



PREVALENCE OF HEEL PAIN AND IT'S FUNCTIONAL IMPAIRMENT AMONG WORKING WOMEN

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Abstract

Introduction: Heel pain is a broad terminology describing pain and discomfort experienced in or around the base of the foot. There are several other terms to describe heel pain, notably jogger's heel, gonorrheal heel, tennis heel, PF, and policeman's heel. Heel discomfort can be brought on by a range of bone diseases, systemic diseases, and soft tissue disorders. Examination of the bottom leg's history and clinical condition are used to narrow the differential diagnosis and determine the anatomic cause of the heel discomfort.

Methodology: A population-based cross-sectional approach was carried out. The research targeted working women who were suffering from heel pain among multiple working centres in the Delhi-NCR area. A 200 population of working women aged between 20 to 50 years were sampled that fulfilled the inclusion criteria. A self-administrated questionnaire was circulated in the google form that consists of demographic details, NPRS and FADI scale to find out intensity of pain and associated functional impairments among women with heel pain.

Results: Women experiencing heel pain weigh between 61.35 ± 10.93 kg on average. 91.5 % said they'd had heel discomfort in the previous several weeks, while 8.5% claimed they hadn't. As an outcome, the mean NPRS score is 5.92 ± 2.470 and average FADI score was 64.89 ± 1.236 out of a possible 104 points. A strong correlation was found between age, weight, NPRS and FADI score. A strong negative correlation of FADI final score with NPRS was seen ($r = -5.85$)

Conclusion: The majority of working women reported experiencing heel discomfort, especially in the last several weeks or months. Teaching, nursing, and housekeeping were the three most prevalent occupations. Responders reported moderate to somewhat severe pain, which was accompanied by functional impairment when trying everyday tasks. The substantial negative correlation between FADI and NPRS is another finding of our study.

Key Words: prevalence, heel pain, functional impairments.

INTRODUCTION

Heel pain is a broad terminology describing pain and discomfort experienced in or around the base of the foot. One of the most painful and incapacitating foot ailments is heel ache or heel pain, which is relatively prevalent. The patient often complains of discomfort at the point where the achilles tendon inserts on posterior end of the calcaneus.¹ There are several other terms to describe heel pain, notably jogger's heel, gonorrheal heel, tennis heel, PF, and policeman's heel.²

The 2010 revision of the original 2001 CPG (clinical practice guidelines) a piece of writing that appeared within a publication provided the elaborated pathways of possible causes of heel pain. Pathway 1 suggests that the primary trigger of HP is mechanical, although it can also be brought on by neurological, arthritic, traumatic, or other chronic conditions. The mechanical causes are explained in pathway 2 and 3. Pathway 2 consists of several causes of PHP, including calcaneal spur syndrome, PF, as well as plantar fasciitis, and Pathway 3 consists of heel pain in back may be due to bursitis, Haglund's disease or achilles tendinopathy. Pathway 4 includes other additional etiologies such as tumors (both noncancerous and cancerous), infection, and vascular compromise.³

Annually, over 2 million individuals receive treatment for heel pain in the US alone, making up 11 to 15 percent of all clinician visits for foot problems.⁴ Approximately 10% of all Americans will witness heel pain at some stage of life.⁵

Plantar heel pain was only slightly more common in women and was uniform across age groups, however it was more common in women who worked in regular or physical jobs. Teaching, nursing, or any physical occupation that requires prolonged weight-bearing are all more susceptible to heel pain somewhere during their lifetime.^{6,7}

Clinical trials have shown that conservative treatments such as stretching and strengthening and others are corticosteroids injectable shots, foot arch supports, analgesics, massaging, overnight orthotics, physiotherapy, and footwear corrections can be effective. This ailment has also been effectively treated with shockwave treatment and cryotherapy. When conservative treatment fails, these excruciating chronic disorders have been treated with calcaneal spur excision and invasive or non-invasive release of the plantar fascia which either is partial or complete.^{8,9} Additionally, evidence supported the effectiveness of RFNA in curing the painful plantar fasciitis.¹⁰

METHODOLOGY

In this current study, a population-based cross-sectional approach was carried out. The research targeted working women who are suffering from heel pain among multiple working centres in the Delhi-NCR area. A 200 population of working women aged between 20 to 50 years were sampled that fulfilled the inclusion criteria. Participants with heel pain despite receiving advice about foot pain, women who work in manual or passive occupations, and participant's consent were all also included. Any history of foot fracture or trauma to the foot, any neurological problem, musculoskeletal disorder affecting the leg or ankle, and anisomelia (two unequal-length limbs) were all excluded.¹¹

PROCEDURE:

A Google forms was created and circulated with the help of social media. A tailored survey or quiz may be created using the Google form approach to gathering information from people. After that, the data is gathered and linked to a spreadsheet. 200 working women were included with an age group 20-50 years from multiple working centres in Delhi-NCR areas.

A self-administered questionnaire with three sections is mailed to all eligible participants. The first section covers all demographic information, such as name, age, phone number, weight, and employment. This section also includes participant consent. The NPRS was used to quantify the severity of the discomfort or pain in the second section, expressed using an ordinal scale of eleven points, with zero denoting no discomfort and 10 denoting the worst aches. The FADI (foot and ankle disability index) questionnaire is included in Section 3. The FADI has a total of 26 items that measure overall pain and associated functional impairment in participants with heel pain. All of the questions are about day-to-day activities. The first 22 questions concern the capacity to carry out everyday activities while suffering from heel pain, while the final four questions concern assessing the pain severity.

DATA ANALYSIS:

After being gathered, the data were reviewed, coded, and entered into the statistical program SPSS version 27. Microsoft Excel was used to create the graphs you see here. Pearson correlation of FADI final score with NPRS is found to be -5.85 that suggests NPRS and FADI are in strong negative correlation.

RESULTS

Women experiencing heel discomfort weigh between 61.35 ± 10.93 kg on average. 91.5 % said they'd had heel discomfort in the previous several months, while 8.5% claimed they hadn't.

The questionnaire includes the NPRS scale to determine the severity of heel pain experienced in a range of 0 to 10. Out of 198 entries, 19.7% rated 6 on the scale, while around 15.7 percent indicated 5 and 7. As an outcome, the mean NPRS score is 5.92 ± 2.470 .

The FADI scale was used to measure the degree of functional impairments experienced by the women in the subsequent section of the questionnaire. The average FADI score was 64.89 ± 1.236 out of a possible 104 points.

Pearson correlation of FADI final score with NPRS is found to be -5.85 that suggests NPRS and FADI are in strong negative correlation. In the case of a significant negative correlation, every rise in one variable is accompanied by a greater fall in another. According to our findings in this study, if the NPRS score rises, the population generally experiences a decline in the FADI score. For instance, if a person has more pain, the FADI total score drops, suggesting that the discomfort is getting worse and is linked to increasing functional instability of the ankle and foot.

Figure 1: Pain response

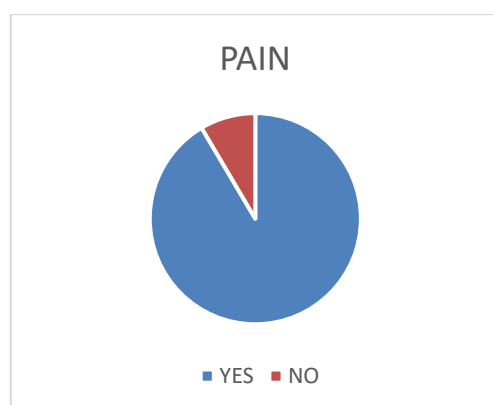


TABLE NO 1 – Shows the Pain score of the subjects.

If you are having heel pain, rate your pain from 0 to 10(Numerical pain rating score)		
Mean	N	Std. Deviation
5.92	198	2.470

TABLE NO. 2 -Shows the Foot and Ankle Disability Index Score of the subjects which shows that there is high prevalence foot and ankle disability in the subjects.

Foot and ankle disability index score				
	N	Mean	Std. Deviation	Std. Error Mean
FINAL SCORE	200	64.89	17.473	1.236

TABLE NO. 3- Shows the correlation between the Age, Weight, NPRS and Final score of the Foot and ankle disability index score (FADI).

Correlations					
		Age	Weight	NPRS	FINAL SCORE
Age	Pearson Correlation	1	.280**	.089	-.255**
	Sig. (2-tailed)		.000	.210	.000
	N	200	198	198	200
Weight	Pearson Correlation	.280**	1	.224**	-.085
	Sig. (2-tailed)	.000		.002	.233
	N	198	198	196	198
If you are having heel pain , rate your pain from 0 to 10	Pearson Correlation	.089	.224**	1	-.585**
	Sig. (2-tailed)	.210	.002		.000
	N	198	196	198	198
FINAL SCORE	Pearson Correlation	-.255**	-.085	-.585**	1
	Sig. (2-tailed)	.000	.233	.000	
	N	200	198	198	200

** . Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

Musculoskeletal pain that is not properly controlled can adversely affect individual's standard of living and cause severe socioeconomic concerns¹² and heel pain is one of them affecting major population in a moderate or severe level now-a-days.

Identifying the prevalence of heel discomfort was the goal of this investigation among Indian working women, as well as its deteriorating influence on their quality of life by incorporating two instruments, the NPRS and the FADI scale, average pain intensity reported by respondents on the NPRS scale was

5.92± 2.470, indicating that they experienced pain on a frequent basis ranging from moderate to slight severe.

Various studies were undertaken that commonly utilised the NPRS scale in foot and ankle conditions such as plantar fasciitis trials because of its high reliability and validity in detecting pain severity.^{13,14} In our study, we measured the mean NPRS score for pain severity, which ranged from 5 to 7. Yigal Katzap et al. also conducted comparative research, using the NPRS scale to compare the patients' levels of pain before and after the intervention to assess the effectiveness of the intervention in treating plantar fasciitis. Prior to the intervention, this study indicated that “ NPRS score was around 6.57 in the group receiving active ultrasonography and approximate estimate 7.04 in the group receiving sham ultrasound.¹⁵ Thus this might imply that the majority of the population that experienced heel pain did so to a moderate to a severe grade.

Our study also examined the correlation between all of the variables, including age, weight, NPRS, and FADI, and came to the conclusion that there was a substantial negative correlation between FADI and NPRS, as indicated by the r value (Pearson coefficient = -5.85). It may be explained by the principle that for every rise in one variable, another variable falls. According to our research, the final FADI scores decreased for every patient whose pain intensity increased, resulting in a worse functional impairment and a lower grade for the quality of life. According to a research, both ratings demonstrated very modest impairment difficulties, with the function being significantly more negatively impacted than the pain domain. Nearly all responders had no pain, according to the domain for pain. The same factors are reflected in the overall FADI score, demonstrating that the cut off point for disability was not even close to being reached.¹⁶

CONCLUSION

In conclusion, this study showed that the majority of women who worked long hours experienced heel pain, particularly during the preceding several weeks or months. Teaching, nursing, and housekeeping were the three professions most frequently represented by the women who suffered from heel pain. Responders reported that they were experiencing moderate to somewhat severe pain, which was accompanied by functional limitations when performing everyday tasks. Our analysis also reveals a significant negative correlation between FADI and NPRS.

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