAS score and the FAAM score is depicted in this scatter plot. The scatter plot shows the data points to appear widely dispersed, showing no clear pattern or direction. The regression line is nearly flat with an R^2 value of 0.000. This indicate no association between VAS and FAAM score.

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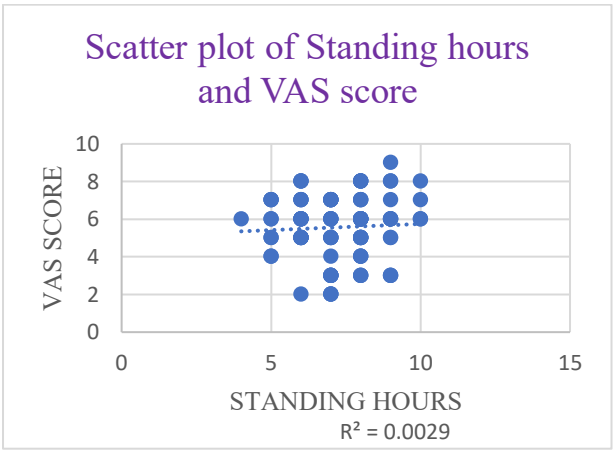

Figure 3 (c): Scatter Plot Showing the Association Between Standing Hours and VAS Score

This scatter plot shows the association between standing hours and pain intensity. The data points show a very weak positive connection since they are widely dispersed and lack a significant direction. With an R2 value of 0.0029 and a regression line that exhibits a small upward slope, this suggests that standing hours explain less than 1% of the difference in pain severity.

5. Discussion

This cross-sectional study aimed to determine the prevalence of plantar heel pain among waitron staff in the North Bangalore area and to explore the association between the number of standing hours and severity of heel pain. The results revealed a high prevalence rate of 62% among waiters, this finding is consistent with previous study such as that of Hashmi R et.al (2020)[7]which identified a similarly high occurrence of PF among females in teaching professions while Standing hours and BMI were not associated with Plantar Fasciitis.

However, the most common area to be affected was the heel (49.5%), which is consistent with plantar fasciitis being a major source of heel pain. Similar findings were reported by Buchanan B K et.al (2024)[12] who highlighted a higher prevalence of heel pain, especially in workers who stand or walk for longer hours. This finding also aligns with literature stating by Irving et al (2006)[13]; Riddle & Schappert (2004)[14] that the plantar heel is the most frequent site of musculoskeletal pain in weight-bearing occupations.

The gender distribution in our study showed a 64% male worker predominance, which can be indicative of employment trends in India's hospitality industry, where physically demanding jobs are frequently held by men. However, in prior research by Rome et. al (2002)[15] and Wearing et. al (2006)[16] demonstrated that plantar heel pain is more affected by biomechanical and occupational characteristics than by gender.

In our study, the mean age of the participants was 31.54± 4.33 years, and their average standing hours per day were 7.27±1.34. A moderate degree of pain severity was indicated by the mean VAS score for pain, which was 5.56 ± 1.64.

The findings of the present study revealed no statistically significant association between standing hours and the severity of plantar heel pain among waitron staff (Spearman's rho = 0.054, p = 0.604), this finding suggests that although prolonged standing may be a contributing factor to the development of heel pain, it may not directly determine the severity of pain experienced. Similar findings have been reported in a study by Redmond et al. (2006)[17], where pain severity was more closely linked to foot posture and biomechanics than duration of standing. Furthermore, Chimenti et al. (2016)[18] pointed out that a variety of factors, such as tissue sensitivity, inflammation, footwear, and personal pain thresholds, might affect how much pain is felt in plantar fasciitis rather than just the time spent in standing.

The association between standing hours and functional ability was also found to be non-significant (r=0.038, p=0.713). Likewise, a very weak negative association was observed between VAS score and total FAAM score (r=-0.032, p=0.759), which indicates no association between pain severity and functional limitation. This finding is supported by DiGiovanni et al (2003)[19], who reported that depending on personal coping strategies and shoe modification, the functional impact of plantar heel pain can vary greatly. Additionally, Landorf & Menz's (2008)[20] investigation revealed that decreased foot function is not always associated with the intensity of pain in plantar fasciitis, suggesting that pain and impairment may be distinct clinical dimensions.

Our study shows no significant association between standing hours and both pain severity (VAS score) and functional limitation (FAAM score). The association

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was found to be very weak and statistically non-significant, indicating that standing duration alone may not be a strong predictor of pain severity or functional limitation. This finding contrasts to popular belief and some previous research that found prolonged standing to be a risk factor for heel discomfort. For instance, a hospital study conducted by Tagoe & Osei-Bimpong (2017)[21] revealed that healthcare staff who stood for longer periods of time had a higher risk of developing plantar fasciitis and other foot discomfort. Similarly, Anderson et al. (2001)[22] found that standing for longer periods of time increased strain on the plantar fascia and may make heel pain worse. These studies, however, frequently included people with comorbid conditions including obesity, inadequate footwear, or inappropriate flooring—all of which were not taken into account in our study.

Overall, the findings of this study highlight the significant burden of plantar heel pain among waitron staff and emphasize the need for preventive workplace measures such as appropriate footwear, cushioned flooring, and shift rotation. This study found a high prevalence (62%) of plantar heel pain among waitron staff in North Bangalore, highlighting it as an occupational health concern, though no significant association was observed between standing hours, pain severity, or functional ability. The study was limited by its small sample size, convenience sampling, self-reported data, and exclusion of factors such as BMI, footwear, and flooring. Future research with larger and more diverse samples, random sampling, and longitudinal designs is recommended to provide stronger evidence and identify additional risk factors.

References

1. Rhim, H. C.; Kwon, J.; Park, J.; Borg-Stein, J.; Tenforde, A. S. A systematic review of systematic reviews on the epidemiology, evaluation, and treatment of plantar fasciitis. *Life* 2021, *11* (12), 1287. https://doi.org/10.3390/life11121287.
2. Landorf, K. B. Plantar heel pain and plantar fasciitis. *BMJ Clin. Evid.* 2015, 2015, 1111.
3. Liu, P.; Chen, Q.; Yang, K.; Cai, F. Prevalence, characteristics, and associated risk factors of plantar heel pain in Americans: the cross-sectional NHANES study. *J. Orthop. Surg. Res.* 2024, *19* (1), 805. https://doi.org/10.1186/s13018-024-05158-8.
4. Tomassoni, D.; Traini, E.; Amenta, F. Gender and age related differences in foot morphology. *Maturitas* 2014, *79* (4), 421–427. https://doi.org/10.1016/j.maturitas.2014.08.010.
5. Lareau, C. R.; Sawyer, G. A.; Wang, J. H.; DiGiovanni, C. W. Plantar and medial heel pain: diagnosis and management. *J. Am. Acad. Orthop. Surg.* 2014, *22* (6), 372–380. https://doi.org/10.5435/JAAOS-22-06-372.
6. Boob, M. A., Jr.; Phansopkar, P.; Somaiya, K. J.; Boob, M. A.; Somaiya, K. J., Jr. Physiotherapeutic interventions for individuals suffering from plantar fasciitis: a systematic review. *Cureus* 2023, *15* (7), e42483. https://doi.org/10.7759/cureus.42483.
7. Hashmi, R.; Naeem, L.; Arif, S.; Habiba, U.; Irfan, R.; Zafar, M. Frequency of plantar fasciitis among females in teaching profession. *J. Aziz Fatimah Med. Dent. Coll.* 2020, *2* (2), 53–57.
8. Sullivan, J.; Burns, J.; Adams, R.; Pappas, E.; Crosbie, J. Musculoskeletal and activity-related factors associated with plantar heel pain. *Foot Ankle Int.* 2015, *36* (1), 37–45. https://doi.org/10.1177/1071100714550634.
9. Khired, Z.; Najmi, M. H.; Akkur, A. A.; Mashhour, M. A.; Bakri, K. A.; Najmi, M.; Mashhour, M.; Bakri, K. The prevalence and risk factors of plantar fasciitis amongst the population of Jazan. *Cureus* 2022, *14* (9), e29433. https://doi.org/10.7759/cureus.29433.
10. McClinton, S. M.; Heiderscheit, B. C.; McPoil, T. G.; Flynn, T. W. Effectiveness of physical therapy treatment in addition to usual podiatry management of plantar heel pain: a randomized clinical trial. *BMC Musculoskelet. Disord.* 2019, *20*, 532. https://doi.org/10.1186/s12891-019-2883-y.
11. Purvitagiri, N. K.; Dewanti, L.; Bayusentono, S.; Wardhani, I. L. Correlation between prolonged standing and plantar fasciitis. *J. Orthop. Traumatol. Surabaya* 2017, *6* (1), 33–39.

Journal of Chemical Health Risks
www.jchr.org
JCHR (2025) 15(5), 404-411 | ISSN:2251-6727

12. Buchanan, B. K.; Sina, R. E.; Kushner, D. Plantar Fasciitis. In *StatPearls* [Internet]; StatPearls Publishing: Treasure Island, FL, 2025. Available from: https://www.ncbi.nlm.nih.gov/books/NBK431073/.
13. Irving, D. B.; Cook, J. L.; Menz, H. B. Factors associated with chronic plantar heel pain: a systematic review. *J. Sci. Med. Sport* 2006, *9* (1–2), 11–22. https://doi.org/10.1016/j.jsams.2006.02.004.
14. Riddle, D. L.; Schappert, S. M. Volume of ambulatory care visits and patterns of care for patients diagnosed with plantar fasciitis: a national study of medical doctors. *Foot Ankle Int.* 2004, *25* (5), 303–310. https://doi.org/10.1177/107110070402500504.
15. Rome, K.; Howe, T.; Haslock, I. Risk factors associated with the development of plantar heel pain in athletes. *Foot* 2001, *11* (3), 119–125. https://doi.org/10.1054/foot.2001.0691.
16. Wearing, S. C.; Smeathers, J. E.; Urry, S. R.; Hennig, E. M.; Hills, A. P. The pathomechanics of plantar fasciitis. *Sports Med.* 2006, *36* (7), 585–611. https://doi.org/10.2165/00007256-200636070-00004.
17. Redmond, A. C.; Crosbie, J.; Ouvrier, R. A. Development and validation of a novel rating system for scoring standing foot posture: the Foot Posture Index. *Clin. Biomech.* 2006, *21* (1), 89–98. https://doi.org/10.1016/j.clinbiomech.2005.08.002.
18. Chimenti, R. L.; Tome, J.; McPoil, T. G.; Hillstrom, H. J.; Houck, J. Association of forefoot dorsiflexion stiffness and plantar fascia thickness in individuals with and without plantar heel pain. *Foot Ankle Int.* 2016, *37* (9), 1001–1010. https://doi.org/10.1177/1071100716649135.
19. DiGiovanni, B. F.; Nawoczenski, D. A.; Lintal, M. E.; Moore, E. A.; Murray, J. C.; Wilding, G. E.; et al. Tissue-specific plantar fascia-stretching exercise enhances outcomes in patients with chronic heel pain: a prospective, randomized study. *J. Bone Joint Surg. Am.* 2003, *85* (7), 1270–1277. https://doi.org/10.2106/00004623-200307000-00003.
20. Landorf, K. B.; Menz, H. B. Plantar heel pain and fasciitis. *BMJ Clin. Evid.* 2008, 2008, 1111.
21. Tagoe, T.; Osei-Bimpong, A. The prevalence of plantar fasciitis among healthcare workers at a tertiary hospital in Ghana. *J. Clin. Res. Bioeth.* 2017, *8* (6), 1000320. https://doi.org/10.4172/2155-9627.1000320.
22. Anderson, J.; Kolher, R.; Chevalier, T. L. Effect of standing for prolonged periods on foot pain and musculoskeletal symptoms: a biomechanical perspective. *Ergonomics* 2001, *44* (6), 533–546. https://doi.org/10.1080/00140130118881.