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Prevalence of non-traumatic foot pain among working women and its contributing factors in Hyderabad

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Abstract
Background: In women, pain of the foot is a common problem, various studies has proved that the common cause of the foot pain is the ill-fitting of the footwear. This study was conducted to find out the prevalence of non-traumatic foot pain among working women and its contributing factors in Hyderabad.
Method: The survey was conducted on working women recruited using convenient sampling. Data on foot problem was collected by distributing questionnaire among the participants.
Finding: A total of 250 working women were selected, out of which 234 responded for the study. From these 234 working women mostly were doctors (116), teachers (103), Bankers (7) and other (8). 108 (46.2%) had pain whereas 126 (53.8%) had not experienced foot pain. Those who experienced foot pain 59 (25.2%) participants described "footwear" as the cause. And the common location of the pain was "heel" according to 68 (29.1%) participants. Majority of the participants reported that the pain lasted for <1 day/week or 1-2 days/week. They also described that they wore the footwear worn to work for longer duration. Assessment of severity of foot pain by NIS (numeric intensity scale) provided a mean score of 4.08 ± 1.31 (range 1–8). There was no significant relationship between foot pain and age or body mass index (BMI).
Conclusion: Non-traumatic foot pain is common among working women. Many working women with foot pain in this study credited the pain to footwear. Increasing the public awareness regarding wearing a proper footwear may reduce the prevalence of non-traumatic foot pain among working women.

Keywords: Working women, foot pain, Hyderabad

Introduction

Non-Traumatic Pain

Pain that is not caused by trauma or injury, such as congenital and developmental anomalies.

Non-traumatic Foot disorders

Non-traumatic foot conditions occur when there is no evidence of any physical trauma. A person suffers the conditions due to other various aetiologies. Some non-traumatic foot disorders are discussed followed [4].

Contributing Factors

Age

The most obvious risk factor for foot development is age, as epidemiological studies involving a wide range of age participants have consistently found that the incidence of foot problems in the elderly is higher. However, there is some evidence of a non-linear relationship suggesting that the prevalence seems to increase to around 65 and then decline. This may be because of decline of physical activities. Regarding the lower foot symptoms reported by institutionalized older adults, it may be that the development of foot symptoms requires a certain amount of activity, so that even elderly people with severely deformed feet experience no symptoms [4].

Sex

Sex has a significant effect on the problem of the feet, and several studies have shown that the prevalence of foot problems in women, especially hallux valgus and corns, is higher and is more likely to report foot pain.

However, a "feet first" study that includes a broader range of foot conditions than most epidemiological studies found that while women are more likely to exhibit hallux valgus, corns and calluses, other conditions (nail conditions, fungal infections and ulcers) are more prevalent among men. The most likely explanation for the higher incidence of female foot problems is wearing high heels and narrow toe shoes frame. Elevation of the heel increases the pressure on the metatarsal head, and it has been previously shown that older people wearing shoes that are too short or too narrow are more likely to have corn, small toe deformities, hallux valgus, and foot pain. However, the higher incidence of foot pain may also reflect gender differences in pain tolerance as women are more likely to report musculoskeletal pain and pain disturbances in other body parts [4].

Obesity

Several studies have reported the relationship between body mass index (BMI) and foot pain, although there is no evidence of an incidence of structural foot disease in overweight or obese adults. A reasonable explanation of the link between obesity and foot problems can be drawn from plantar pressure studies. Several surveys evaluated the pattern of foot load in obese and non-obese people and have shown a significant increase in strength and pressure at the foot while walking, especially below the midfoot and metatarsal head. Over time, these elevated forces overload the plantar tissue and lead to the development of such conditions as metatarsalgia and heel pain [4].

Income, Education and Ethnicity

Although it is generally accepted that health conditions are closely linked to the social demographic factors, the role of education and income in the problem of foot in the elderly is ambiguous. Although some studies report that older adults with foot problems have lower incomes, individuals have not been able to find such connections. Similarly, some studies have found that lower levels of education are associated with foot problems rather than others. These differences most likely reflect differences in how income levels are defined, differences in education systems across countries, and variability in the adjustment of confounders in statistical models. The impact of race on the prevalence of foot problems has received little attention in the literature. Two community studies in the United States found that African Americans had a higher prevalence than the non-African Americans' feet. However, only one study focused on the racial differences in the clinical assessment of foot problems. [4]

The importance of this study was to find out the common cause and prevalence of non-traumatic foot pain among working women and its contributing factors. The study showed that the participants who had foot pain mostly was attributed to the footwear. By increasing public awareness on proper footwear may help to decrease the prevalence of non-traumatic foot pain among working women.

Materials and Methods

Study Design

The study Design was Cross Sectional study

Participants Recruitment

Participants were recruited from different hospitals, schools, banks and institutes of Hyderabad.

Duration of Study

The time of study was 6 months after approval of synopsis.

Sampling Technique

Convenient technique used.

Sample Size

Sample size of 250 working women was selected for data collection.

Sample selection

Inclusion criteria

Office working women of Hyderabad.
Working for 30 hours per week.

Exclusion criteria

Uneducated women were excluded.
Unemployed women were excluded.
Males were excluded.

Data Collection Method

The data was collected by distributing questionnaires among working women.

Data Collection Tool

The tool for data collection was the questionnaire extracted from the study conducted by Yeok Pin Chua et al in Malaysia on Prevalence of non-traumatic foot pain among urban young working women and its contributing factors.

Data Analysis

For data analysis SPSS software, version 22 was used.

Budget

The amount for the study was from PKR 20,000 to PKR 25,000.

Ethical Consideration

Informed consent was provided to participants before administering the questionnaires. They may refuse to join the study without any explanation of the reason. Data was used for research purpose only and their data was kept confidential and anonymous.

Results

Table 1: Demographic data of participants

Age of the participants		**Frequency**	**Percent**
Valid	15-30 y/o	163	69.7
	31-45 y/o	53	22.6
	46-60 y/o	18	7.7
	Total	234	100
Occupation of the Participants		Frequency	Percent
Valid	Teacher	103	44
	Doctor	116	49.6
	Banker	7	3

	Other	8	3.4
	Total	234	100
Foot Pain Experience		Frequency	Percent
Valid	YES	108	46.2
	NO	126	53.8
	Total	234	100
Location/Site of the Pain		Frequency	Percent
Valid	Heel	68	29.1
	Lateral arch	4	1.7
	Medial arch	8	3.4
	Ball of the foot	14	6
	Other	14	6
	Total	108	46.2
Missing	System	126	53.8
Total		234	100

Table 2: Non-Traumatic foot pain prevalence

Time of Pain Lasting		**Frequency**	**Percent**
Valid	<1 day/week	50	21.4
	1-2 days/week	47	20.1
	3-5 days/week	5	2.1
	>5 days/week	5	2.1
	Total	107	45.7
Missing	System	127	54.3
Total		234	100
Intensity of Pain		N	102
Intensity of pain		Minimum	1
		Maximum	8
		Mean	4.08
		Std. Deviation	1.318
Type of Footwear		Frequency	Percent
Valid	High-heeled footwear	35	15
	Non High-heeled footwear	73	31.2
	Total	108	46.2
Missing	System	126	53.8
Total		234	100
Pain caused by Footwear		Frequency	Percent
Valid	Yes	59	25.2
	No	49	20.9
	Total	108	46.2
Missing	System	126	53.8
Total		234	100

Table 3: Factors Affecting Foot pain

Comfort of Footwear		**Frequency**	**Percent**
Valid	Yes	71	30.3
	No	37	15.8
	Total	108	46.2
Missing	System	126	53.8
Total		234	100
Seeking of Formal Medical Attention		Frequency	Percent
Valid	Yes	22	9.4
	No	86	36.8
	Total	108	46.2
Missing	System	126	53.8
Total		234	100
Footwear worn to work is for longer duration		Frequency	Percent
Valid	Yes	79	33.8
	No	29	12.4
	Total	108	46.2
Missing	System	126	53.8
Total		234	100
BMI		Frequency	Percent
Valid	Underweight	20	8.5
	Normal	70	29.9
	Overweight/Obese	16	6.8
	Total	106	45.3
Missing	System	128	54.7
Total		234	100

Discussion

250 working women in Hyderabad were selected for this study in which we tended to determine the prevalence of foot pain and its contributing factors, out of which 234 responded to our questionnaire, the prevalence in our study was low as compared to the previous study conducted by Yeok Pin Chua et al in Malaysia. As out of these 234, 108 participants experienced foot pain and 126 the majority did not have complain of foot pain whereas in the previous study 400 working women were recruited and 200 experienced foot pain. The severity of pain in our participants was assessed by NIS which gave a mean score of 4.08 ± 1.31 (range 1–8) whereas the previous study reported a mean score of 4.89 ± 1.78 (range 2–10). The site of the pain in both studies was common i.e. heel. And in both studies the participants described the pain attributed by their footwear. In previous study there was high incidence of foot pain among the participants who wore high-heeled footwear whereas in our study such result was not shown high-heeled or non-high-heeled footwear was not crediting pain to the foot though majority reported their footwear the cause. The previous study showed that the 50 (25.0%) participants experienced pain <1 day/week, while the pain lasted for 1–2 days/week for 83 (41.5%) participants but in contrast our study showed that 50 (21.4%) participants described that their pain lasted for <1 day/week, 47 (20.1%) reported for 1-2 day/week. Both studies revealed that the majority of participants did not seek any former medical attention for the pain and there was no significant association between foot pain and age, or body mass index. In both studies the participants reported that they wore the footwear worn to work for longer duration than the footwear for leisure activities.

Conclusion

Among women in our society, non-traumatic foot pain is common. Previous different studies have shown that the cause of foot pain is ill-fitting, narrow shoes. So this study was conducted on a group of women working in different institutes, hospitals and banks of Hyderabad to determine the cause and prevalence of non-traumatic foot pain and its contributing factors. The women who mostly experienced foot pain credited their footwear as the cause of pain and they had worn that to their work for longer duration. The most common site/location of the pain was heel. There should be enhancement of public awareness in above mentioned places where women are working regarding proper and comfortable footwear which may help in reducing the prevalence of non-traumatic foot pain among working women.

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