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PREVALENCE OF ANKLE PAIN AND PLANTAR FASCIITIS AMONG TEACHERS

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ABSTRACT

Background: *Plantar fasciitis is a common musculoskeletal disorder characterized by sharp, stabbing heel pain that generally worsens with prolonged weight bearing and is most severe in the morning or the first steps after rest. PF can also affects the ankle joint as due to worse heel pain individual exerts compensatory forces causes ankle pain. Postural instability and increased dependence on compensatory mechanisms are led to by impaired AJPS, increasing functional limits. It is frequently related with extended standing, walking on hard surfaces, walking barefoot, and wearing inappropriate footwear.*

Objective: *The objective of this study is to determine the prevalence of ankle pain and plantar fasciitis among teachers.*

Methodology: *This cross-sectional study was conducted in Layyah, Punjab. Sample size was 98. Age group between 25-55 years and participants were selected based on the inclusion criteria. Sampling technique was convenient sampling technique. Written consent form was taken. Windlass test was performed. Data collection tools were NPRS and foot and ankle disability index.*

Results: *A total number 89 teachers participated of which 64(71.9%) were male and 25 (28.1%) were female. The mean age in the study was 40.74 and standard deviation was 8.15. The mean pain intensity (NPRS) was 1.7640 ± 0.85, indicating moderate to severe pain. Participants demonstrated mild to moderate Foot and ankle disability. A statistically negative significant correlation was observed between pain intensity and functional disability ($p < 0.05$).*

Conclusion: *A statistically negative relationship was found between pain severity and physical function, meaning that when pain increases, a teacher's ability to perform daily activities decreases. So as pain severe functional ability decreases in teachers.*

INTRODUCTION

A common musculoskeletal condition that affects 10% of people at some point in their lives is plantar fasciitis. [1] Clinically, PF manifests as stabbing, intense heel pain that usually gets worse with extended weight bearing and is worst in the

morning or during the first few steps after rest. [2] This pain is experienced by a wide range of professionals, including surgeons, dentists, teachers, dancers, security guards, and traffic wardens, particularly foot and ankle pain, is highly frequent in teachers due to the high demands they face. [3] Around 11-15% of adult heel pain complaints are caused by this condition, which is particularly frequent in working adults who have professions that require extended standing. [2]

Instead of being an inflammatory illness, PF is a degenerative fasciopathy. Histological results reveal fascial thickening, fibroblast proliferation, and collagen disarray, which lowers load tolerance and increases vulnerability to repeated microtrauma. [4] Developing methods to reduce the symptoms of plantar fasciitis may be aided by knowledge of the biomechanical and psychological causes of the condition.[5] PF is a biomechanical issue caused by overload of the plantar aponeurosis. Current diagnostic and therapeutic paradigms prioritize clinical examination and focused rehabilitation. [6, 7]

Ankle-foot kinematics and arch geometry interact with fascia tensile stress to influence strain patterns during push-off and stance. This shows a connection between persistent symptoms and frequent occupational loads. [8] Prolonged standing lowers blood flow, generates pooling in the legs, promotes tiredness, and leads to musculoskeletal pain and varicose veins, making occupational groups, particularly teachers, more vulnerable. [9] Body weight is distributed throughout the plantar surface during walking and running, with the calcaneus and metatarsal heads bearing the majority of the load. Running puts increased strain on the second and third metatarsal heads by increasing the vertical foot load up to 2.5 times the body weight. [3]

Numerous factors contribute to the development of plantar fasciitis, including obesity, flat or high-arched feet, weak plantar flexor muscles, and limited ankle dorsiflexion. The issue is exacerbated by extrinsic factors such prolonged standing, walking barefoot, walking on hard surfaces, and wearing inappropriate footwear. Clinically, medial heel pain is reported by patients, especially after periods of inactivity. Activities during the day typically make the soreness go away, but in the evening, it gets worse. Bilateral symptoms affect about 30% of patients. A physical examination frequently reveals pain at the medial calcaneal tuberosity, which is exacerbated by standing on one's toe or dorsiflexion. [10] Several preliminary factors may cause plantar fasciitis, including occupational prolonged weight-bearing, rapid increases in activity levels, hard surfaces, inadequate stretching, inappropriate footwear, limited ankle dorsiflexion, Achilles tendon tightness, age, excessive foot pronation, and obesity. [2]

Occupational groups like teachers are crucial for targeted prevention because prolonged standing at work is often linked to musculoskeletal symptoms, poor foot health, and poor footwear choices that increase plantar loading. Planter fasciitis and ankle discomfort are linked to decreases in perceived job quality, absenteeism, and presenteeism in early regional data on service and retail workers, highlighting productivity loss with clinical disease. [11] The population-level utilization of care for PF, the region-specific prevalence/risk profiles, and the wider health burden of chronic heel pain on quality of life all emphasize the need to look into occupation-linked functional consequences in educators, a workforce marked by extended standing and classroom mobility. [4]

Because the foot and ankle muscles and ligaments are connected, ankle discomfort may be related. Inflammation of the plantar fascia can lead to changes in weight distribution and stride, which further tax the ankle joints and muscles. Ankle pain or even conditions like Achilles tendinopathy may result from this over time. However, there is little direct evidence linking PF to teachers' ankle pain severity and productivity, and many studies depend on inconsistent diagnostic criteria or lack coordinated functional and occupational outcomes, which restricts inference and application. [14]

Proprioceptive impairments, notably in ankle joint position sensing (AJPS), play an important role in affecting balance and movement in people with plantar fasciitis. Impaired AJPS leads to postural instability and increased dependence on compensatory mechanisms, increasing functional

limits.[12] Both biomechanical and behavioral variables influence proprioception. Biomechanically, the plantar flexors, dorsiflexors, inverters, and evertors of the ankle must be strong enough to maintain joint stability while providing precise proprioceptive signals. Psychosocial conditions, such as pain catastrophizing, can impair perception of sensation and reduce proprioceptive accuracy. [13]

Diagnosis of plantar fasciitis is a clinical impression according to history (e.g., work-related prolonged weight-bearing) and physical examination (e.g., heel pain with first steps in the morning or after prolonged sitting and sharp pain with palpation of the medial plantar calcaneal region). [1] The most commonly recommended therapies are footwear modification, activity modification, taping, stretching exercises, anti-inflammatory agents, extracorporeal shock wave therapy, orthoses, and cortisone injections. [9]

Reducing body weight, using comfortable shoes for extended teaching sessions, employing good standing techniques for extended periods of time, and shifting postures after a specific period of time could all lead to improvement. Numerous earlier studies carried out in Pakistan mostly concentrated on musculoskeletal conditions, such as back, shoulder, and neck pain, among educators, ignoring foot discomfort linked to plantar fasciitis and ankle pain that significantly restricts physical activity. This study will investigate the prevalence of ankle pain and plantar fasciitis in educators. Additionally, we sought to evaluate the effects of potential internal aggravating factors on this condition, such as age, obesity, standing hours, and shoe types.

LITERATURE REVIEW

In 2025 sufi et al., A cross-sectional study was conducted to examine the association between plantar fasciitis, functional limitations, and work productivity among teachers. The study mainly focused on teachers because their profession often requires prolonged standing on hard surfaces, which can negatively affect physical function and job performance. Current understanding of plantar fasciitis is largely based on biomechanical and load-management theories, including repetitive stress on the plantar fascia, abnormal foot mechanics, limited ankle dorsiflexion, and poor shock absorption. During the past decade, several cross-sectional and systematic studies have reported a high prevalence of plantar fasciitis in occupations involving long periods of standing and weight-bearing activities. These studies also identified links between plantar fasciitis and pain-related disability, disturbed gait, poor balance, and reduced quality of life. Different assessment tools, such as the Plantar Fasciitis Pain/Disability Scale (PFPS) and the Work Productivity and Activity Impairment (WPAI) questionnaire, have been used to measure functional problems and occupational effects. Recent regional research involving teachers and service workers has further shown that presenteeism, where individuals continue working despite pain and limitations, is more common than absenteeism. [4]

Khan et al., in 2025 conducted a descriptive cross-sectional study on prevalence of heel pain among government college teachers in mansehra. They concluded that teachers represent a high-risk group due to sustained weight-bearing postures that increase stress on the calcaneus and plantar structures, leading to inflammation and pain. Biomechanical theories such as the mechanical overload model and foot biomechanics model explain heel pain through factors like excessive pronation, reduced ankle range of motion, increased body mass index, and repetitive loading of the medial calcaneus. The occupational health model further highlights prolonged standing as a contributor to reduced circulation, muscular fatigue, and cumulative tissue strain. Recent epidemiological studies report a high prevalence of heel pain among teachers, particularly those over 40 years of age and with higher workload demands, emphasizing the condition's occupational relevance. [14]

Hassan et al., in 2025 conducted a cross-sectional study on an examination of ankle joint position sense, postural control and associated neuromuscular deficits in patients with plantar fasciitis. This study provides a comprehensive examination of biomechanical and psychosocial correlates of proprioceptive dysfunction in PF. Findings demonstrate that pain catastrophizing

significantly predicts proprioceptive inaccuracies, while muscle strength and postural sway are closely linked to balance control. Future research should adopt longitudinal designs, explore additional psychological variables, and test targeted interventions aimed at improving proprioception, postural stability, and overall functional outcomes in patients with plantar fasciitis. In conclusion, this study provides valuable insight into the multifactorial nature of plantar fasciitis, underscoring the clinical importance of addressing both neuromuscular and psychological determinants in rehabilitation programs. [13]

Alrashidi et al., In 2022, a cross-sectional study was carried out to determine the prevalence of plantar heel pain (PHP) among school teachers in the Medina region of Saudi Arabia. The findings showed that plantar heel pain was highly common among teachers, highlighting its importance as an occupational health concern. The study emphasized several modifiable risk factors, including obesity, physical inactivity, and previous foot-related problems, which may contribute to pain and functional disability. The researchers also discussed biomechanical and occupational stress theories related to plantar fascia disorders. These theories explain that prolonged standing, repetitive strain, and abnormal foot biomechanics can increase stress on the plantar fascia and lead to pain. Intrinsic factors such as body mass index and foot structure were considered important contributors, while extrinsic factors mainly included long working hours in standing positions and low levels of physical activity. The study further supported previous epidemiological findings that women and physically inactive individuals are at greater risk of developing plantar heel pain. [15]

In 2020 hashmi et al., A cross-sectional study was conducted to determine the frequency of plantar fasciitis among females working in the teaching profession. Female teachers are considered more vulnerable to this condition because of prolonged working hours, continuous standing postures, and age-related biomechanical changes. The study highlighted both the prevalence of plantar fasciitis and the factors that contribute to its development within this occupational group.

The importance of studying plantar fasciitis among female teachers is related to its effects on quality of life, physical functioning, and work productivity. Persistent heel pain can interfere with daily activities, reduce mobility, and increase absenteeism from work. Identifying the frequency and associated risk factors may help in early diagnosis, preventive measures, and the development of better occupational health strategies. The study also explained that biomechanical overload, poor posture, and intrinsic physical factors play an important role in the development of plantar fasciitis. [9]

2.1: OBJECTIVE

The objective of this study is to determine the prevalence of ankle pain and plantar fasciitis among teachers.

2.2: HYPOTHESIS

2.2.1: Alternate Hypothesis

There is significant prevalence of ankle pain and plantar fasciitis among teachers.

2.2.2: Null Hypothesis

There is no significant prevalence of ankle pain and plantar fasciitis among teachers.

MATERIALS & METHODS

3.1: Study Design

The study design was Cross-sectional.

3.2: Study Setting

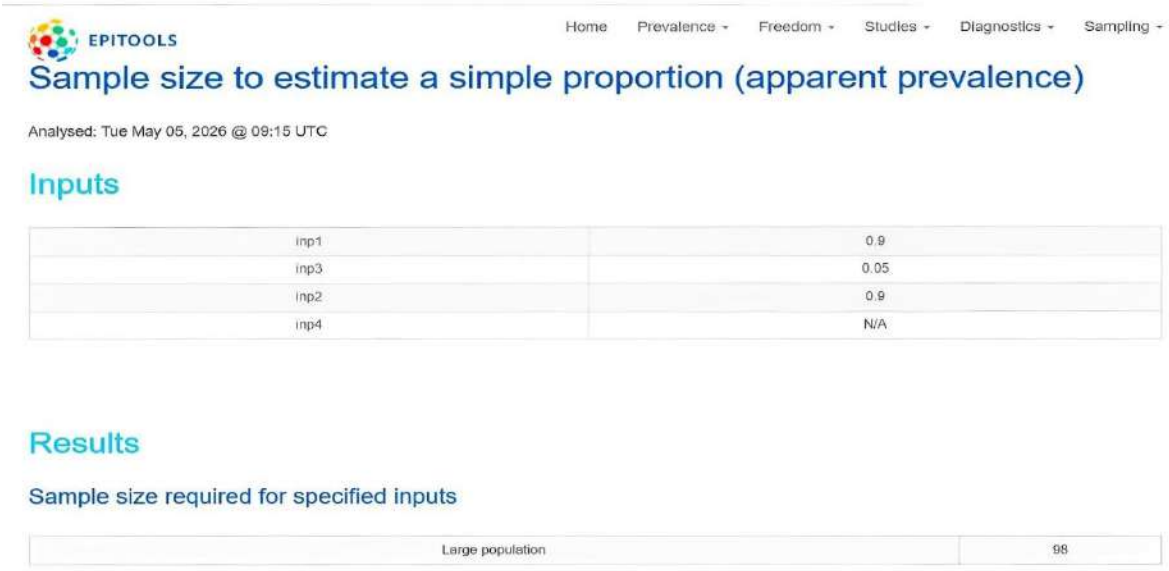
The study setting was Layyah, Punjab, Pakistan.

3.3: Duration of the Study

The study duration was 6 months after approval of synopsis.

3.4: Sample Size

The sample size was 98 calculated by Epitool. [2]


EPITOOLS

Home Prevalence Freedom Studies Diagnostics Sampling

Sample size to estimate a simple proportion (apparent prevalence)

Analysed: Tue May 05, 2026 @ 09:15 UTC

Inputs

inp1	0.9
inp3	0.05
inp2	0.9
inp4	N/A

Results

Sample size required for specified inputs

Large population	98

3.5: Sampling Technique

The sampling technique was convenient sampling technique.

3.6: Sample Selection

3.6.1: Inclusion Criteria

- Age ranges from 25 to 55 years. [16]
- Both genders are included. [4]
- Having Symptom of heel and ankle pain that generally worsens and is most severe in the morning or the first steps after rest for at least 3 Months. [16]
- Routine use of hard, non-cushioned footwear during work. [4]
- Positive Windlass Test. [17]
- At least 02 years teaching experience. [12]

3.6.2: Exclusion Criteria

- Recent surgery on the foot or lower extremities. [16]
- Neurological conditions affecting the feet. [16]
- Any severe systemic conditions that might confound the study results. [16]
- Having recent trauma or fracture. [18]
- Physician-diagnosed diabetes mellitus, osteoarthritis or rheumatoid arthritis. [4]

3.7: Data Collection Tools

3.7.1: Windlass Test

The windlass test is a biomechanical concept that explains how the plantar fascia helps support the foot when a person is standing or walking. It also gives insight into the mechanical stresses that affect the plantar fascia. The windlass test directly stretches the plantar aponeurosis, which can be useful for identifying problems with the plantar fascia. This test can play an important role when deciding how to assess and treat plantar fasciitis. [17]

3.7.2: Foot/Ankle Disability Index

The Foot and Ankle Disability Index (FADI) is a self-reported outcome tool that focuses specifically on foot and ankle function. It was originally described by Martin and colleagues in 1999. The FADI is actually an earlier version of the Foot and Ankle Ability Measure (FAAM). [19]

The Foot and Ankle Disability Index was created to measure functional limitations resulting from foot and ankle problems. This tool consists of a 34-item questionnaire that is split into two separate subscales: the FADI (main) and the FADI Sport. The main FADI includes 26 items, while the FADI Sport contains 8 items. Among the 26 items of the main FADI, four focus on pain and the remaining 22 relate to various activities. The FADI Sport subscale is made up entirely of 8 activity-related items.

Scoring:

- N/A
- 0 – Unable to do
- 1 – Extreme difficulty
- 2 – Moderate difficulty

- 3 – Slight difficulty
- 4 – No difficulty

3.7.3: Numeric Pain Rating Scale

The Numeric Pain Rating Scale (NPRS) is a one-dimensional outcome measure used to assess pain intensity in adults, including those who suffer from chronic pain caused by rheumatic conditions. The NPRS represents a numbered version of the visual analog scale (VAS), where the person rates their pain by choosing a whole number between 0 and 10 that best matches how strong their pain feels.

The most commonly used design is a horizontal bar or line. Like the VAS, the NPRS has descriptive words at each end that indicate the extremes of pain severity.

Scoring:

- 0 No pain.
- 1–3 Mild pain.
- 4–6 Moderate pain.
- 7–10 severe pain.

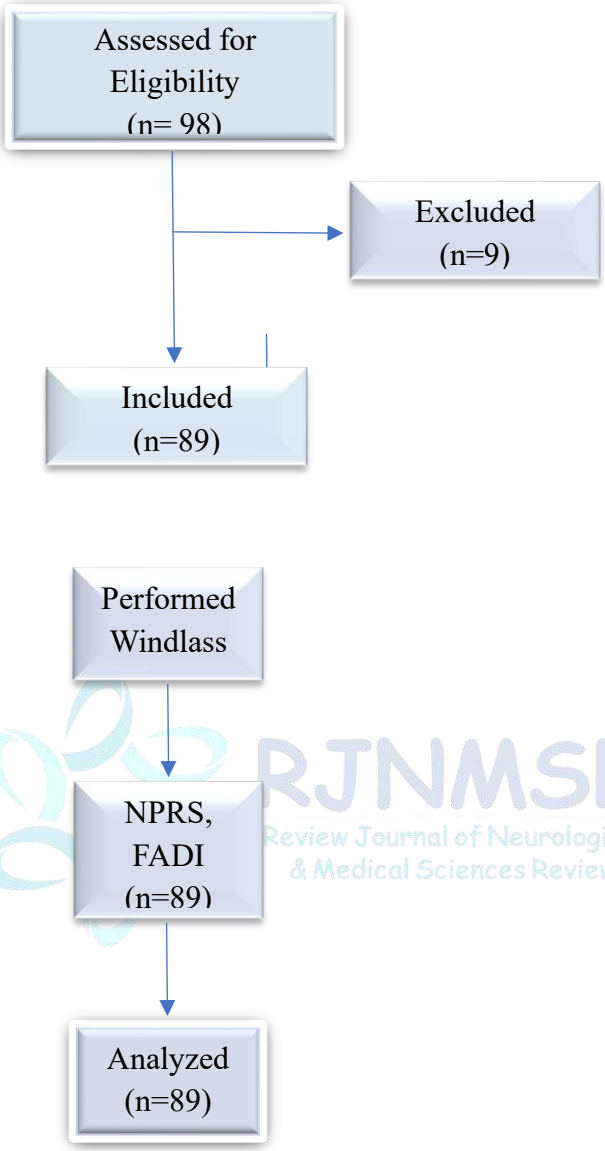
3.8: Data Collection Procedure

The subject who meets the inclusion criteria was included in this study. The nature and purpose of study along with questionnaires was explained to each and every subject. Consent was taken and Windlass Test was performed to confirm the condition, after this data was filled, analyzed and interpreted accordingly.

3.9: Ethical Considerations

1. The rights of the research participants will be protected, and the ethical guidelines established by the GCUF Layyah ethical committee will be adhered to.
2. All participants will be required to sign written informed consent forms, which are attached.
3. All data collecting information will be kept private.
4. All study participants will remain anonymous.
5. The participants will be made aware that there will be no danger or drawbacks to the study's methodology.
6. Participants will be made aware that they are free to leave the study at any time.

3.10: Consort Flow Diagram



3.11: Data Analysis Procedure

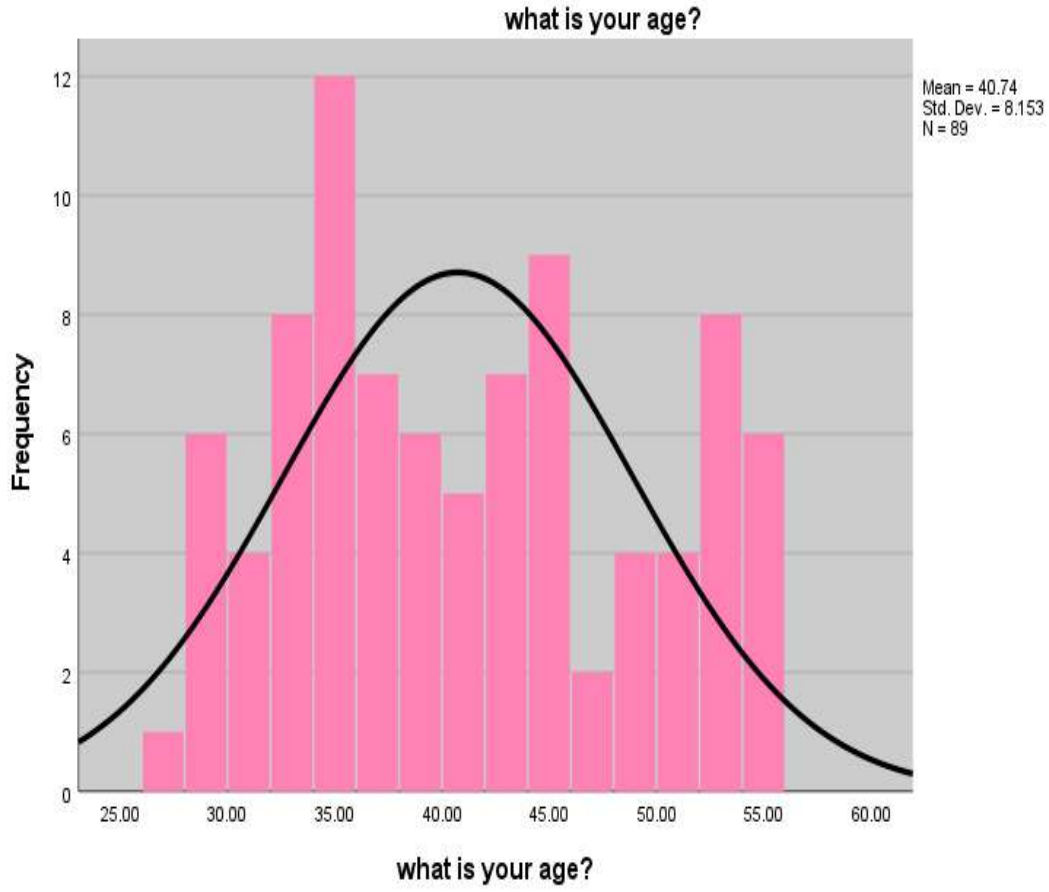
Data was analyzed by using The Statistical Package for Social Science Software (SPSS) version 27.0 for window Microsoft, also Microsoft word and excel was used to generate graphs, tables etc. The quantitative data was presented in the form of mean and standard deviation. The categorical data was presented in the form of frequency and percentage.

RESULTS

4.1. Sociodemographic

Demographics	Mean	SD
Age	40.7416	8.153
Gender	1.280	0.451
Weight	65.168	9.766
Employment period	11.730	6.483
Standing period	2.056	0.759

Table 4.1 shows the mean and standard deviation of sociodemographic including age, gender, weight, employment period and standing period in a day. The mean age in the study was 40.658 and standard deviation was 8.07. Gender statistics shows mean of 1.280 and standard deviation of 0.45. Weight statistics shows mean 65.168 and standard deviation of 9.7.Employment period shows mean of 11.730 and standard deviation of 6.4. Standing period shows mean of 2.056 and standard deviation of 0.7.



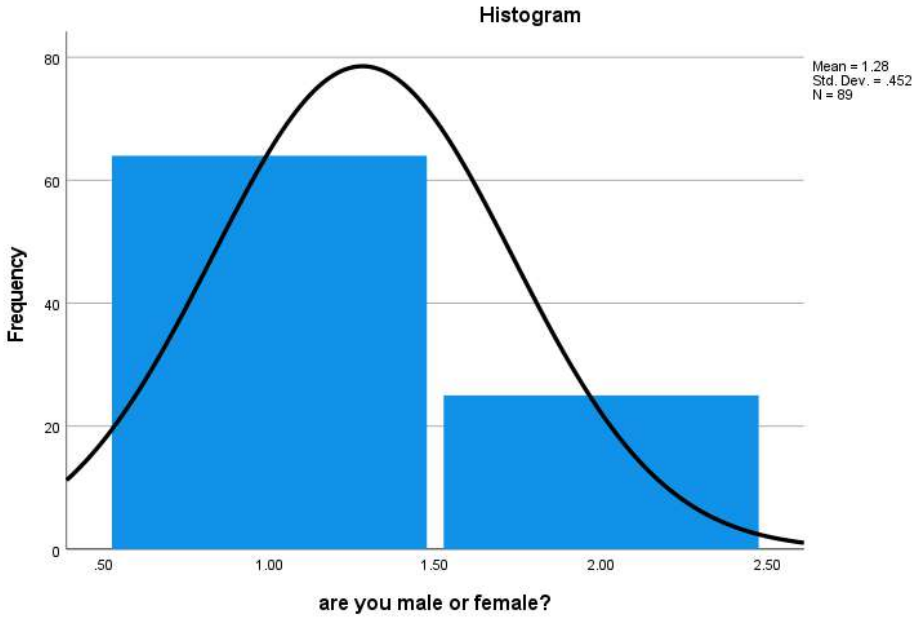


Fig 4.2.shows the descriptive statistics of frequency, mean and SD of gender of teachers.

4.2. Descriptive statistics of Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	64	71.9	71.9	71.9
Female	25	28.1	28.1	100.0
Total	89	100.0	100.0	

Table 4.2 shows the statistics of frequency and percentage of gender distribution. A total number 89 teachers participated of which 64 (71.9%) were male and 25 (28.1%) were female.

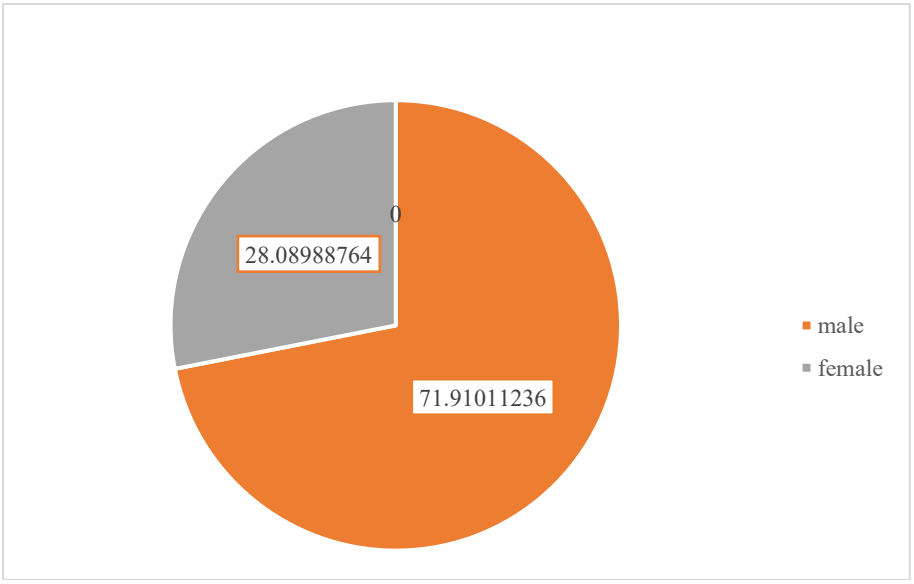


Fig. 4.3. Pie chart shows the percentage distribution of Gender

4.3. Descriptive statistics of weight

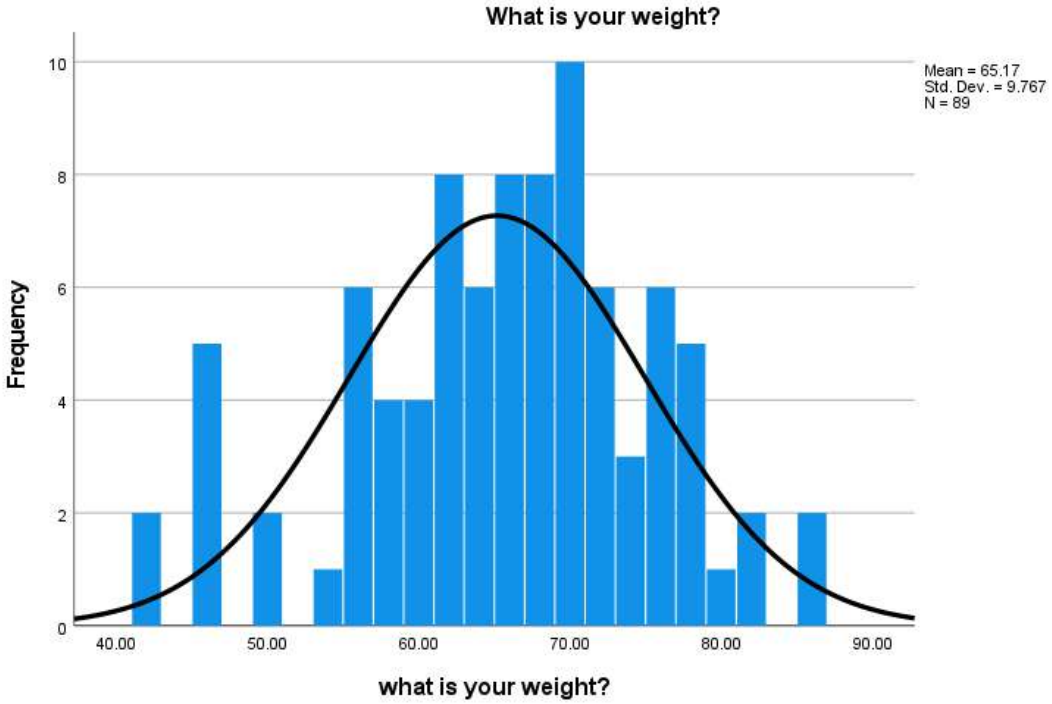


Fig 4.4: Histogram of Weight shows frequency, mean and SD statistics of weight of teachers

4.4. Descriptive statistics of Employment Period:

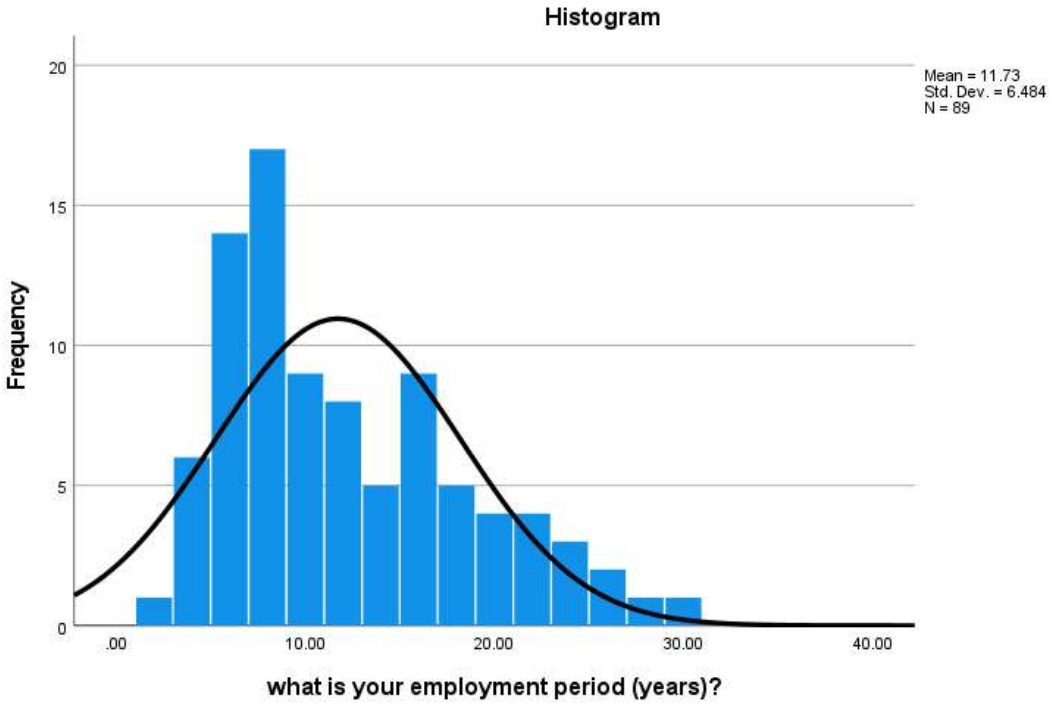


Fig 4.5: Histogram showing frequency, mean and SD statistics of Employment Period of teachers

4.5. Descriptive statistics of standing time period in a day

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
2 to 3 Hours	23	25.8	25.8	25.8
4 to 5 Hours	38	42.7	42.7	68.5
more than 5 hours	28	31.5	31.5	100.0
Total	89	100.0	100.0	

Table 4.3 shows the statistics of frequency and percentage of standing period in a day. A total number of 89 teachers participated of which 23(25.8%) have 2 to 3 hour, 38(42.7%) have 4 to 5 hours and 28(31.5%) have 5 hours of standing period in a day.

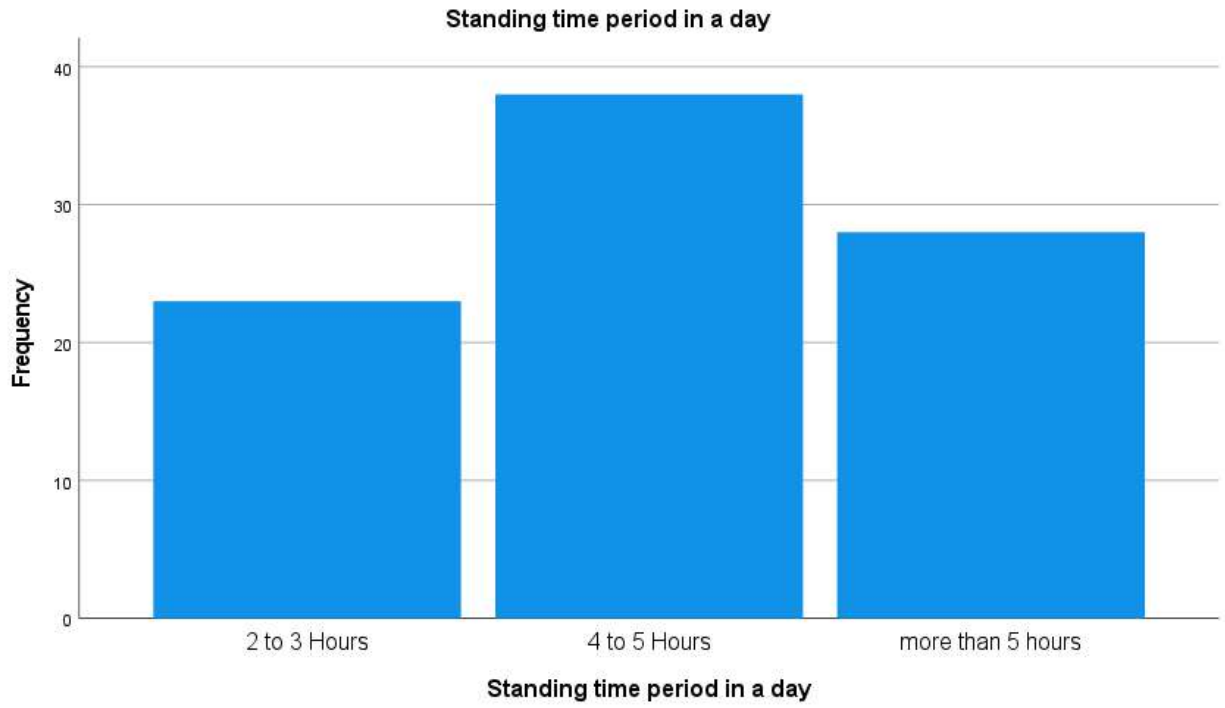


Fig 4.6: Bar Chart showing statistics of frequency of Standing period in a day of teachers

4.6. Descriptive statistics of NPRS

Results show that mean and SD of NPRS is 1.7640 ± 0.85

Variables	Mean	SD
NPRS	1.7640	0.8531

Table 4.4.shows the statistics of NPRS

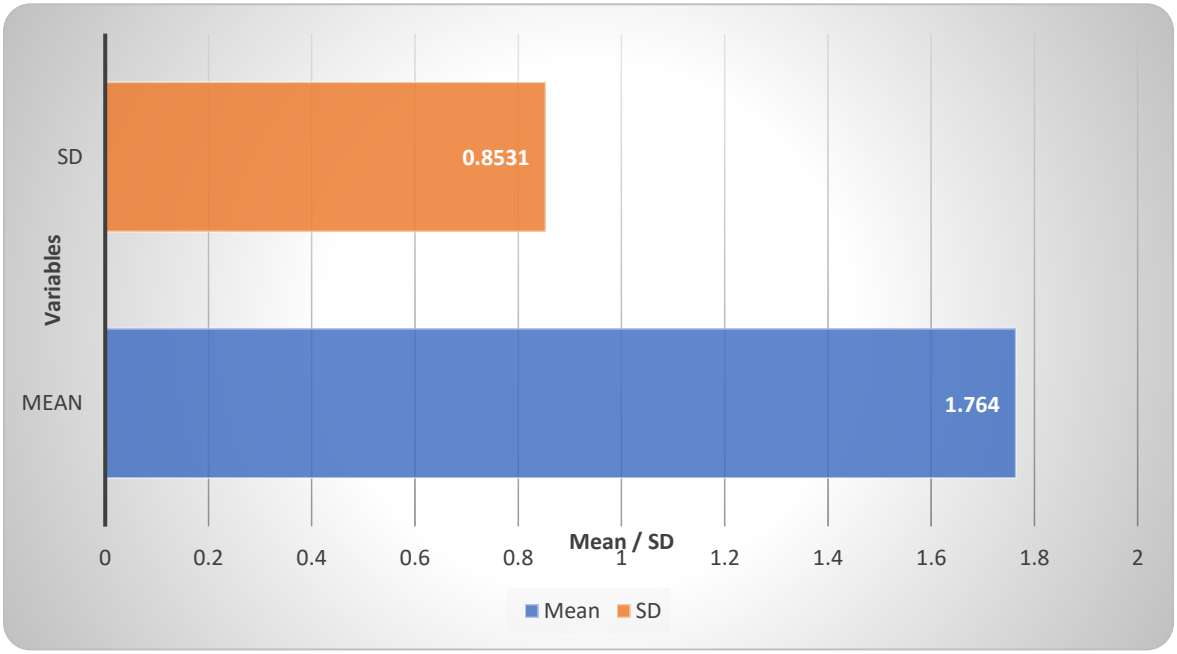


Fig 4.6 shows mean and SD statistics of Pain intensity in teachers

4.6: Descriptive statistics of Foot and Ankle disability index
Activities of daily living

Variables	Mean	Std. Deviation
standing	3.0000	0.94147
Walking on even ground	2.8764	1.07471
Walking on even ground without shoes on	2.6517	1.04557
Walking up hills	2.7865	1.28339
Walking down hills	2.7640	1.32307
Going up stairs	2.5730	1.09635
Going down stairs	2.7528	1.12089
Walking on uneven ground	2.8652	1.03563
Stepping up and down curbs	2.5281	1.00102
Squatting?	2.9326	1.23212
Coming up on your toes	2.8989	1.13863
Walking initially	2.7303	1.19434
Walking 5 minutes or less	2.8876	1.08123
Walking approx. 10 minutes	2.9213	1.11013
Walking approx. 15 minutes	2.6629	1.20552
Home responsibilities	2.6966	1.08087
Activities of daily living	2.6629	1.12759
Personal care	2.9775	0.99974
Light to moderate work (standing, walking)	2.8652	0.95574
Heavy work (push/pulling, climbing, carrying)	2.8539	1.36140
Recreational activities	2.7753	1.09496

Table 4.5. shows the mean and standard deviation of Activities of Daily living responses .The difficulty was greatest in standing (Mean = 3.00, SD = 0.94), and the least in stepping up and down curbs (Mean = 2.52, SD = 1.0). Overall the findings indicate mild to moderate functional limitations in both the daily and physical activities.

Sports subscale (optional)

Variables	Mean	Std. Deviation
Running	2.7528	1.20869
Jumping	4.0225	1.90082
Landing	2.8764	1.29527
Starting and stopping quickly	2.9326	1.23212
Cutting/lateral movements	2.8764	1.26868
Ability to perform activity with your normal technique	2.9213	1.26334
Ability to participate in your desired sport as long as you like	2.7978	1.26293

Table 4.6. Shows the descriptive statistics of sports subscale responses. The difficulty was great in jumping (mean = 2.75, SD = 1.90).Other activities like starting and stopping quickly and running showed moderate difficulty. Overall, mean scores ranging from 2.52 to 3.00 show that school teachers experienced mild to moderate difficulty in foot and ankle-related functional activities, likely due to prolonged standing and walking associated with teaching duties.

4.7. Frequency and Percentage Distribution of NPRS

Pain Intensity	Frequency & Percentage
No pain (0)	5 (5.6%)
Mild pain (1–3)	30 (33.7%)
Moderate pain (4–7)	35 (39.3%)
Severe pain (8–10)	19 (21.3%)
Total	**89 (100%)**

Table 4.7. Shows the frequency and percentage distribution of NPRS. The majority of teachers reported "Moderate pain" (39.3%, n=35), followed by "Mild pain" (33.7%, n=30). Only 5.6% (n=5) of teachers had "No pain", while 21.3% (n=19) experienced "Severe pain", indicating that most teachers suffer from mild to moderate pain levels affecting their foot and ankle function.

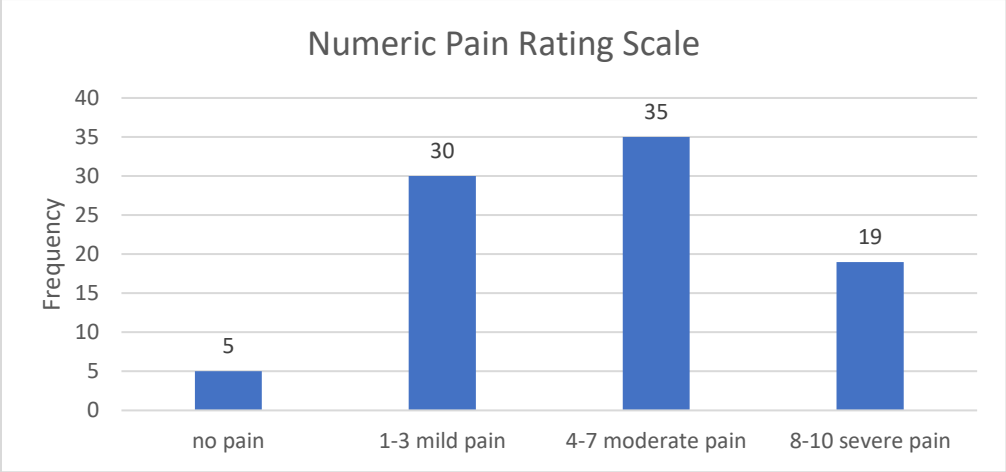


Fig. 4.8: shows Frequency of Distribution of Pain Intensity in teachers

4.8. Frequency and Percentage Distribution of Foot and Ankle disability index Activities of daily living

Variables	Extreme Difficulty	Moderate Difficulty	Slight Difficulty	No Difficulty	Unable To Do	N/A
standing	5 (5.6%)	18(20.2%)	34(38.2%)	31(34.8%)	1(1.1%)	-
Walking on even ground	9 (10.1%)	26(29.2%)	25(28.1%)	25(28.1%)	4(4.5%)	-
Walking on even ground without shoes	9(10.1%	30(33.7%)	25(28.1%)	23(25.8%)	1(1.1%)	1(1.1%)
Walking up hills	20(22.5%)	14(15.7%)	29(32.6%)	18(20.2%)	7(7.9%)	1(1.1%)
Walking down hills	17(19.1%)	28(31.5%)	13(14.6%)	22(24.7%)	8(9.0%)	1(1.1%)
Going up stairs	17 (19.1%)	27 (30.3%)	24 (27.0%)	19(21.3%)	2 (2.2%)	-
Going down stairs	13 (14.6%)	26 (29.2%)	24 (27.0%)	22 (24.7%)	4 (4.5%)	-
Walking on uneven ground	8 (9.0%)	26 (29.2%)	29 (32.6%)	22(24.7%)	4 (4.5%)	-
Stepping up and down curbs	16 (18.0%)	27 (30.3%)	29 (32.6%)	17 (19.1%)	-	-
Squatting	12 (13.5%)	23 (25.8%)	22 (24.7%)	25 (28.1%)	5 (5.6%)	2(2.2%)
Coming up on your toes	10 (11.2%)	20 (22.5%)	29 (32.6%)	25 (28.1%)	3 (3.4%)	1 (1.1%)
Walking initially	16 (18.0%)	20 (22.5%)	24 (27.0%)	26 (29.2%)	1 (1.1%)	1 (1.1%)
Walking 5 min or less	12 (13.5%)	20 (22.5%)	24 (27.0%)	32 (36.0%)	1 (1.1%)	-
Walking ~10 minutes	11 (12.4%)	22 (24.7%)	22 (24.7%)	31 (34.8%)	3 (3.4%)	-
Walking ~15 minutes	20 (22.5%)	20 (22.5%)	23 (25.8%)	22 (24.7%)	4 (4.5%)	-
Home responsibilities	15 (16.9%)	23 (25.8%)	26 (29.2%)	24 (27.0%)	1 (1.1%)	-
Activities of daily living	17 (19.1%)	24 (27.0%)	21 (23.6%)	26 (29.2%)	1 (1.1%)	-
Personal care	5 (5.6%)	27 (30.3%)	25 (28.1%)	29 (32.6%)	3 (3.4%)	-
Light–moderate work	6 (6.7%)	26 (29.2%)	33 (37.1%)	23 (25.8%)	-	1 (1.1%)
Heavy work (push/pulling, climbing, carrying)	21 (23.6%)	11 (12.4%)	22 (24.7%)	25 (28.1%)	9 (10.1%)	-
Recreational activities	13 (14.6%)	25 (28.1%)	21 (23.6%)	29 (32.6%)	1 (1.1%)	-

Table 4.8. Shows the frequency and percentage distribution of Activities of Daily living responses. “Extreme Difficulty" was reported for "walking up hills" (22.5%) and "heavy work" (23.6%), while "standing" was largely assessed as "slight difficulty" (38.2%) or "no difficulty" (34.8%). Overall, most teachers reported mild to moderate difficulties with daily activities such as walking, stairs, and light-moderate work, showing that occupational demands have a significant effect on foot and ankle function.

Sports Subscale (optional)

Variables	Extreme Difficulty	Moderate Difficulty	Slight Difficulty	No Difficulty	Unable To Do	N/A
Running	16 (18.0%)	20 (22.5%)	22 (24.7%)	28 (31.5%)	1 (1.1%)	1 (1.1%)
Jumping	11 (12.4%)	12 (13.5%)	12 (13.5%)	12 (13.5%)	7 (7.9%)	34 (38.2%)
Landing	11 (12.4%)	21 (23.6%)	24 (27.0%)	26 (29.2%)	4 (4.5%)	2 (2.2%)
Starting and stopping quickly	11 (12.4%)	21 (23.6%)	24 (27.0%)	26 (29.2%)	4 (4.5%)	2 (2.2%)
Cutting/lateral movements	12 (13.5%)	24 (27.0%)	21 (23.6%)	24 (27.0%)	5 (5.6%)	2 (2.2%)
Ability to perform activity with your normal technique	11 (12.4%)	22 (24.7%)	25 (28.1%)	23 (25.8%)	4 (4.5%)	3 (3.4%)
Ability to participate in your desired sport as long as you like	1 (1.1%)	15(16.9%)	20 (22.5%)	25 (28.1%)	24 (27.0%)	1 (1.1%)

Table 4.9.shows the frequency and percentage distribution of sports subscale responses. "Extreme Difficulty" was indicated for "Running" (18.0%), while "Jumping" had the highest "N/A" responses (38.2%), indicating that many teachers do not engage in jumping activities. Most teachers indicated "No Difficulty" or "Slight Difficulty" in activities such as sprinting (31.5% no issue), landing (29.2%), and cutting/lateral motions (27.0%), indicating that moderate-level sports functions are manageable but high-impact activities remain tough.

4.9. Normality tests of NPRS and FADI

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Numeric Pain Rating Scale	.216	89	.000	.865	89	.000
standing	.217	89	.000	.865	89	.000
Walking on even ground	.186	89	.000	.905	89	.000

Walking on even ground without shoes	.199	89	.000	.904	89	.000
Walking up hills	.184	89	.000	.909	89	.000
Walking down hills	.224	89	.000	.900	89	.000
Going up stairs	.194	89	.000	.898	89	.000
Going down stairs	.187	89	.000	.907	89	.000
Walking on uneven ground	.180	89	.000	.910	89	.000
Stepping up and down curbs	.198	89	.000	.878	89	.000
Squatting?	.169	89	.000	.922	89	.000
Coming up on your toes	.187	89	.000	.926	89	.000
Walking initially	.174	89	.000	.908	89	.000
Walking 5 minutes or less	.219	89	.000	.863	89	.000
Walking approx. 10 minutes	.216	89	.000	.885	89	.000
Walking approx. 15 minutes	.161	89	.000	.895	89	.000
Home responsibilities	.184	89	.000	.885	89	.000
Activities of daily living	.186	89	.000	.875	89	.000
Personal care	.206	89	.000	.888	89	.000
Light to moderate work (standing, walking)	.197	89	.000	.888	89	.000
Heavy work (push/pulling, climbing, carrying)	.182	89	.000	.897	89	.000
Recreational activities	.205	89	.000	.872	89	.000
Running	.186	89	.000	.903	89	.000
Jumping	.233	89	.000	.851	89	.000
Landing	.178	89	.000	.930	89	.000
Starting and stopping quickly	.166	89	.000	.933	89	.000
Cutting/lateral movements	.171	89	.000	.935	89	.000
Ability to perform activity with your normal technique	.149	89	.000	.937	89	.000
Ability to participate in your desired sport as long as you like	.159	89	.000	.921	89	.000

Table 4.10 shows the results of the data normality test. All variables had p-values < 0.05, indicating that the data was not normally distributed.

4.9. Correlations of NPRS and FADI

		FADI	Numeric Pain Rating Scale
FADI	Correlation Coefficient	1.000	-.253*
	Sig. (2-tailed)	.	.017
	N	89	89

Numeric Pain Rating Scale	Correlation Coefficient	-.253*	1.000
	Sig. (2-tailed)	.017	.
	N	89	89

Table 4.11. Shows the relationship between the Numeric pain Rating Scale (NPRS) and the Foot and Ankle Disability Index (FADI) among teachers with ankle Pain and plantar fasciitis. A statistically significant weak negative correlation was found between NPRS and FADI (r = -.253, p =.017), which was significant at the 0.05 level. This suggests that as pain intensity increases, foot and ankle function decrease in teachers suffering from ankle pain and plantar fasciitis, showing that higher pain levels are associated with increased functional disability.

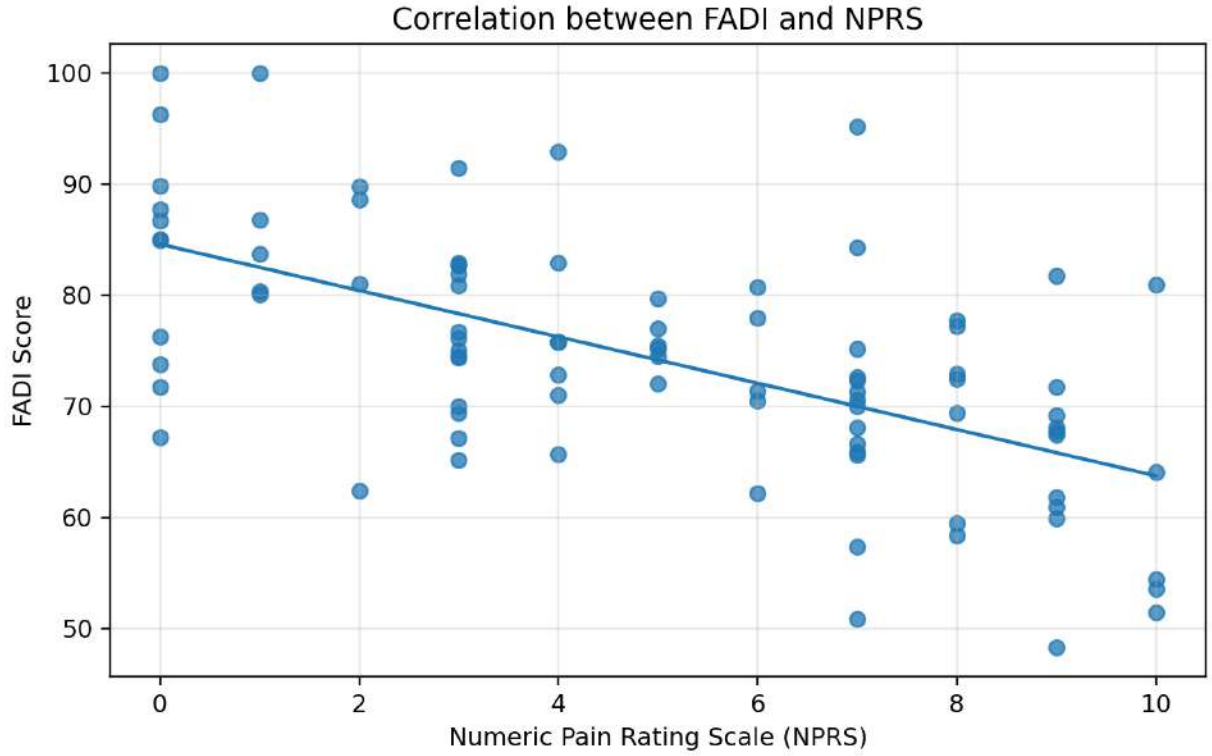


Fig 4.9. Scatter plot showing that FADI and NPRS have a weakly negative relationship

5.1. DISCUSSION

The teaching profession plays a vital role in shaping future generations. At the same time, it places heavy physical demands on workers, especially because of long hours of standing, walking, and repeated classroom activities. These job-related demands often go unnoticed, even though they greatly affect musculoskeletal health. The present cross-sectional study aimed to find out the prevalence of ankle pain and plantar fasciitis among teachers and how these conditions affect their functional abilities. The results show that foot and ankle pain are frequent in teachers and are linked to notable functional limitations, underlining the occupational health importance of these problems.

In this study, a large number of teachers reported having foot and ankle pain, with most falling into the mild-to-moderate pain category. These findings match earlier reports which identified teaching as a high-risk occupation for plantar fasciitis due to repeated stress and long-lasting weight-bearing activities (Sufi et al., 2025; Khan et al., 2025). Similarly, Alrashidi et al., (2022) found

a high rate of plantar heel pain among school teachers, highlighting the occupational danger of extended standing. Furthermore, ankle pain arises from biomechanical strain caused by prolonged standing, which leads to degenerative changes in the plantar fascia and reduced shock absorption. This, in turn, results in altered walking patterns and compensatory movements, increasing stress on the ankle joint and producing pain along with functional limitations (Tseng et al., 2023).

All participants in this study had an average age of 40.74 ± 8.15 years and an average work experience of 11.73 ± 6.48 years. This means they were middle-aged and had spent a considerable time period in teaching, which raises the risk of degenerative musculoskeletal conditions. Previous research has shown that plantar fasciitis most commonly affects people in their fourth and fifth decades of life because of continuous mechanical strain on the plantar fascia (Hashmi et al., 2020; Alrashidi et al., 2022).

Regarding work-related exposure, most participants (42.7%) reported standing for 4–5 hours per day, while 31.5% stood for more than five hours. Long-standing hours are well known as a major external factor contributing to plantar fasciitis and ankle pain, as they increase tension in the plantar fascia, reduce blood flow, and cause muscle fatigue (Sufi et al., 2025). This conclusion agrees with regional and international studies that have found a strong connection between standing time and plantar heel pain among teachers (Alrashidi et al., 2022).

Pain intensity analysis showed that most participants experienced moderate (39.3%) or mild (33.7%) pain, with a considerable proportion (21.3%) reporting severe pain. Only 5.6% of the subjects were pain-free, highlighting how common subclinical or chronic heel pain is. Malik and coworkers (2024) reported similar findings among retail workers who stood for extended periods. Although the average NPRS score indicated mild pain intensity, the distribution reveals that a substantial number of teachers suffer from clinically significant pain. These results are in line with earlier studies, such as those by Sufi et al. (2025) and Khan et al. (2025), which found a high frequency of foot and heel pain among teachers related to their job duties.

A functional assessment using the Foot and Ankle Disability Index (FADI) showed mild-to-moderate limitations in everyday activities. Tasks such as standing, walking on uneven ground, and climbing stairs were rated as more difficult. These findings are consistent with earlier reports indicating that plantar fasciitis leads to activity-related functional limitations rather than complete disability (Alrashidi et al., 2022; Sufi et al., 2025). In addition, high-impact activities like jumping were harder to perform than moderate activities like running. This can be explained by biomechanical concepts, which state that increased loading and impact forces worsen the stress on the plantar fascia. This suggests that plantar fasciitis and ankle pain mainly affect activities that require high mechanical load and good shock absorption. These observations align with biomechanical theories that explain how increased load on the plantar fascia during dynamic movements causes micro-trauma and pain.

A significant negative correlation was found between pain intensity and functional ability ($r = -0.253$, $p < 0.05$), meaning that as pain increases, functional performance decreases. Although the correlation is weak, it is clinically meaningful. Previous research has identified similar relationships, showing that pain is associated with reduced mobility, poorer balance, and lower work output (Alshehri et al., 2025; Gulle et al., 2024). However, the small correlation also suggests that other factors such as biomechanics, muscle strength, and psychological aspects influence functional outcomes.

Interestingly, the present study found mainly mild-to-moderate functional limitations, which differs from some studies that reported higher levels of disability. For example, Hashmi et al. (2020) reported a higher frequency of plantar fasciitis among female teachers, while Alqahtani et al. (cited in the literature) observed greater severity in older age groups. These differences may be due to variations in sample characteristics, occupational workload, and lifestyle factors.

Normality tests showed that the data were not normally distributed ($p < 0.05$), which is typical for clinical variability and subjective pain experiences among individuals. This diversity reflects the multifactorial nature of plantar fasciitis, which involves biomechanical, psychosocial, and occupational factors.

Overall, these findings highlight that prolonged standing, poor footwear, and the occupational pressures of teaching contribute significantly to plantar and ankle pain among educators. The results reinforce the need for preventive ergonomic strategies, education about proper footwear and posture, and early physiotherapy interventions to reduce pain and preserve functional ability.

5.2. CONCLUSION

Foot problems such as plantar fasciitis and ankle pain occur frequently in teachers and are strongly linked to job-related activities, especially long hours of standing. Most study participants reported mild to moderate pain as well as some difficulty in carrying out daily tasks. A statistically meaningful negative relationship was found between pain severity and physical function, meaning that when pain increases, a teacher's ability to perform daily activities decreases. These results emphasize the need for early recognition and treatment of foot and ankle disorders in order to enhance both quality of life and work productivity among educators.

5.3. LIMITATIONS

Several limitations of this study must be kept in mind when interpreting its results. Because the research used a cross-sectional design, it cannot establish cause-and-effect relationships between work-related factors and plantar fasciitis. The relatively small number of participants and the use of convenience sampling may limit how widely the findings can be applied to other populations. Furthermore, the study relied on self-reported tools like the NPRS and FADI, which may introduce bias due to participants' personal perceptions or memory.

5.4. RECOMMENDATIONS

Based on what this study found, the following steps are suggested to introduce preventive and rehabilitative measures within the teaching profession. Awareness campaigns should be launched to educate teachers about proper ergonomic practices, suitable footwear, and changes in daily activities. Allowing regular short breaks, cutting down on continuous standing hours, and making workplace adjustments can help lower the risk of developing plantar fasciitis. Physiotherapy approaches such as stretching routines, muscle strengthening exercises, and balance (proprioceptive) training should be promoted to enhance functional ability. Future studies should use longitudinal (long-term) designs with larger and more diverse participant groups, and include objective clinical assessments, to better understand the causes and develop stronger evidence-based interventions.

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ANNXURE-I

ENGLISH CONSENT FORM

The study you are about to participate is a cross-sectional study titled as;

"PREVALENCE OF ANKLE PAIN AND PLANTAR FASCIITIS AMONG TEACHERS"

The study has no potential harm to participants. All data collected from you will be coded in order to protect your identity, and should not be disclosed to anyone. Following the study there will be no way to connect your name with your data. Your answers to the questions will not affect the quality of education given to you. Any additional information about the study results will be provided to you at its conclusion, upon your request.

You are free to withdraw from the study at any time. You agree to participate, indicating that you have read and understood the nature of the study, and that all your inquiries concerning the activities have been answered to your satisfaction.

NAME ..... SIGNATURE .....

DATE .....

URDU CONSENT FORM

محترم

نے

اپنی تحقیق

اساتذہ میں ٹخنے کے درد اور پلانٹر فیشیائٹس کی شرح پھیلاؤ

زیرنگرانی **ڈاکٹر سونیا یاسمین**

کے متعلق بتا دیا ہے۔ مجھے اس تحقیق کی نوعیت، مقاصد، احداف، توقعات، فوائد اور خطرات کے متعلق ساری معلومات فراہم کر دی گئی ہیں۔

اس تحقیق کے دوران ساری معلومات صیغۃ راز میں رہیں گی اور مریض کا نام اور دیگر معلومات صرف تحقیق کے لیے استعمال ہوں گی۔مجھے یہ بھی بتا دیا گیا ہے کہ میں اس تحقیق سے متعلقہ ہر قسم کے سوال پوچھنے کا مجاز ہوں اور یہ تحقیق صرف ایک شخص ک مفاد میں نہیں ہے بلکہ بحسثیت مجموعی انسانیت کا مفاد اس سے وابسطہ ہے۔ تمام تفصیلات جاننے کے بعد یس تحقیق میں شامل ہونے یا نہ ہونے پر کسی کا قائل نہیں ہوں۔ اس تحقیق سے کسی بھی وقت علیحدہ ہونے پر مجھ پر کوئی پابندی نہیں ہو گی۔ میں بذاتِ خود بقائمی حوش و حواس اور رضا مندی سے اس تحقیقاتی عمل میں شامل ہوتی/ ہوتا ہوں۔

دستخط محقق ----------

دستخط شرکت کار ----------

تاریخ ----------

ANNXURE-II

Serial Number: _____ Name: _____

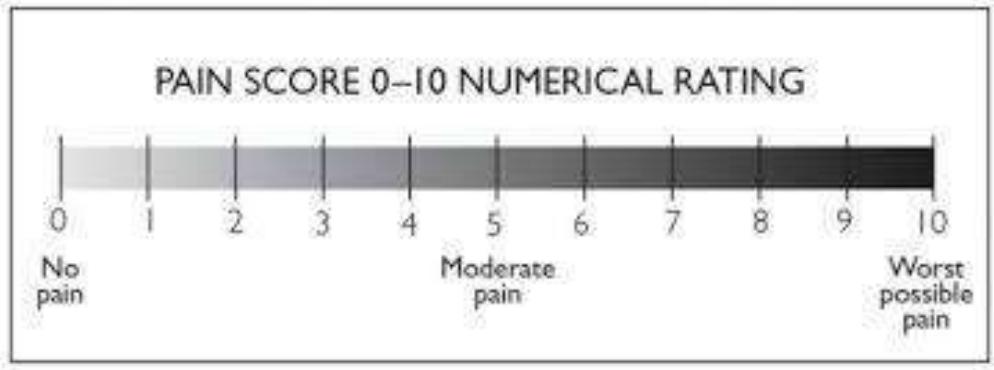
Age: _____ Weight: _____

Gender: _____ Employment Period (years): _____

Standing time period in a day: ☐ 2-3 hours

☐ 3-4 hours

☐ More than 5 hour**NUMERIC PAIN RATING SCALE**



FOOT/ANKLE DISABILITY INDEX

Instructions for completion of this questionnaire:

- Please answer every question with ONE answer, based on your condition within the past week.
- If the activity in question is limited by something other than your foot and ankle mark N/A ('not applicable').

How would you rate your foot or ankle today as a percentage of normal (0% to 100%), with 100% being normal?

Activities of Daily Living Subscale

	NO DIFFICULTY	SLIGHT DIFFICULTY	MODERATE DIFFICULTY	EXTREME DIFFICULTY	UNABLE TO DO	N/A
1. Standing	4	3	2	1	0	-
2. Walking on even ground	4	3	2	1	0	-
3. Walking on even ground without shoes on	4	3	2	1	0	-
4. Walking up hills	4	3	2	1	0	-
5. Walking down hills	4	3	2	1	0	-
6. Going up stairs	4	3	2	1	0	-
7. Going down stairs	4	3	2	1	0	-
8. Walking on uneven ground	4	3	2	1	0	-
9. Stepping up and down curbs	4	3	2	1	0	-
10. Squatting	4	3	2	1	0	-
11. Coming up on your toes	4	3	2	1	0	-

12. Walking initially	4	3	2	1	0	-
13. Walking 5 minutes or less	4	3	2	1	0	-
14. Walking approx. 10 minutes	4	3	2	1	0	-
15. Walking approx. 15 minutes	4	3	2	1	0	-
16. Home responsibilities	4	3	2	1	0	-
17. Activities of daily living	4	3	2	1	0	-
18. Personal care	4	3	2	1	0	-
19. Light to moderate work (standing, walking)	4	3	2	1	0	-
20. Heavy work (push/pulling, climbing, carrying)	4	3	2	1	0	-
21. Recreational activities	4	3	2	1	0	-

ADL Score = _____

Sports Subscale

Complete this section only if you are involved in sports, otherwise skip this section.

	NO DIFFICULTY	SLIGHT DIFFICULTY	MODERATE DIFFICULTY	EXTREME DIFFICULTY	UNABLE TO DO	N/A
Running	4	3	2	1	0	-
Jumping	4	3	2	1	0	-
Landing	4	3	2	1	0	-
Starting and stopping quickly	4	3	2	1	0	-
Cutting/lateral movements	4	3	2	1	0	-
Ability to perform activity with your normal technique	4	3	2	1	0	-
Ability to participate in your desired sport as long as you like	4	3	2	1	0	-

Overall, how would you rate your current level of function?

 Normal (4) Nearly Normal (3) Abnormal (2) Severely Abnormal (1)

Sports Score: _____