

To evaluate the prevalence of plantar fasciitis in housewives

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Abstract

Introduction: Plantar fasciitis is one of the most common causes of heel pain, significantly affecting daily activities and quality of life. Housewives are particularly vulnerable due to prolonged standing, walking on hard surfaces and repetitive household tasks, often without adequate footwear support.

Aim: To determine the prevalence of plantar fasciitis among housewives.

Method And Material: A total of 100 participants were included in the study. Screening was conducted through windlass test. Participants who tested positive were further assessed using the plantar fasciitis pain scale (PFPS), which included question on pain area, frequency, severity, pain during activities and frequency of medication used. Pain intensity was also evaluated using the Visual Analogue Scale (VAS). Information regarding the type of footwear used was collected.

Result: The data collected was analyzed using independent T-Test and Pearson correlation test. Out of 100 participants 63% (n = 63) tested positive for windlass test. Among them 58 participants had PFPS scores above 35, indicating plantar fasciitis, while 5 participants with lower scores may have had other cause of heel pain. The (mean \pm SD) of pain in the PFPS was 1.92 \pm 0.27 and the mean age was calculated as 39.64 \pm 7.82 years, with higher prevalence in the 39-50 years age group. Among participants, 55 housewives wore flats and 45 wore heels. A significant correlation has been shown between the age, BMI and PFPS.

Conclusion: The study concluded that plantar fasciitis prevalence among housewives in Jind, Haryana is 63% with higher occurrence in the 39 -50 years age group. Age and BMI showed significant correlation, while footwear had minimal impact.

Keywords: Plantar fasciitis; PFPS; Windlass Test; VAS

1. Introduction

The plantar fasciitis is the most common cause of heel pain [1]. According to American Authority of Ortho surgeons, plantar fasciitis occurs when the plantar fascia that supports the arch of the foot gets irritated and inflamed. According to an article by Rachele Buchbinder, plantar fasciitis reports around 10% of injuries in people which are connected to running and is common in military personnels [2]. Plantar fasciitis is known by various other names such as jogger's heel, calcaneal periostitis, sub calcaneal pain and heel spur syndrome [1]. Plantar fasciitis is reportedly seen in more in people ageing between 40-60 years [2]. Women are slightly more prone to plantar fasciitis than men [3].

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Plantar fasciitis is a soft tissue injury which is associated with the pain in the inferior aspect of heel. The inflammation of the plantar fascia can occur due to a number of reasons such as repetitive stress at the media tubercle of calcaneum, decreased dorsiflexion, excessive walking or prolonged standing, biomechanical pathology such as pes planus, pes cavum etc. work that requires continuous weight bearing [4]. The patient complains of irresistible pain in the heel in early morning but the pain improves as the day prorates. Most of the people complains of pain during weight bearing activities and the pain stops once the activity is finished [5]. Due to muscular weakness in plantar fasciitis, the ipsilateral part of the fascia gets thickened which results in the stiffness of the foot, later causing alteration in the gait pattern of the person [6]. The location of pain in heel region may vary person to person. Most common region includes medial, lateral and lower posterior aspect of calcaneum bone. In very rare cases, the patient complains of pain in the central band of the plantar fascia, the region of medial longitudinal arch [7]. Risk factors for plantar fasciitis include excessive foot pronation (pes planus), excessive running, high arch of foot, limb length discrepancy, obesity, tightness of foot muscles, occupation that include prolong standing [8].

Physical examination shows that patient might walk in equine position to avoid weight bearing on the heel area. On palpation of the medial calcaneum region, the patient experiences sharp shooting pain. First toe dorsiflexion will give pain to the patient in the plantar area. The findings on the ultrasound mirror shows thickening of the plantar fascia with superior to inferior dimension by >4.5 mm [9]. Plain radiography can show bony lesions of the foot [8]. Assessment can also be done through a special test for plantar fasciitis which is Windlass Test. The test is done by dorsiflexing the hallux which results in the plantar flexion of first metatarsal which results in taut at the plantar fascia. Pain during the test confirms the plantar fasciitis in the patient [10]. Another tool that can be used to diagnose PF is the plantar fasciitis pain scale, which includes a series of question which allows the examiner to get the insight about the severity of pain, how many days does the pain effects the patients, how many activities are hindered due to the pain and so on.

One of the most effective and fundamental treatment for plantar fasciitis is rest and avoiding the factors that cause increase in the pain [11]. A small placebo related study on Non-Steroidal Anti-Inflammatory Drugs shows a short-term relief in the pain. Other options in conservative treatment include ice massage, rest and activity modification [8]. Physical therapy treatment includes use of orthosis, myofascial trigger release of the plantar fascia.

A study stated that stretching and strengthening exercise worked out the best for around 29% people dealing with plantar fasciitis. These exercise work on the intrinsic muscles of the foot and allow the foot to relax. Taping is also used as a method of treatment for plantar fasciitis. Taping helps in the facilitation of peroneus longus, plantar flex the forefoot by increasing the calcaneal inclination angle (CIA). it also reduces the motion over the midfoot, particularly at the midtarsal joint.

2. Materials and methods

100 participants were included in this Survey Study conducted from February 2023 to April 2023 as per the inclusion criteria. Consent from each and every participant was taken prior the survey was conducted. Consent form was filled by the participants. The age for the survey participants was between 28-50 years. An explanation of survey was given to the participants by the examiner. The Windlass test was performed on all participants for assessment. Those who tested positive were administered the Plantar Fasciitis Pain Scale (PFPS) questionnaire and VAS scores were recorded. The collected data were analyzed using the paired t-test and conclusions were drawn based on the results.

A total of 100 participants were included in the study. Using a convenience sampling technique, subjects who met the inclusion and exclusion criteria were selected. Participation in the study was voluntary.

2.1. Statistical analysis

Data was analyzed using SPSS Software version 26 for windows. Independent T test and Pearson's correlation test was applied for statistical analysis.

2.2. Study procedure

A total of 100 participants were assessed using the Windlass test, a clinical tool used to evaluate plantar fasciitis and other causes of heel pain.



Figure 1 Windlass Test

Therapist Position: Sitting

Patients Position: Standing with foot resting on a stool or couch.

Procedure: The examiner stabilizes the participant's ankle in a neutral position with one hand and passively dorsiflexes the first toe. The test is considered positive if pain is elicited in the plantar fascia region.

The PFPS was used to assess pain severity and functional impact in individuals with plantar fasciitis. It includes questions related to pain characteristics, frequency and its effect on daily activities. The scale also incorporates the Visual Analog Scale (VAS) to quantify pain intensity. Additional components assess the number of days affected, activities limited due to pain, frequency of medication use and the perceived effectiveness of treatment.

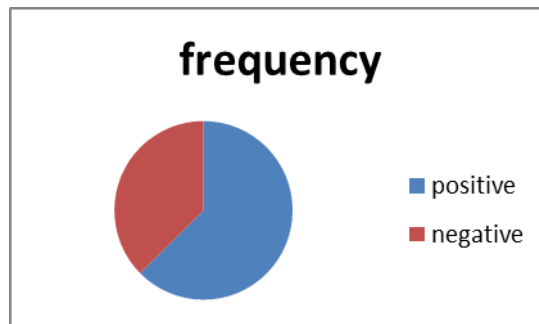


Figure 2 Pie chart showing data according to Windlass Test

3. Discussion

Plantar fasciitis is one of the most common causes of heel pain and is considered a soft tissue disorder characterized by pain at the inferior aspect of the heel [8] risk factors for plantar fasciitis include occupations that require prolonged standing. This study was conducted to determine the prevalence of plantar fasciitis among housewives. A total of 100 participants were selected through convenience sampling. The study also aimed to evaluate the contribution of underlying factors such as body mass index (BMI) and type of footwear.

Housewives aged 28–50 years were included in the study. All participants were assessed using the Windlass test. Out of the 100 participants, 63% (n = 63) tested positive. These individuals were further evaluated using the Plantar Fasciitis Pain Scale (PFPS) to assess pain severity and functional limitations.

The mean \pm S.D. according to PFPS was (1.92 \pm 0.27). A study was conducted by [6] in order to find the prevalence of plantar fasciitis among school teachers in Sialkot. The study included 150 female teachers of age between 25-60 years and the mean \pm S.D of VAS and PFPS scores were 5.78 \pm 2.46 and 36.5 \pm 13.5 respectively.

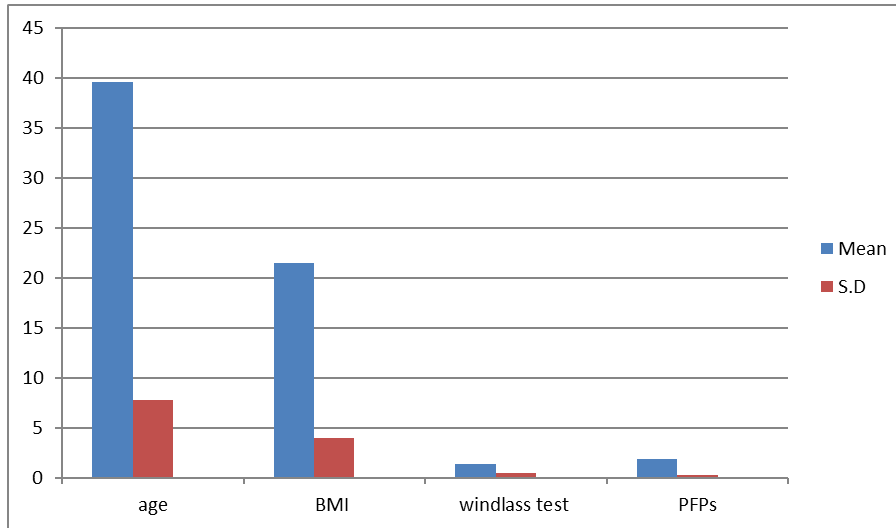


Figure 3 (Mean ± Sd) of variables

The bar graph shows the distribution of frequency in different variables along with (mean ± SD) The variables taken were age, BMI, windlass test and PFPS.

The mean ± S.D were calculated among different variables. The mean age was calculated as (39.64±7.82), which states that housewives of age between 39-50 were more prevalent to plantar fasciitis. The study shows significant correlation between age, BMI and PFPS. A cross-sectional study conducted by Mishra [12] to check the prevalence of musculoskeletal pain in rural areas of Bara Banki. Their study concluded that musculoskeletal pain showed a significant relationship between age, BMI and tobacco chewing. Their study also concluded that ankle/ feet (29.53%) was the most common site for musculoskeletal pain.

The other variable in this study was the type of footwear worn by the females. The females were divided into group of heels and flat footwear. According to the study, 55 females wore flat foot wear and 45 females wear heel. A survey study conducted by Pallavi [4] to check the prevalence of plantar fasciitis among females wearing heels and flat footwears showed that, out of their 100 subjects, 27% were prone to develop plantar fasciitis, out of which 19% used to were heels.

Obesity is shown as one of the risk factors for plantar fasciitis. This study shows that the mean ± S.D of BMI was calculated as (21.49±3.96). The statistical analysis of data showed that weight can be a risk factor for plantar fasciitis. A Survey based study conducted by Mohanraj [13] on Awareness on the association between the higher body mass index and plantar fasciitis showed that 66.06% participants were unaware of increasing body mass index as a risk for plantar fasciitis.

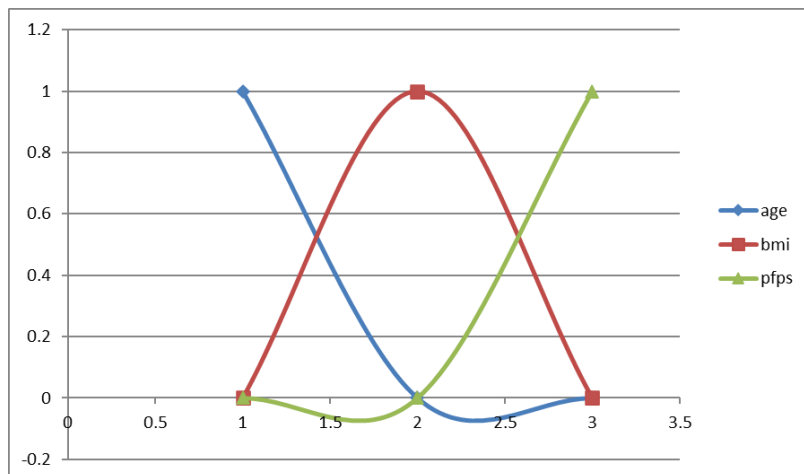


Figure 4 Correlation between age, BMI and PFPS

Limitation of study

The relatively small sample size may limit the generalizability of the results to a larger population. Additionally, the study was confined exclusively to housewives, thereby restricting its applicability to individuals from other occupational backgrounds. The duration of wearing heeled footwear was not assessed, which could have influenced the outcomes related to plantar fasciitis. Furthermore, data collection was limited to a specific geographical area, which may not accurately represent wider populations. Lastly, the study focused on a relatively narrow age range, thereby limiting the understanding of plantar fasciitis prevalence across different age groups.

Future scope of study

Further research is recommended with a larger sample size to improve the generalizability of the findings. Inclusion of a broader age range would provide a more comprehensive understanding of the prevalence of plantar fasciitis across different age groups. Additionally, future studies should consider including male participants to allow for gender-based comparisons and a more holistic evaluation of the condition.

4. Conclusion

The present study concluded that housewives are prevalent to plantar fasciitis. The study also concluded that the females of age between 39 – 50 are more prevalent to plantar fasciitis than other ages of the criteria. According to the types of footwear worn, the housewives wearing heels can lead to the occurrence of plantar fasciitis. However, the duration of wearing heels is not known. The study also shows that increasing BMI can be a risk factor for plantar fasciitis. The study shows a significant relation between age, BMI and PFPS score.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all the individuals.

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