

## Knowledge and Prevalence of Plantar Fasciitis among Nurses of Selected Hospital of Kathmandu, Nepal

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### Abstract

An uncomfortable foot ailment called plantar fasciitis is brought on by an inflammation of the plantar fascia. When this band of tissue is overworked or overextended, plantar fasciitis develops. This results in tiny rips in the fascia's fibers, particularly where it connects to the heel bone. This study set out to determine how much the nurses at the Civil Service Hospital in Kathmandu knew about plantar fasciitis and how common it was. At the Civil Service Hospital in Kathmandu, 58 nurses participated in a descriptive cross-sectional research. Data were gathered using a self-administered questionnaire and the windlass test. SPSS version 20 was used to analyze the data, which included frequency and percentage using a descriptive statistical approach. The results showed that majority of respondents (53.4%) of nurses were age group of 18 to 25 years. Maximum respondents (93.1%) had normal BMI, maximum (46.6%) had 1 to 4 years work experience and majority of respondents (74.1%) worn flats during duty hours. Out of 58 respondents (56.9%) had poor knowledge, (29.3%) satisfactory and (13.8%) had good knowledge regarding plantar fasciitis with positive prevalence of windlass test (63.80%) and (36.2%) had negative windlass test. In the present study, it is concluded that majority of the respondents had (56.9%) poor knowledge, (29.3%) satisfactory and (13.8%) had good knowledge regarding plantar fasciitis with positive prevalence of windlass test (63.80%) and (36.2%) had negative windlass test, which means majority have plantar fasciitis.

*Keywords:* Knowledge, Prevalence, Nurses, Plantar Fasciitis

### Introduction

An excruciating inflammation of the plantar fascia, a fibrous band of tissue at the base of the foot that supports the arch, is known as plantar fasciitis. When this band of tissue is overworked or overstretched, tiny rips in the fascia's fibers form, particularly where the fascia meets the heel bone, leading to plantar fasciitis. (Publications by Harvard Health,)

It accounts for roughly 8.10% of running-related injuries and nearly 80% of heel discomfort (Menon & Jain, 2018 2). An estimated 10% of Americans have heel discomfort, which leads to one million doctor visits every year to treat plantar fasciitis. However, more than

600,000 outpatient visits in the US are related to plantar fasciitis each year (Dyck & Boyajian-O'Neill, 2004).

Plantar fasciitis accounted for around 8% of musculoskeletal foot problems and ankle consultations in the United Kingdom (Landorf, 2015). 17.4% of adult participants in a large cohort study in Australia reported having foot discomfort (Hill et al., 2008). Ethiopia was reported to have a yearly prevalence of 43.7% for ankle-foot discomfort (Getie et al., 2021). Five-nine percent of Indians report having heel discomfort (Menon & Jain, 2018).

According to Sheikhzadeh et al. (2009), ankle-foot discomfort is a widespread issue among nursing professionals in the US, accounting for 24% of absenteeism from work. Ankle-foot discomfort was found to affect 55.3% of nurses in Australia, and 20% of these nurses said their issues interfered with their ability to function both at work and at home (Reed et al., 2014). According to research conducted in Japan, the prevalence among nursing professionals was revealed to be 23%, with 4% and 17% of nurses, respectively, unable to perform activities of daily living and work (Tojo et al., 2018).

Suzan's study revealed that among nurses working in a tertiary facility in Jeddah, Saudi Arabia, heel pain accounted for 41.5% of musculoskeletal issues (Goweda et al., 2015). In Taiwan, the prevalence of plantar fasciitis in doctors and nurses was found to be 8.14% and 13.11%, respectively (Sung et al., 2020).

### **Objectives of the study**

- To assess the knowledge and prevalence of Plantar Fasciitis among nurses of Civil Service Hospital, Kathmandu.
- To find out the level of knowledge of Plantar Fasciitis among nurses of Civil Service Hospital, Kathmandu.
- To identify prevalence rate of Plantar Fasciitis among nurses of Civil Service Hospital, Kathmandu.

### **Research Question**

- What is the knowledge and Prevalence of Plantar Fasciitis among nurses of Civil Service Hospital of Kathmandu?

### **Literature Review**

The frequency and risk factors of plantar fasciitis among nurses who have heel pain and visit primary healthcare clinics in Makkah, Kingdom of Saudi Arabia, were investigated in a cross-sectional research. The investigation comprised 270 samples in total. The findings revealed that 57.8% of the 270 nurses had plantar fasciitis; 88 (56.4%) of them were men, 104 (66.7%) had been standing for extended periods of time, 104 (66.7%) were fat, 91 (58.3%) wore improper footwear, and 140 (89.7%) had a sedentary lifestyle. The study's conclusions demonstrated that risk factors included obesity, a sedentary lifestyle, wearing improper shoes, jogging often, and prolonged standing (Goweda et al., 2015).

In a clinical assessment research, 5,109 people with plantar heel pain in middle-aged and older individuals were evaluated for population prevalence, relationships with lifestyle variables and health status, and frequency of healthcare use. According to the study's findings, 9.6% of people in the community had plantar heel pain, and 7.9% had plantar heel pain that was incapacitating. According to Hill et al. (2008), the incidence was much greater in those with manual and intermediate/routine professions, comparable in all age groups, and somewhat higher in females.

The Integrated Primary Care Information (IPCI) database was utilized in a retrospective cohort research on the incidence, prevalence, and treatment of plantar heel pain (PHP) in Dutch primary care. Based on a random sample, the total incidence of PHP was 3.83 instances out of 1,000 patients manually verified for the treatment of plantar heel pain; the incidence was 2.98 cases in males and 4.64 cases in females (Landorf, 2015).

One hundred samples were used in a cross-sectional descriptive study to examine how plantar fasciitis affected the quality of life (QoL) of both male and female patients as measured by the Foot Health Status Questionnaire. The findings indicated that 49 of the 100 patients were men and 51 were women. According to Reed et al. (2014), women with PF had lower health-related quality of life (QoL) than men in terms of foot pain, foot function, footwear, and overall foot health.

There were 88 traffic police officers included in a cross-sectional research on the prevalence of plantar fasciitis in police officers. Using the windlass test, the prevalence of plantar fasciitis was shown to be 25%. Long hours spent standing at their occupations caused stress to the plantar fascia, which in turn led to plantar fasciitis (PF) (Sheikhzadeh et al., 2009).

One hundred male and one hundred female patients made up the sample population for this observational research on the prevalence of calcaneal spur in the Indian community with heel pain. According to the study, calcaneal spurs were found in 118 out of 200 individuals who experienced heel discomfort, with 60% of those patients having them at the plantar or Achilles insertion. Of the Indian population experiencing heel discomfort, 59% had calcaneal spurs (Menon & Jain, 2018).

A comparative study of 26,024 doctors and 127,455 nurses, as well as an equal number of research database participants, were used in Taiwan to examine plantar fasciitis in these two professions. Between 2006 and 2012, there was a comparison of the risk of plantar fasciitis across three groups of people: nurses, physicians, and the general public. The findings demonstrated that, in comparison to the general population, the risk of plantar fasciitis was greater among nurses but lower among physicians. According to this study, there was an increased incidence of plantar fasciitis among female doctors, nurses, and doctors who specialize in orthopedics, physical medicine, and rehabilitation (Sung et al., 2020).

In Makkah, Kingdom of Saudi Arabia, 270 individuals with heel pain who were attending five randomly chosen primary healthcare clinics participated in a cross-sectional research.

Among the 270 nurses, 57.8% had plantar fasciitis; 88 (56.4%) were men, 104 (66.7%) were obese, 91 (58.3%) wore improper shoes, and 140 (89.7%) had a sedentary lifestyle (Goweda et al., 2015).

In Tamil Nadu, India, at the KMCH College of Physiotherapy, Coimbatore, a survey and experimental study were carried out to determine the prevalence of heel pain among nurses and the outcomes of self-administered treatment for heel pain management. 239 out of the 302 nursing students who took part in the study reported having heel discomfort. The Plantar Fasciitis Pain/Disability Score was used as the end measure, and it was assessed three weeks later. The findings indicated a greater prevalence rate in nursing students, with 79% of them reporting having heel discomfort from diverse reasons (Sheikhzadeh et al., 2009).

Simple random sampling was employed to gather samples for a cross-sectional study on the incidence of plantar fasciitis among nurses at a tertiary care facility in a rural region of India. The research involved one hundred and thirty males and seventy female nurses in good health. According to the findings, 21% of the 100 participants—17% of female nurses and 4% of male nurses—had plantar fasciitis. According to the study's findings, female nurses are more likely than male nurses to experience plantar fasciitis (Goweda et al., 2015).

At B and B Hospital in Kathmandu, a prospective comparative non-randomized research was carried out between September 2011 and 2013 to compare the efficacy of methylprednisolone injection against extra-corporeal shock wave treatment (ESWT) for plantar fasciitis. Two sets of 60 sample populations with plantar fasciitis were given injections of DMP and ESWT, respectively. Of the 60 patients that were signed up for the trial, 16 (27%) were men and 44 (73%) were women. The age range was 15–65 years old, with a mean of 44.18 years. Thirteen patients (28.34%) were obese ( $BMI \geq 30$ ), sixteen patients (26.66%) were overweight ( $BMI: 25-29.9$ ), and twenty-seven patients (45%) had a normal BMI (18.5–24.9). Thirty-one patients (51.67%) stated that they had constant heel discomfort that didn't go away during the day. Thirty-six patients reported stabbing pain, ten reported scorching pain, eight reported aching pain, three reported piercing pain, two reported throbbing pain, and one patient reported sharp pain. After taking their first steps in the morning, 48 patients, or 80% of the total, said that their heel discomfort was the worst. In 24 (50%) of these individuals, discomfort was reported to improve with continuous walking. Results indicated that women and those who were overweight had a higher incidence of plantar fasciitis. On the other hand, ESWT was discovered to be more successful in treating PF than DMP injections (Landorf, 2015).

While the study at the Civil Service Hospital in Kathmandu provides valuable insights into the knowledge and prevalence of plantar fasciitis among nurses, several research gaps remain. Firstly, the study focuses primarily on the prevalence and knowledge levels among a relatively small and specific population of nurses, limiting the generalizability of the findings to other healthcare professionals or the general population. Additionally, the research does not explore in-depth the factors contributing to the low knowledge levels and high prevalence rates observed. Understanding the underlying causes, such as educational background, work conditions, or access to preventive measures, could be crucial for developing targeted interventions. Moreover, the study's cross-sectional design captures a single point in time, missing potential fluctuations in knowledge and prevalence over different periods or seasons. Longitudinal studies could provide a more comprehensive understanding of these trends. Finally, while the windlass test is used to identify plantar fasciitis prevalence, the study does not consider

other diagnostic methods or compare their effectiveness, potentially overlooking alternative or complementary approaches to diagnosing this condition. Addressing these gaps could enhance the effectiveness of preventive and educational strategies for plantar fasciitis among nurses and broader populations.

## **Research Methodology**

### **Research Design**

A descriptive cross sectional research design was used.

### **Study Population**

The study population was nurses work in OT, ICU and Emergency Department of the Civil Service Hospital of Kathmandu.

### **Study Area/ Setting**

The study was conducted in Civil Service Hospital which is located in Minbhawan, Kathmandu. It was established on May 30, 2009 AD. It is an autonomous government institution under Ministry of General Administration. It consists of 270 beds and provides highly specialized medical care.

### **Sample Size**

58 sample size was taken by using sample survey method.

### **Exclusion Criteria**

Participants those who had any trauma to the foot was excluded.

Participants with recent surgical history around foot was excluded.

### **Data Collection**

- Data was collected after getting approval from Everest College of Nursing
- Formal approval letter was obtained from concerned authority of Civil Service Hospital, Kathmandu.
- Self –administration questionnaire and windlass test used for data collection
- Written consent were taken from each respondents before collection of data.
- PPE was used during data collection as to prevent spread of COVID-19 infection.
- The purpose of the study was explained to each respondent.
- 15 to 20 minutes was given to fill questionnaires.
- Windlass test was done after collected questionnaire which took 5 minutes to performed.

### **Ethical Consideration**

- Before conducting the research, formal permission was taken from Everest College of Nursing.
- Formal permission was taken from concerned authority of Civil Service Hospital, Kathmandu.
- Verbal and written consent were taken from each respondents before collection of data.
- The objectives and purposes of the study was clearly explained before data collection.

- Name of the respondents were not used or mentioned in the study instead coding were given to each respondents.
- Privacy and confidentiality was maintained.
- Participants were not forced for their enrollment in data collection.
- Participants were given liberty to discontinue study if they want.
- The information provided by respondents were used only for the purpose of study.
- Human rights protection and justice was maintained throughout the study.
- Research was done by maintaining proper anonymity and coding their identity.
- Respondents were not faced any harm during the study.

### Data Collection Tools

- The research instruments were based on objectives and variables under the study
- Researcher herself developed the questionnaire by reviewing literature and consulting with the research supervisor.
- Self –administered structured questionnaire and observation method were used for data collection.
- Simple, comprehensible and understandable language was used in the questionnaire for obtaining response.
- Questionnaire was developed in English language.
- The instruments consist of following 4 parts;  
Part 1: Question related to demographics variables.  
Part 2: Question related to knowledge regarding plantar fasciitis.  
Part 3: Windlass test procedure

### Finding and Results of the Study

The data were collected for knowledge regarding plantar fasciitis and prevalence rate of plantar fasciitis among nurses of Civil Service Hospital, Kathmandu. Data was collected from 58 respondents. All the obtained data was analyzed and interpreted on the basis of research objectives and research question. Descriptive statistics was used and results were presented in tabular forms. Finding had been presented in following as tables:

#### Socio demographic Variables of Respondent's

**Table 1**

*Respondent's demographic variable: Age*

Age( In year)	Number	Percentage
18-25	31	53.40
26-35	26	44.80
36-45	1	1.70
Total	58	100

Table 1 reveals that more than half (53.4%) of respondents were from 18-25 years.

**Table 2***Respondent's demographic variable: Academic Qualification*

Academic Qualification	Number	Percentage
PCL Nursing	26	44.80
Bachelor In Nursing	32	55.20
Total	58	100

Table 2 shows that regarding, the academic qualification, more than half (55.2%) were bachelor in nursing.

**Table 3***Respondent's demographic variable: Marital Status*

Marital Status	Number	Percentage
Married	22	37.90
Unmarried	36	62.10
Total	58	100

Table 3 shows that two third (62.1%) respondent marital status was unmarried.

**Table 4***Respondent's demographic variable: BMI*

BMI	Number	Percentage
Below 25	54	93.10
Over 25	4	6.90
Total	58	100

Table 4 shows that nearly all (93.1%) BMI was below 25.

**Table 5***Respondent's demographic variable: Working Ward*

Working Ward	Number	Percentage
OT	24	41.40
ICU	14	24.10
Emergency Department	20	34.50
Total	58	100

Table 5 depicts that, nearly half (41.4%) were working in OT.

**Table 6***Respondent's demographic variable: Working Hours*

Working Hours	Number	Percentage
8 Hours	38	65.50
12 Hours	20	34.50
Total	58	100

Table 6 presents that two third (65.5%) respondent working hours was 8 hours.

**Table 7***Respondent's demographic variable: Working Experience*

Working Experience	Number	Percentage
Below 1 Year	10	17.20
1-4 Years	27	46.60
5-7 Years	15	25.90
Above 7 Years	6	10.30
Total	58	100

Table 7 illustrates that (46.6%) had working experience from 1-4 years.

**Table 8***Respondent's demographic variable: Type of Shoes Worn During Duty Hour*

Types of shoes worn during duty hour	Number	Percentage
A Well-Padded Low Heel	5	8.60
Flats	43	74.10
Sandals	10	17.20
Total	58	100

Table 8 shows that, regarding type of shoes worn during duty hour, three fourth (74.1%) mentioned flats shoes.

**Table 9***Respondent's demographic variable: Regularity of Exercise*

Exercise	Number	Percentage
Regularly Done	9	15.50%
Occasionally Done	29	50.00%
Not Done	20	34.50%

Table 9 reveals that half (50%) occasionally do exercise.



**Table 10***Respondent's History of Plantar Fasciitis*

History of Plantar Fasciitis	Number	Percentage
Yes	34	58.60
No	24	41.4
Total	58	100

Table 10 shows that, more than half (58.6%) had history of plantar fasciitis

**Table 11***Respondent's Diagnosis of Plantar Fasciitis*

Diagnosed with Plantar Fasciitis	Number	Percentage
Yes	19	32.80
No	39	67.2
Total	58	100

Table 11 depicts that only (32.8%) were diagnosed with plantar fasciitis.

**Table 12***Respondent's Pain in Heel Area*

Any constant pain in the heel area	Number	Percentage
Experience no pain	19	32.80
Experience pain upon walking from bed	12	20.70
Experience pain upon standing up	26	44.80
Experience pain all the day	1	1.70
Total	58	100

Similarly, table12 depicts that almost half (44.80%) experienced pain upon standing up

**Table 13***Respondent's Pain Interference with Activity of Daily Living*

Pain interference with the activity of daily living	Number	Percentage
No inference with ADL	21	36.20
Slight interference with ADL and exercise	32	55.20
Can't do daily activities and exercise	1	1.70
Absent in work due to pain	4	6.90
Total	58	100

Table 13 illustrates that more than half (55.2%) had slight inference with ADL and exercise as the pain interfere with the activity of daily living.

## Knowledge Related Variables of Respondents

**Table 14**

*Respondent's Knowledge on Cause of Plantar Fasciitis*

Responses	Frequency	Percentage
Yes (correct)	50	86.20
Bacterial		
Fungus		
Over Stress on Heel*		
Virus		

**\*Correct Answer**

Similarly, majority (86.2%) revealed over stress on heel is the main cause of plantar fasciitis.

**Table 15**

*Respondent's Knowledge on Higher Risk for Plantar Fasciitis*

Response	Frequency	Percentage
Yes (Correct)	43	74.14%
<ul style="list-style-type: none"> <li>• Being a Runner</li> <li>• Being a Female</li> <li>• Prolonged Standing / Walking Occupations*</li> <li>• Not Enough Activities</li> </ul>		
No	15	25.86%
Total	58	100%

**\*Correct Answer**

Table 16 illustrates majority reported that being a runner as the higher risk for plantar fasciitis.

**Table 16**

*Respondent's Knowledge on Risk Factors for Plantar Fasciitis\*\**

Response**	Frequency	Percentage
Yes (Correct)	13	22.41%
<ul style="list-style-type: none"> <li>• Foot Arch Issues*</li> <li>• Obesity And Sudden Weight Gain*</li> <li>• Wearing Inappropriate Shoes*</li> <li>• Weak Plantar Flexor Muscles*</li> </ul>		
No	45	77.59%
Total	58	100%

**\*Correct Answer**

**\*\*Multiple Responses**

Table 17 depicts that only 22.42% of the respondents correctly answered all the risk factors for plantar fasciitis.

**Table 17***Respondent's Knowledge on Major Symptom of Plantar Fasciitis*

Response	Frequency	Percentage
<b>Yes (Correct)</b>	30	51.72%
<ul style="list-style-type: none"> <li>• Foot Pain at Night</li> <li>• Foot Pain in the Afternoon</li> <li>• Foot Pain in the Morning*</li> <li>• Foot pain in the middle of the night</li> </ul>		
No	28	48.28%
Total	58	100%

**\*Correct Answer**

Table 18 presents that above half (51.72%) mentioned foot pain as the major symptom of plantar fasciitis.

**Table 18***Respondent's Knowledge on Test Appropriate to Diagnose Plantar Fasciitis*

Response	Frequency	Percentage
<b>Yes (Correct)</b>	1	1.72%
<ul style="list-style-type: none"> <li>• Windlass Test</li> <li>• Inversion Stress Test</li> <li>• The Lachman Test*</li> <li>• Ortolani Test</li> </ul>		
No	57	98%
Total	58	100%

**\*Correct Answer**

Table 20 shows that minority (1.72%) mentioned the Lachman test as the appropriate test to diagnose plantar fasciitis

**Table 19***Respondent's Knowledge on Medical Treatments for Plantar Fasciitis*

Response**	Frequency	Percentage
<b>Yes (Correct)</b>	12	21%
<ul style="list-style-type: none"> <li>• Stretching And Physical Therapy*</li> <li>• Steroid Injection*</li> <li>• Icing and medication*</li> <li>• Rest and activity modification.*</li> </ul>		
No	46	79.3%
Total	58	100.0%

**\*Correct Answer****\*\*Multiple Responses**

Table 22 presents that only minority (21%) correctly answered medical treatments for plantar fasciitis.

**Table 20***Respondent's Knowledge on Surgical Treatment for Plantar Fasciitis*

Response	Frequency	Percentage
<b>Yes (Correct)</b>	40	68.97%
<ul style="list-style-type: none"> <li>• Gastrocnemius Recession</li> <li>• Endoscopic Plantar Fasciotomy*</li> <li>• Metatarsal Foot Surgery</li> <li>• Bunions Foot Surgery</li> </ul>		
No	18	31.0%
Total	58	100.0%

**\*Correct Answer**

Table 23 shows that majority (68.97%) reported Endoscopic Plantar Fasciotomy as the surgical treatment for plantar fasciitis.

**Table 21***Respondent's Knowledge on Lifestyle Changing Behavior to Treat Plantar Fasciitis*

Response	Frequency	Percentage
<b>Yes (Correct)</b>	45	77.6%
<ul style="list-style-type: none"> <li>• Gaining Weight</li> <li>• Starting an exercise Program that involve jogging</li> <li>• Eating Healthy Foods</li> <li>• Maintaining a Healthy Weight*</li> </ul>		
No	13	22.4%
Total	58	100.0%

**\*Correct Answer**

Table 25 presents that majority (77.6%) mentioned maintaining a healthy weight as the lifestyle changing behavior to treat plantar fasciitis.

**Table 22***Respondent's Knowledge on Preventive Measures for Plantar Fasciitis*

Response	Frequency	Percentage
<b>Yes (Correct)</b>	8	13.8%
<ul style="list-style-type: none"> <li>• Weight Loss</li> <li>• Choose Shoes with Good Support</li> <li>• Do Low Impact exercise*</li> <li>• Walk and run-on flat surfaces with proper fitting running shoes</li> </ul>		
No	50	86.2%
Total	58	100.0%

**\*Correct Answer**

Table 27 presents that only minority (13.8%) correctly answered the preventive measures for plantar fasciitis.

**Table 23**

*Respondent's Knowledge on Long-Term Effects of Plantar Fasciitis*

Response**	Frequency	Percentage
Yes (Correct)	8	13.8%
<ul style="list-style-type: none"> <li>• Chronic Heel Pain*</li> <li>• Hip Pain*</li> <li>• Knee Pain*</li> <li>• Lower Body Muscles Pain*</li> </ul>		
No	50	86.2%
Total	58	100.0%

\*Correct Answer

\*\*Multiple Responses

Table 29 reveals that only minority (13.8%) correctly answered long-term effects of plantar fasciitis.

**Table 24**

*Respondent's Overall Level of Knowledge Regarding Plantar Fasciitis*

Knowledge level	Frequency	Percentage
Good	8	13.8%
Satisfactory	17	29.3%
Poor	33	56.9%
Total	58	100%

Table 32 depicts overall knowledge level of the respondents. Respondents have been categorized on the basis of score obtained by them. The result shows that more than half (56.9%) had satisfactory, (29.3%) had good and (13.8%) had poor knowledge regarding plantar fasciitis among nurses.

### Prevalence Rate of Plantar Fasciitis

**Table 25**

*Respondents Prevalence Rate of Plantar Fasciitis*

Variables	Frequency	Percentage
Windlass test positive	37	63.80%
Windlass test negative	21	36.20%
Total	58	100%

Table 10 illustrates windlass test results of the respondents. The result shows that above three fifth (63.8%) of the respondents had positive and slightly above one third (36.2%) of the respondents had negative test result.

## Discussion

A descriptive research design was used to find out the knowledge and prevalence regarding plantar fasciitis among nurses. Total 58 sample were selected for the study. The objective of the study was to find out the level of knowledge and prevalence regarding plantar fasciitis among nurses. This study concluded that maximum number of nurses (56.9%) had poor knowledge regarding plantar fasciitis and (63%) had plantar fasciitis. The majority of nurse (53.4%) were between 18-25 years age. The maximum (93.1%) had normal body index mass and maximum working experience (65.5%) had 1 to 4 years.

Likewise, the finding of the study reveals that majority (87.9%) mentioned inflammation of plantar fascia is the meaning of the plantar fasciitis. The finding of the study was consistent with the similar study conducted in supported in Chennai revealed that (80%) respondents' plantar fasciitis as inflammation of plantar fascia. It showed that majority (77.6%) respondents obesity and sudden weight gain is the risk factor of plantar fasciitis. The finding of the study was inconsistent with the study conducted in Hariri Hospital in Saudi Arabia (89.70%) mentioned obesity and sedentary lifestyle as risk factors of plantar fasciitis (Rasenber, et.al, 2019). This may be because in the difference in setting and study population.

Regarding any constant pain in the heel area, (44.8%) experience pain upon standing up, (20.7%) experience pain upon walking from bed, (32.8%) experience no pain and only (1.7%) experience pain all the day. Likewise, interference of pain with the activity of daily living, more than half (55.2%) had slight interference with ADL and exercise. More than half (51.7%) mentioned foot pain in the morning as the major symptoms of plantar fasciitis and majority (86.2%) responded pain on the bottom of the heel, or nearby as a minor symptom of the plantar fasciitis.

Half (50%) of the respondents mentioned that stretching and physical therapy is the medical treatment of plantar fasciitis. Three fourth (77.6%) explained maintaining a healthy weight is the life changing behavior to treat plantar fasciitis. Regarding the preventive measures for plantar fasciitis, three fourth (79.3%) revealed weight loss. Three fourth (77.6%) presented a low heel with well-padded is the best shoes type to relieve symptoms.

The finding of the study showed that the appropriate test to diagnose plantar fasciitis, (69.0%) responded windlass test. The finding of the study was supported by the study conducted in Japan (96.2%) revealed windlass test is done for Plantar Fasciitis. The study revealed that, (58.6%) respondents had a history of plantar fasciitis. In contrast to the similar study conducted in Saudi Arabia (34%) had history of plantar fasciitis. This may be because majority of respondents in Saudi Arabia had knowledge for proper selection of shoes during working hours (Goweda, et.al, 2015).

It showed that (56.9%) poor, (29.3%) satisfactory and (13.8%) had good knowledge regarding plantar fasciitis among nurses. The finding of the study is not consistent with the similar study conducted in Saudi Arabia in which (30%) of the respondent had poor, (46%) satisfactory and (24%) had good knowledge regarding plantar fasciitis probably due to the higher education. The findings of the study showed that the prevalence of plantar fasciitis (63%) had positive

windlass test. The finding of the study is consistent with the study conducted in Hariri Hospital in Saudi Arabia which showed that (57%) nurses were tested windlass positive.

### Conclusion

In the present study, it is concluded that majority of the respondents had (56.9%) poor knowledge, (29.3%) satisfactory and (13.8%) had good knowledge regarding plantar fasciitis with positive prevalence of windlass test (63.80%) and (36.2%) had negative windlass test, which means majority had plantar fasciitis.

### Limitation

Due to lack of availability of standard tool, the researcher had to prepare a set of questions for the study which might not cover all the aspects. The study sample is limited to only staffs working in ICU, OT and emergency department so all the nurses cannot be generalized.

### References

- Bhoir, K. S., & Vardhan, G. D. (2021). Prevalence of plantar fasciitis among nurses at a tertiary care centre in a rural area- A cross sectional study. *International Journal of Physiotherapy and Research*, 9(4), 3900-3906. <https://doi.org/10.16965/ijpr.2021.140>
- Dyck, D. D. Jr, & Boyajian-O'Neill, L. A. (2004). Plantar fasciitis. *Clinical Journal of Sport Medicine*, 14, 305-309.
- Getie, K., Kahsay, G., Kassaw, A., Gomera, G., Alamer, A., & Hailu, T. (2021). Ankle and foot pain and associated factors among nurses at Ayder Comprehensive Specialized Hospital, Mekelle, Ethiopia: Cross-sectional study. *Journal of Pain Research*, 14, 83-92.
- Goweda, R., Alfalogy, E., Filfilan, R., & Hariri, G. (2015). Prevalence and risk factors of plantar fasciitis among nurses with heel pain attending primary health care centers of Makkah, Kingdom of Saudi Arabia. *Journal of High Institute of Public Health*, 45(2), 71-75.
- Harvard Health Publishing. (n.d.). Plantar fasciitis: A to Z. Retrieved from [https://www.health.harvard.edu/a\\_to\\_z/plantar-fasciitis-a-to-z](https://www.health.harvard.edu/a_to_z/plantar-fasciitis-a-to-z)
- Hill, C., Gill, T., Menz, H., & Taylor, A. (2008). Prevalence and correlates of foot pain in a population-based study: The North West Adelaide health study. *Journal of Foot and Ankle Research*, 1(1).
- Landorf, K. B. (2015). Plantar heel pain and plantar fasciitis. *BMJ Clinical Evidence*, 1111.
- Lourdes, R. K., et al. (2016). Incidence of calcaneal spur in Indian population with heel pain. *International Journal of Research in Orthopaedics*, 2(3), 174-176. <https://doi.org/10.18203/issn.2455-4510.IntJResOrthop20163126>
- Menon, N., & Jain, J. (2018). Plantar fasciitis: A review. *Indian Journal of Pain*, 32(1), 24.
- Plantar fasciitis: A review. (2012). *Osteopathic Family Physician*, 4(3), 68-71.
- Rasenberg, N., Bierma-Zeinstra, S., Bindels, P., van der Lei, J., & van Middelkoop, M. (2019). Incidence, prevalence, and management of plantar heel pain: A retrospective cohort study in Dutch primary care. *British Journal of General Practice*, 69(688), e801-e808.
- Reed, L. F., Battistutta, D., Young, J., & Newman, B. (2014). Prevalence and risk factors for foot and ankle musculoskeletal disorders experienced by nurses. *BMC Musculoskeletal Disorders*, 15(1), 196. <https://doi.org/10.1186/1471-2474-15-196>

- Shrestha, B., & Sapkota, K. (2018). Effectiveness of ultrasound therapy versus steroid injection in plantar fasciitis patients in western region of Nepal. *International Journal of Orthopaedics*, 4(3), 255-258.
- Sung, K. C., Chung, J. Y., Feng, I. J., Yang, S. H., Hsu, C. C., Lin, H. J., Wang, J. J., & Huang, C. C. (2020). Plantar fasciitis in physicians and nurses: A nationwide population-based study. *Industrial Health*, 58(2), 153-160. <https://doi.org/10.2486/indhealth.2019-0069>
- Tojo, M., Yamaguchi, S., Amano, N., et al. (2018). Prevalence and associated factors of foot and ankle pain among nurses at a university hospital in Japan: A cross-sectional study. *Journal of Occupational Health*, 60, 132-139. <https://doi.org/10.1539/joh.17-0174-OA>