

Incidence of Overweight in Plantar Fasciitis Patients

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Abstract

Introduction with Objective: Plantar fasciitis is a common condition causing heel and arch pain and has been related with degenerative changes in the plantar fascia resulting in tissue thickening. The aim of this study was to assess the incidence of overweight in plantar fasciitis patients. **Materials and Methods:** This cross-sectional study was conducted in the Department of Physical Medicine & Rehabilitation, Dhaka Medical College Hospital, Dhaka during February 2023 to March 2024. A total of 51 patients with plantar fasciitis were included in the study. Ethical clearance was obtained from the Ethical Review Committee of Dhaka Medical College Hospital. Statistical analyses of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-20.1). **Results:** The mean age of the patients was 46.6 ± 4.3 years where majority of the patients (51.0%) were in 41-45 years age group and 27 (52.9%) patients were male. Among the 51 patients, 21 (41.2%) patients were homemakers whereas others were service holder (35.3%, $n=18$), businessmen (11.8%, $n=6$), and (11.8%, $n=6$) were involved in other professions. The mean BMI of the patients was 26.8 ± 2.6 kg/m² where 38 (74.5%) patients were overweight, while 5 (9.8%) were obese. **Conclusion:** Overweight is considered a significant risk factor for plantar fasciitis.

Keywords: Overweight, plantar fasciitis, incidence.

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Introduction:

The plantar fascia (PF) is a thick fibrous aponeurosis that begins from the medial calcaneal tubercle and supports the arch of the foot¹. The most frequent cause of sub-calcaneal pain, plantar fasciitis (PFs), was initially identified in 1812 as a painful sensation in the calcaneus caused by plantar fascia deterioration. Plantar fasciitis is a chronic, self-limiting, painful, and disabling ailment that affects the inferomedial part of the heel and usually extends to the metatarsophalangeal joints. There is considerable evidence for a link between Achilles tendon (AT) loading and plantar aponeurosis (PA) tension². It is the most common cause of chronic pain beneath the heel in adults as 10% population suffer from it over a lifetime³. The diagnosis of plantar fasciitis can usually be made on the basis of history and physical examination alone. Patients experience severe pain with the first steps on arising in the morning or following

inactivity during the day. The pain usually lessens with weight-bearing activity during the day, only to worsen with continued activity. Pain is made worse on walking barefoot or upstairs⁴. Tenderness and pain may be increased by passive dorsiflexion of the toes or by having the patient stand on the tips of the toes. Tightness of calf muscles, limited dorsiflexion of ankle and tightness of plantar fascia that restricts extension of toes are other observations in the physical examination⁵. A biomechanical malfunction that creates tension along the plantar fascia is the cause of certain documented cases. Due to the enormous stresses that runners place on the plantar fascia, is a typical problem. Nevertheless, it is also important to discuss other risk factors, such as elevated plantiflexion and a high body mass index⁶.

Materials & Methods:

This cross-sectional study was conducted in the Department of Physical Medicine & Rehabilitation, Dhaka Medical College Hospital, Dhaka during February 2023 to March 2024. A total of 51 patients with plantar fasciitis were included in the study. Ethical clearance was obtained from the Ethical Review Committee of Dhaka Medical College Hospital. Purposive sampling technique was applied for this study. Body mass index was calculated by the formula. BMI = weight in kg / (Height x Height) in the meter. Normal BMI 18.5–24.9 Kg/m², Overweight BMI 25–29.9 Kg/m², Obese BMI 30 Kg/m² and above. Plantar fasciitis was confirmed by ultrasound assessment and considered present when the plantar fascia was 4.0 mm or greater at the calcaneal origin. Plantar fascia thickness was measured at a standard location, where the fascia crosses the anterior aspect of the inferior calcaneal border. Statistical analyses of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-20.1).

Results:

The majority of patients (51.0%) were in 41-45 years age group. The mean age of the patients was 46.6 ±4.3 years (Table I).

Table I: Distribution of patients by age (n=51)

Age group (in years)	Frequency (percentage)
41-45	26 (51.0%)
46-50	12 (23.5%)
51-55	13 (25.5%)
Mean ±SD	46.6 ±4.3

Among the 51 patients, 24 (47.1%) patients were female and 27(52.9%) patients were male. (Figure I)

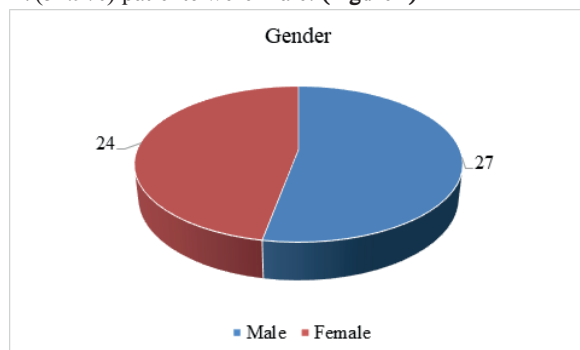


Figure I: Distribution of patients by gender (n=51)

Among the 51 patients, 21 (41.2%) patients were home makers whereas others were service holder (35.3%, n=18) and businessmen (11.8%, n=6) (Table II).

Table II: Distribution of patients by occupational status (n=51)

Occupational status	Frequency (percentage)
Homemaker	21 (41.2%)
Service holder	18 (35.3%)
Businessman	6 (11.8%)
Others	6 (11.8%)

Majority of the patients (74.5%) were overweight while 5 (9.8%) were obese. The mean BMI of the patient's was 26.8 ±2.6 kg/m² (Table III).

Table III: Distribution of patients by body mass index (BMI) (n=51)

BMI	Frequency (percentage)
Healthy weight (18.5-24.9)	8 (15.7%)
Overweight (25.0-29.9)	38 (74.5%)
Obese (30.0 and above)	5 (9.8%)
Mean ±SD (in kg/m ²)	26.8 ±2.6

Among the 51 patients, 26 (51.0%) patients had plantar fasciitis in right foot whereas others had in left foot (49.0%, n=25) (Table IV).

Table IV: Distribution of patients by side involvement (n=51)

Side involvement	Frequency (percentage)
Right	26 (51.0%)
Left	25 (49.0%)

Discussion:

Although plantar fascia (PF) occurs at all ages, the highest risk of occurrence of plantar fasciitis is 40 to 60 years of age⁴. The mean age of the patients of this study was 46.6 ±4.3 years where majority of the patients (51.0%) were in 41-45 years age group. Akfirat et al. (2003) examined the PF through ultrasonography and found the mean age of the patients with unilateral plantar fasciitis (PFs) was 47.5 (±11.7) years⁷. PFs affects both male and female equally⁸. Among the 51 patients of the current study, majority (52.9%) patients were male. Several studies found female predominance (Akfirat et al., 2003; Karabay et al., 2007; Ozdemir et al., 2005)^{7,9,10} while other studies observed equal number of male and female patients (McMillan et al., 2013; Aggarwal et al., 2020)^{11,12}. In Bangladesh, men are more likely to avail health service than women because of their strong socioeconomic position which might be the reason of higher proportion of male patients than female¹³. Increased BMI causes increase plantar fascia thickness and heel pad stiffness. Increased body mass may alter the mechanical characteristics of heel pad and plantar fascia. In this study

majority of the patients (74.5%) were overweight while 5 (9.8%) were obese. The mean BMI of the patients was $26.8 \pm 2.6 \text{ kg/m}^2$. This finding was supported by other studies (Akfirat et al., 2003; Karabay et al., 2007; Ozdemir et al., 2005; McMillan et al., 2013; Aggarwal et al., 2020)^{7,9,10,11,12}.

Conclusion:

In our study, most of the plantar fasciitis patients were overweight. Overweight is considered a significant risk factor for plantar fasciitis because of the increased stress on the plantar fascia in feet.

Conflict of Interest: None.

Acknowledgement:

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