

**PREVALENCE OF PLANTER FASCIITIS AMONG PATIENTS
ATTENDED AT CRP (A RETROSPECTIVE SURVEY)**

Salimur Rahaman

Bachelor of Science in Physiotherapy (B.Sc. PT)

Session: 2009-2010

BHPI, CRP, Savar, Dhaka-1343



Bangladesh Health Professions Institute (BHPI)

Department of Physiotherapy

CRP, Savar, Dhaka-1343

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We, the under signed certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled.

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ATTENDED AT CRP (A RETROSPECTIVE SURVEY)**

Submitted by **Salimur Rahaman**, for partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

.....
Md. Sohrab Hossain

B.Sc. PT (Hons.), Dip. Ortho. Med., MPH
Associate Professor, Physiotherapy, BHPI
Head of Programs
CRP, Savar, Dhaka
Supervisor

.....
Mohammad Anwar Hossain

B.Sc. PT (Hons.), Dip. Ortho. Med., MPH
Associate Professor, Physiotherapy, BHPI
Head of the Physiotherapy Department
CRP, Savar, Dhaka

.....
Muhammad Millat Hossain

B.Sc. PT (Hons.)
Lecturer
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

.....
Md. Shofiqul Islam

B.Sc. PT (Hons.), MPH
Assistant Professor
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

.....
Md. Obaidul Haque

B.Sc. PT (Hons.), Dip. Ortho. Med., MPH
Associate Professor & Head
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

DECLARATION

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of information of the study. I would be bound to take written consent of my supervisor & Head, Department of Physiotherapy, Bangladesh Health Professions Institute (BHPI).

Signature:

Date:

Salimur Rahaman

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Contents

	Page No.
Acknowledgement	i
Abbreviations	ii
List of figures	iii
Abstract	iv
CHAPTER- I: INTRODUCTION	1-6
1.1 Background	1-2
1.2 Rationale	3
1.3 Research question	4
1.4 Aim of the study	4
1.5 Objectives	4
1.5.1 General objective	4
1.5.1 Specific objective	4
1.6 List of variables	5
1.7 Operational definition	6
CHAPTER-II: LITERATURE REVIEW	7-15
CHAPTER-III: METHODOLOGY	16-17
3.1 Study design	16
3.2 Study setting	16
3.3 Study area	16
3.4 Sample selection	16
3.5 Inclusion criteria	16
3.6 Exclusion criteria	16
3.7 Data collection tools	17
3.8 Data collection procedure:	17
3.9 Data management and analysis plan	17
3.10 Ethical consideration	17
CHAPTER-IV: RESULTS	18-25
CHAPTER-V: DISCUSSION	26-28

5.1 Limitations	28
CHAPTER-VI: CONCLUSION AND RECOMMENDATIONS	29-30
6.1 Conclusion	29
6.2 Recommendations	30
REFERENCES	31-35
APPENDIX	36-39
Questionnaire	36-38
Permission letter	39

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Acronyms

&	And.
BHPI	Bangladesh Health Professions Institute.
BMI	Body Mass Index.
BMRC	Bangladesh Medical and Research Council.
CRP	Centre for the Rehabilitation of the Paralysed.
ESWT	Extracorporeal Shockwave Therapy.
MS	Musculoskeletal.
NSAID	Non-Steroidal Anti-Inflammatory Drug.
PF	Planter Fasciitis.
PT	Physiotherapy.
SPSS	Statistical Package for Social Sciences.
USA	United States of America.
WHO	World Health Organization.

List of Figures

Figure No.	Title	Page No.
Figure 1:	Prevalence of Planter fasciitis	18
Figure 2:	Age group of the patient	18
Figure 3:	Gender of the participants	19
Figure 4:	Religion of the participants	19
Figure 5:	Residential area of the patient	20
Figure 6:	Occupation of the participants	20
Figure 7:	Education level	21
Figure 8:	Monthly income of the patients	21
Figure 9:	Affected foot	22
Figure 10:	Onset of pain of the patients	22
Figure 11:	Severity of pain of the patients	23
Figure 12:	Major disease of the participants	23
Figure 13:	Exercise	24
Figure 14:	Sports	24
Figure 15:	History of trauma	25
Figure 16:	Footwear	25

Abstract

Purpose: To identify the prevalence of planter fasciitis among patients attended at the musculoskeletal department of CRP. *Objectives:* The aim of this study was to find out the age, gender, occupation, religion, onset of pain, severity of pain, exercises, educational status and living area of planter fasciitis patients. *Methodology:* The study design was retrospective type of descriptive survey. The sample size was 40 and purposive sampling technique was used for sample selection. *Results:* The study showed that Prevalence of PF was 3.29%. And the prevalence of PF was higher among female 52.5% than male. The most vulnerable age of PF was 25-45 years. Majority of the participants were came from urban area, n=21 (52.5%) & Less people come from rural area. Among of the 40 participants most of them Completed primary education n=13 (32.5%). Among participants affected by Planter fasciitis, n=18 (45%) were affected by right foot, n=14 (35%) were affected by left foot and n=8 (20%) were affected by both foot. Among the all participant n= 10 (25%) had sudden onset of pain & n= 30 (75%) had gradual onset and maximum participant does not involve any kind of exercise & sports. Among 40 participant maximum are use saddle n=36 (90%) and rest of participant n=4 (10%) uses shoe. *Conclusion:* PF is a common physiotherapy related problem this result of this study also provided background information about PF that may be useful in prevention and treatment of PF, thereby reducing its prevalence.

Keywords: Prevalence, Planter fasciitis.

1.1 Background

Musculoskeletal disorders has become the most major cause for long term pain and disability in all over the world as well as a biggest health problems which affect hundreds of millions people throughout the world (Ludvigsson & Enthoven, 2012). Planter fasciitis is one of them which is the major burden of musculoskeletal condition and causes pain in the limb (Khaltaev et al., 2003).

Planter Fasciitis (PF) is a common pathological condition affecting the hind foot and was first described by Wood in 1812 (Chakraborty et al., 2011). The word “fasciitis” means- inflammation of an inherent component of this disorder. However, recent research suggests that some demonstrations of PF manifest as non-inflammatory, degenerative processes and should term as “PF” (Aldridge, 2004). Other names of PF include painful heel syndrome or heel spur syndrome (Roxas, 2005). Pain associated with PF caused by degenerative irritation at the insertion of the plantar fascia on the medial process of the calcaneal tuberosity. The pain may be intermittent, resulting in the alteration of daily activities. Numerous terms have been used to describe plantar fasciitis including jogger’s heel, tennis heel, policeman’s heel, and even gonorrhoeal heel. Although it sometimes referred to as heel spurs by the general people (Young, 2014).

It is estimated that PF affect 10% of the population at some time in their life (Crawford, 2005). PF is stated to be the most common cause of inferior heel pain in adults (Singh et al., 1997). PF affects individuals regardless of sex, age, ethnicity, or activity level. It has seen commonly in bodily active individuals such as runners and military personnel. It is also prevalent in the general population, mainly in women aged from 40-60 years (Buchbinder, 2004). PF can also be accompanied with various seronegative- spondylo arthropathies, but approximately 85% of cases, there are no known systemic factors (Narvaez et al., 2000).

Men are most vulnerable to get plantar fasciitis; it occurs mainly in middle and older groups. In the United States, more than two million individuals are treated for PF on an annual basis where 11-15 % of professional visits related to foot pain. (Roxas et al., 2005).

It is generally accepted that PF predominantly affects middle aged as well as older adults. In a study of 784 North American community dwelling residents, aged of 65 years or greater, 7% reported pain and tenderness under the heel (Dunn et al., 2004). One national study of medical doctors in the United States during the years 1995 to 2000 found that approximately one million patient visits to physicians or hospital outpatient departments per year for plantar heel pain (Cotchett et al., 2011) at a projected cost of between \$US192 to \$US376 million dollars per years (Tong & Furia, 2010).

An Australian population-based study involving 3,206 randomly selected participants has reported the prevalence of PF about 3.6%. Almost 20.9% indicated that they had heel pain, although this study did not distinguish between plantar heel pain and pain in other parts of the heel (Hill et al., 2008).

Although plantar heel pain affects older adults, it is also common in the athletic population, being estimated to contribute to 25% of all foot injuries related to running (Cotchett et al., 2011). A survey of US professional football, baseball, and basketball team physicians and trainers found that PF was among the 5 most common foot and ankle injuries observed in professional athletes (Young, 2014). A retrospective review of 1407 patients from an outpatient sports medicine clinic, found that younger athletes had a lower prevalence of PF (2.5%) than older athletes (6.6%) (Matheson et al., 1989).

Developing countries like Bangladesh, people are very poor & not aware about health problems and use of low sole in the foot is the main cause of heel pain. PF is a common problem in the foot and it occurs due to abnormal foot mechanics in most cases (Turlik et al., 1999). But the current prevalence and situation is unknown in Bangladesh. So it is important to find out the prevalence of planter fasciitis and its risk factors to reduce its impact on general population.

1.2 Rationale

Heel pain is a common problem in adults and older is the common musculoskeletal problem in Bangladesh. There are many type of heel pain such as Achilles tendinitis, bursitis, heel spur, ankle sprain etc. Planter Fasciitis (PF) is the one of them.

PF is one of the more common soft-tissue disorders of the foot, yet the exact aetiology still unknown. Prevalence of PF has been increasing during the past several years. The purpose of the present study was to use an epidemiological design to determine whether risk factors for PF could be identified.

In Bangladesh prevalence of PF among the patients has not been studied before. So this study may help to recognize the prevalence of PF among the patients attending at a musculoskeletal department. This evaluates is needed for continuation of physiotherapy to maintain or to improve patient status. It is also helpful for patient with PF benefits through physiotherapy in relation to treatment, goals and associate factors that may compromise treatment consequence or predict poor outcomes. That will help our musculoskeletal department by knowing the condition of the patient who received physiotherapy from the musculoskeletal unit. If the prevalence of PF is find out then the vulnerable age group of PF will come to light.

For the health professionals, it will help to diagnose PF easily and will give details information about the patient with PF. We can provide better treatment as well as essential advice to the patients so that people can modify their life style regarding PF at heel. As a health professional it may improve our knowledge also, so there is no alternative option to do research as a professional to develop the profession. This study will formulate to fill up the gap of knowledge in this area.

1.3 Research Question

What is the Prevalence of planter fasciitis among the patients attended at the musculoskeletal department of CRP?

1.4 Aim of the study

The purpose of the study was to identify the prevalence of planter fasciitis among the patients attended at the musculoskeletal department of CRP.

1.5 Objectives of the study

1.5.1 General objective

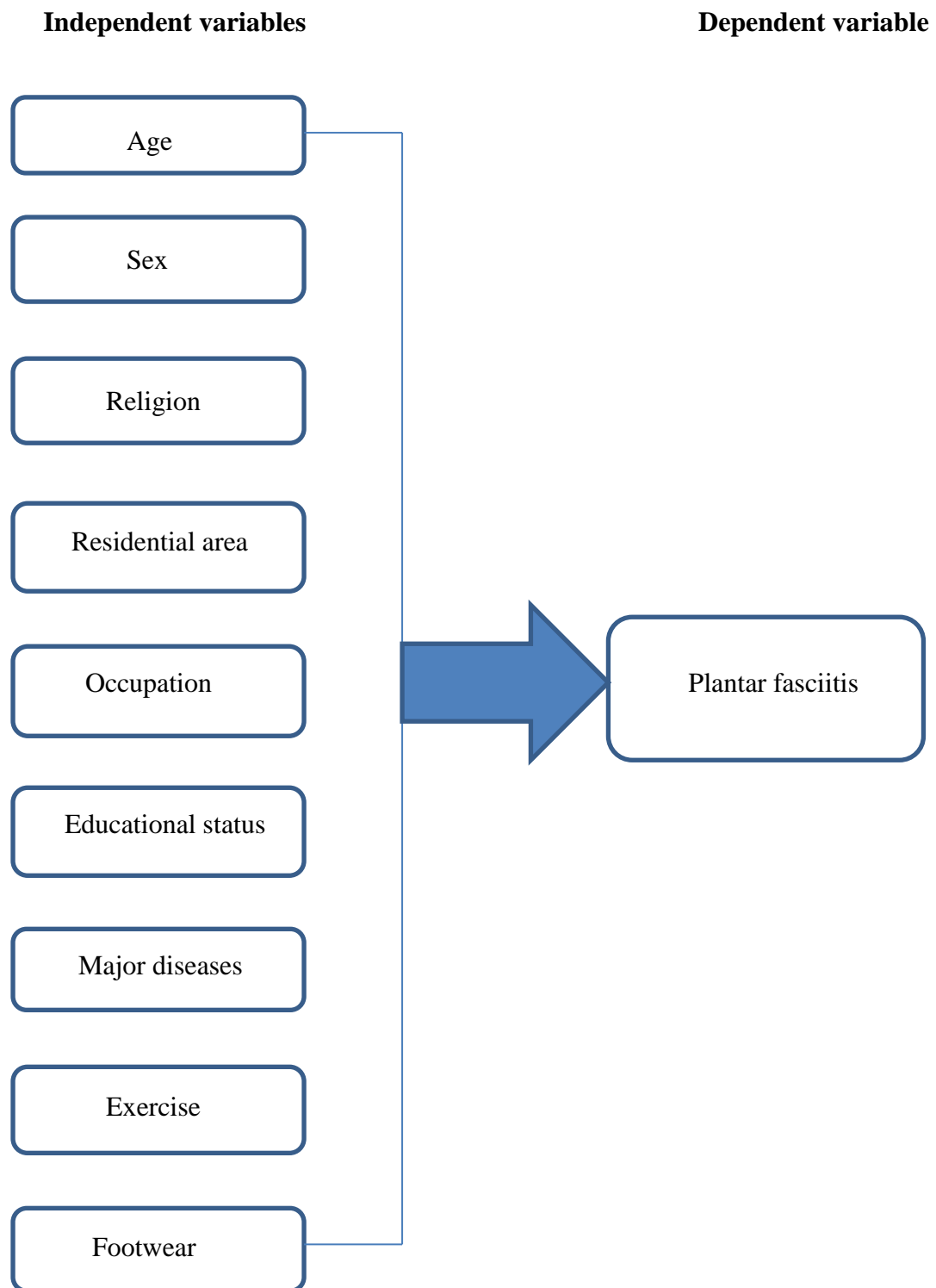
To identify the prevalence of planter fasciitis among the patients attended at the musculoskeletal department of CRP.

1.5.2 Specific objective

- To find out the vulnerable occupation for planter fasciitis;
- To find out the age group this is more vulnerable for planter fasciitis;
- To identify gender of the planter fasciitis patient are more affected;
- To find out which foot (left/right) is more affected;
- To determine any relation with other disease condition;
- To obtain the pattern of onset of pain;
- To determine any relation with physical exercise;
- To find out any relation with the foot pattern;
- To find out any relation with sports;
- To find out severity of pain of planter fasciitis;

1.6 List of Variables

Conceptual Framework



1.7 Operational Definition

Prevalence

Total number of cases who have already disease at a particular time. Proportion of a population found to have a condition/disease/risk factor comparing number of people have suffering for total population.

Plantar fasciitis

The plantar fascia is the thick tissue on the bottom of the foot. It connects the heel bone to the toes and creates the arch of the foot. When this tissue becomes swollen or inflamed, it is called plantar fasciitis.

Musculoskeletal disorders have been described as ‘the most notorious and common causes of long-term pain and physical disability, affecting hundreds of millions of people over the world. In Europe, one-quarter of adults are suffering from longstanding musculoskeletal problems that limit or minimize everyday activities. In terms of occupational musculoskeletal injury and the Bone and Joint Decade asserts that ‘The whole population should be considered at risk’ (Glover et al., 2005).

PF is a syndrome that results from repeated trauma to the plantar fascia at its origin on the calcaneus (Singh et al., 1997).

The differential diagnosis of PF leads to an understanding of the local anatomy. The calcaneum is separated from plantar skin by a complete honeycombed fibro-fatty fat pad that acts as a shock absorber. The posterior tuberosity of calcaneum has medial and lateral processes. The medial process gives attachment to the Flexor digitorum brevis, Abductor hallucis, and the medial head of Quadratus plantae as well as the central band of plantar fascia (Tahririan et al., 2012).

The plantar fascia or deep fascia of the sole, proximally has a direct fibro cartilaginous attachment to the calcaneum, whose central band is constant along with medial and lateral band. It has a triangular shape and develops from the medial process of the calcaneal tuberosity, and diverges distally at mid-metatarsal level into five separate strands, which are attached at the forefoot onto the plantar skin, the base of proximal phalanges (via plantar plate), the metatarsophalangeal joints via the collateral ligaments and deep transverse metatarsal ligaments (Hossain & Makawana, 2011).

Heel skin is innervated by the medial calcaneal nerve which may present with heel pain if compressed proximally (such as in tarsal tunnel syndrome). Baxter's nerve (the first branch of lateral plantar nerve) may be at risk of compression between AH and medial belly of the Quadratus plantae muscle (Chundru et al., 2008).

Despite the high prevalence of PF, information about its pathogenesis is still limited, and its histological changes are suggestive of degeneration rather than inflammation. The fascia is usually markedly thickened and gritty. These pathologic changes are more consistent with fasciosis (degenerative process) than fasciitis (inflammatory

process), but fasciitis remains the accepted description in the literature (Lemont et al., 2003).

Histological evidence shows that spur formation can occur in loose connective tissue, surrounding fibrocartilage which may not be aligned with the direction of traction, and spur trabeculae commonly forms perpendicular to its long axis. Additionally, clinical studies have shown that spur development is unrelated to medial arch height and can occur after surgical release of the plantar fascia (Hossain & Makawana, 2011).

Planter Fasciitis can be an extensive and it can radiate into the leg or forefoot. This type of severe pain leads to a marked impairment of gait and mobility. Frequently, a local tenderness is observed at the medial and distal aspect of the tuber calcanei. The chronic damage to the insertion of the plantar apo-neurosis and the small foot muscles that increased strain and that helps to find out the exact aetiology of the disorder (Mucke & Seegenschmiedt, 2003).

PF is multifactorial in aetiology. Intrinsic factors include age, excessive foot pronation, obesity and limited ankle dorsiflexion (Riddle et al., 2003). Extrinsic factors include occupational elongated weight bearing, prolonged standing, inappropriate shoe wear, and rapid increases in activity level (Singh et al., 1997).

Danielle et al. (2010) stated that, increased body weight and increased body mass index (BMI) cause PF. Irving et al. (2007) have been shown to be important risk factors for PF, with a BMI of more than 30 kg/m² having an odds ratio of 5.6 (95% confidence interval, 1.9 to 16.6; $p < 0.01$) compared with a BMI of less than 25 kg/m². Danielle et al. (2010) confirmed a 1.4-fold increased chance of PF being diagnosed in an overweight or obese patient. One study saw that BMI is not related to PF pain in the athletic population, but other factors such as a low oestrogen levels in female athletes leading to a decrease in the elasticity of collagen may affect these patients by PF (Rome et al., 2002).

Riddle et al. (2003) hypothesized that reduced ankle dorsiflexion is the most important risk factor for the development of PF, as the greater the limitation in ankle dorsiflexion, the greater the amount of compensatory foot pronation and therefore the higher level of stuffing on the plantar fascia. A study by Scott et al. (2007) found that older patients (mean age 80.2) had reduced ankle range of motion compared with

younger patients (mean age 20.9). The same study detected that risk of PF increases as the range of ankle dorsiflexion decreases. An exponential relationship between decreasing ankle dorsiflexion and the risk of developing PF has been found, with individuals who have 0 degree of dorsiflexion or less having an odds ratio of 23.3 (95% confidence interval, 4.3 to 124.4) (Riddle et al., 2003).

Several studies have revealed that there is an association in between work-related prolonged weight bearing and PF (Pfeffer et al., 1999). In their case series, Lapidus and Guidotti's patient population included a predominance of occupations that required continual standing or walking, such as waiters, maids, and kitchen workers. In addition, each heel strike during running causes firmness of the heel pad up to 200% of body weight (Roxas et al., 2005). Therefore, in individuals who may not have adequate muscle strength or flexibility, and therefore have reduced shock-absorbing capabilities, the initiation of a new training program can aggravate overloading of the plantar fascia (Bencardino et al., 1999).

Some reports suggest that 81-86% of patients with PF have excessive pronation (Cornwall & Mcpoil, 1999). Despite the fact that the pronated foot posture and over-pronation during gait are commonly cited as causative factors for PF, there is conflicting evidence with regard to the association of static foot posture and dynamic foot motion with PF (Buchbinder, 2004).

Heel spurs have commonly been associated as a risk factor for PF. Approximately one-half of patients identified with PF have heel spurs (Demaio et al., 1993). Although it is unclear how much inspiration heel spurs actually have on the condition. One study reviewing the radiographs of 1,000 patients found 13.2% had heel spurs; of these, only 39 per cent (5.2% of the total sample) conveyed any history of sub calcaneal pain (Roxas et al., 2005).

Individuals with pes-planus, associated with low arches or flat feet are assumed to be at greater risk for PF (Buchbinder, 2004). However, individuals with pes-cavus are also potentially at risk due to the inability to effectively dissipate tensile forces during weight bearing activities (Young et al., 2001). Other potential anatomical risks include leg length discrepancy, excessive lateral tibial torsion, and excessive femoral ante version (Messier & Pittala, 1988).

Increases in tensile loading, seen with new increases in running intensity or frequency and changes in general footwear have been associated with Excess loads of the plantar fascia leading to micro tears (Roxas et al., 2005). In particular, firm footwear may aggravate the developing PF in these patients (Sadat-Ali, 1998). Additionally, PF has also been associated with young individuals engaging in sports involving hopping (Narvaez et al., 2000).

Obesity or sudden weight gain, reduced ankle dorsiflexion, pes-planus, and occupations combine to create a pathological overload of the plantar fascia at the calcaneal supplement, causing micro tears in the fascia that subsequently lead to perifascial oedema and increasing heel pad thickness (Danielle et al., 2010). As micro tears within the fascia increase in size, they may conjoin to form a large symptomatic mass that causes the increase in heel pad thickness and can be identified during surgery. These changes in facial thickening, mainly in the proximal portion of the plantar fascia extending to the calcaneal insertion, and oedema of the adjacent fat pad and underlying soft tissues can typically be seen on magnetic resonance imaging studies (Narvaez et al., 2000).

Rigidity of the posterior structures of the foot, combined with weakness of the plantar flexors during push off, alters the normal biomechanics of the foot, creating an environment of decreased efficiency of force preoccupation and creation. The decrease in force absorption contributes to the overload of the plantar fascia and increasing degenerative changes, which include collagen necrosis, angiofibroblastic hyperplasia, and chondroid metaplasia and matrix calcification (Danielle et al., 2010).

The classic presentation of PF is pain on the sole of the foot at the inferior region of the heel. Patients report the pain to be mostly bad with the first few steps taken on rising in the morning or after an extended refrain from weight-bearing activity. The pain can be so severe the patient limps or hobbles around with the affected heel off the ground. After a few steps and through the course of the day, the heel pain reduces, but returns if intense or sustained weight-bearing activity is undertaken. Initial reports of the heel pain may be diffuse or traveling; however, with time it usually focuses around the area of the medial calcaneal tuberosity. Normally, the pain is most significant when weight-bearing activities are involved, and can often be associated to

increased amount or intensity of physical activity prior to onset of symptoms (Roxas et al., 2005). Throughout the day, the patient may experience a burning sensation. This burning sensation may proceed to frank pain after long periods of standing (Tomczak & Haverstock, 1995).

Beeson (2014) examined 125 consecutive feet with symptoms of recalcitrant PF. All had failed to answer to a stepwise conservative management protocol. Disease characteristics were assessed using diagnostic ultrasound. A high proportion of atypical non-insertional PF was stated (Beeson, 2014). This would not be detected without imaging studies. The use of ultrasound in cases of recalcitrant plantar heel pain that have failed proper first-line management is recommended (McMillan et al., 2009). It was concluded that ultrasound confirmed clinical diagnosis and classification characteristics as either insertional (proximal), non-insertional (distal) or mixed disease PF (Beeson, 2014).

Plantar fascio-pathy is commonly described as a self-limiting condition (Buckbinder et al., 2004). Crawford et al. (2005) undertook a systematic review supporting this observation. However, PF can be a painful and disabling condition with detrimental effects on health-related quality of life and subsequently be frustrating for patients. There is a higher risk of prolonged symptoms in overweight patients (Rano et al., 2001). Those with bilateral involvement and when there is a long delay before seeking medical attention (Beeson, 2014).

Patients are not likely to be satisfied with evidence of the self-limiting nature of the condition and most are likely to demand treatment for their symptoms (Beeson, 2014). Irving et al. (2008) demonstrated that there has a significant harmful impact on foot-specific and general health-related quality of life. The degree of negative impact does not seem to be associated with age, sex, or BMI. Physical inactivity is recognized as one of the greatest public health challenges in Western countries (Blair, 2009). The morbidity of PF can result in immobility and reduced activity levels (Irving et al., 2008). Furthermore, patients who develop PF are often overweight and therefore subsequent loss of weight becomes increasingly difficult due to the pain of everyday weight bearing. The duration of obesity in obese patients may be important to the growth of heel pain in such patients. Inactivity and an increased body weight are major risk factors for many diseases such as obesity, cardiovascular disease, diabetes

and osteoarthritis making it imperative that treatment for PF is instituted rather than waiting for spontaneous resolution (Beeson, 2014).

PF is an important public health disorder due to its recurrent occurrence (Singh et al., 1997). Researchers have estimated that people working and living longer the age range for this condition may be potentially spreading. Frequently, patients do not seek treatment until symptoms are considered chronic. At this point treatment regimens can become expensive, as symptoms are recurring, recovery is lengthy and the response to treatment is unpredictable (Wolgin et al., 1994). Furthermore the potential for longer-term health consequences related to immobility such as weight-gain, hypertension, and coronary artery disease and non-insulin dependent diabetes in chronic PF exist (Beeson, 2014).

Diagnosis of plantar fasciitis is based on the patient's history and the physical examination. Diagnostic imaging is not helpful in diagnosing plantar fasciitis (Neufeld & Cerrato, 2008). But it should be considered if another diagnosis is strongly suspected. Non- surgical management is the best treatment of choice (Oguntona & Ogunsemi, 2013).

Mcmillan et al. (2009) added that the studies provide objective criteria by which to measure the effect of current and future treatments. Treatment of plantar heel pain should proceed in a stepwise fashion and, according to the patient's response, as follows:

Firstly, modify or suppress the alleged risk factors, give an NSAID, prescribe a stretching program for the Achilles tendon, and recommend orthotics such as heel pads and, if necessary, an ankle dorsiflexion night splint. If these become failure, give one or two local injections of a glucocorticoid. If the injections are not effective, consider extracorporeal shock-wave therapy or surgery.

The extracorporeal shockwave therapies are sound waves that create vibrations and cause controlled injury to the plantar fascia and the surrounding structures at the heel. The body responds by increasing its healing ability at that area, stimulating a repair process. The mechanism of this type of therapy is unknown, however, it has been suggested that ESWT induce micro-destruction of avascular or minimally vascular

tissues, which encourage revascularization, the release of local growth factors and the recruitment of appropriate stem cells leading to an enhancement of the intrinsic wound healing process (Saber et al., 2011).

Stretching may be in calf or plantar region. Numerous authors have recommended that calf stretching should be one of the interventions used for patients with PF (Roxas, 2005). A calf stretch is performed with the patient stands with staggered legs facing toward a wall, with both hands stretched out (Tahririan et al., 2012).

According to Porter et al. the dosage for calf stretching can be either three minutes at a time, three times a day or five 20-s intervals, twice daily, as both have the same effect (Porter et al., 2002). The continuity of the connective tissue between the Achilles tendon and the plantar fascia as well as the fact that decreased ankle dorsiflexion is a risk factor in the development of plantar fasciitis provides some justification for calf stretching (Mcpoil et al., 2008).

The night splinting is another strategy which attempts to reduce strain on the plantar fascia by stretching the calf and, depending on the splint type, the plantar fascia itself. Night splint is a brace where ankle in a dorsiflexed position, reducing calf tightness and hopefully avoiding or limiting the "first step pain" that occurs with PF (Beyzadeoglu et al., 2007). Some types of night splints, including two found to be very successful treatments in scientific studies, also dorsiflexion of the toes to engage the windlass mechanism (Barry et al., 2002).

Mucke et al. (2003) observed that radiotherapy with 6-MV photons is effective in more than 80% of patients with painful PF. No side effects have been observed. Radiotherapy should not be regarded as "last resort", but should begin during the first 6 months of symptoms.

The rationale for use of foot orthoses was to decrease abnormal foot pronation that was thought to cause increased stress on the plantar fascia. The pain reduction mechanism obtained by the use of insoles would be mostly related to its supporting function of the longitudinal arch and not to the overload reduction over the plantar surface (Tahririan et al., 2012). There appears to be no difference between

prefabricated or custom foot orthoses in the results of treatment which is toughly recommended to be used to provide short-term (3 months) decrease in pain and improvement in function (Tahririan et al., 2012). There is inconclusive evidence with regard the long-term (12 months) use of orthotic devices (Baldassian et al., 2009).

When more conservative management is unsuccessful, steroid injection is a preferred option. There is no gold standard regarding the types and doses of local injection of corticosteroids. It is recommended that steroid injection should be performed with precise determination of the location, which can be easily achieved by using ultrasonographic guidance (Tahririan et al., 2012). Corticosteroid injection has been shown to significantly reduce plantar fascia thickness as early as two weeks and one month following treatment. Additionally, there is a significant correlation between decreased plantar fascia thickness and improvement in symptoms. Results of a Cochrane review show that corticosteroid injection therapy has short-term benefit compared to control, and the effectiveness of treatment is not maintained beyond six months (Tahririan et al., 2012).

Non-steroidal Oral anti-inflammatory drugs provide pain relief and are useful in decreasing the inflammation they should be prescribed for acute pain and should be withdrawn as the pain subsides, with monitoring for complications. Some patients say that topical non-steroidal anti-inflammatory creams or gels are useful (Singh et al., 1997).

Taping is a more direct way to reinforce the arch and take stress off the plantar fascia. Using a technique called a low Dye strapping named after its inventor, Ralph W. Dye. Regular athletic tape is used to create a support system along the sole of the foot. Its efficacy is good for short-term relief, (Landorf et al., 2005).

Radford et al. (2006) did a randomized comparison of sham ultrasound and low-dye taping. The participants treated with low-dye tapping had less first-step pain, otherwise there was no difference. The objective of this technique is to support the transverse and longitudinal arches of the foot and take stress off the plantar fascia.

The strips apply from the posterior edge of the heel to the level just past the metatarsal heads.

Crawford & Snaith (1996) observed that therapeutic ultrasound is used routinely by podiatrists and physiotherapists, and is prescribed by physicians in their treatment of PF and plantar heel pain.

The importance of carrying out these foot exercises is to keep your feet mobile. Tight joints, muscles and tendons will further aggravate the painful heel. These exercises should be performed every day. These exercises include golf ball roll, towel gathering, ice therapy, and friction massage (Haverstock, 2010).

Recalcitrant cases where symptoms persist for more than 6–12 months, even after adequate conservative treatment are usually selected for surgery (Puttaswamaiah & Chandran, 2007). Before surgery nerve conduction and electro-myographic studies should be considered to determine if the posterior tibial nerve is compressed.

Open or endoscopic plantar fascia release may be done. Some advantages of endoscopic plantar fasciotomy include: minimal soft tissue dissection, excellent visualization of the plantar fascia, slight post-operative pain, and earlier return to work. However, the American Orthopedic Foot and Ankle Society recommends that in case of suspected nerve compression, endoscopic release should be avoided (Vohra et al., 1999). All in all, still, the procedure of choice is open partial plantar fascia release with simultaneous release of first branch of lateral plantar nerve (Hossain & Makawana, 2011). A large cohort study indicates that 70% of patients showed improvement following surgery but only 50% of patients displayed complete satisfaction.

Patients should be advised not to walk barefoot on hard surfaces. Shoes should have an arch support and cushioned heels worn shoes may aggravate PF because of lack of cushioning. A laced sports shoe is better than open sandals (Singh et al., 1997).

3.1 Study design

Quantitative research model was used in the form of retrospective type of descriptive survey in the design. Retrospective design is the most common survey approach to focus on the past as well as present experience. Descriptive study design was chosen because the aim of the study was to know the prevalence of plantar fasciitis (PF) in Bangladesh.

3.2 Study setting

The study was conducted in musculoskeletal department of CRP where the service is offered for all outpatients who come from all over the country.

3.3 Study area

The study area was Musculoskeletal out door unit at physiotherapy department of CRP, Savar.

3.4 Sample selection

Purposive sampling technique was used for sample selection. Purposive sampling starts with a purpose in mind and the sample is thus selected to include people of interest and exclude those who do not suit the purpose. Usually, the population is too large for the research to attempt to survey all of its members. A small, but carefully chosen sample can be used to represent the population. The sample reflects the characteristics of the population from which it is drawn.

3.5 Inclusion criteria

- Patients with planter fasciitis who had been received physiotherapy treatment in musculoskeletal outdoor unit of CRP.
- Both male and female patient were include.
- Those patients had full assessment completed by qualified physiotherapist.

3.6 Exclusion criteria

- Incomplete or unclear assessment.
- Patients who did not receive physiotherapy treatment in musculoskeletal outdoor unit of CRP.

3.7 Data collection tools

Materials of the research were paper, pen, Pencil, Diary, Computer, pen drive, mobile phone, check list and medical records of all patients with Planter fasciitis who had taken treatment from musculoskeletal outdoor department at CRP from 2014.

3.8 Data collection procedure

Researcher started the study and collected some relevant information from previous assessment, SOAP notes and discharge summary of each participant. Researcher also collected some information through phone call from the participants.

3.9 Data management and analysis plan

The data that was collected is descriptive data. The graph technique was used for analyzing data, calculated as percentages and presented this using bar and pie charts by SPSS (Statistical Package of Social Science) software version 16.0. SPSS is a comprehensive and flexible statistical analysis and data management solution. SPSS can take data from almost any type of file and use them to generate tabulated reports, charts, and plots of distributions and trends, descriptive statistics and conduct complex statistical analyses.

3.10 Ethical consideration

The permission was initially taken from the supervisor of the research project and from the course coordinator before conducting the study. The necessary information has been approved by the ethical committee of CRP and was permitted to do this research. A research proposal was submitted to the physiotherapy department of BHPI for approval and the proposal was approved by the faculty members. Beginning the data collection, permission was obtained from the concerned authorities ensuring the safety of the participants. The formal permission was taken from the head of the physiotherapy department to check patient file and collect the data. Data collection was started and completed within the allocate time frame. All information was kept in secure. World Health Organization (WHO) and Bangladesh Medical and Research Council (BMRC) rules were followed to conduct the study.

Prevalence of Planter fasciitis

Among all of the 1213 participants 3.29 % (n=40) participants had been suffered from PF and 96.70 % (n=1173) participants had not been suffered from PF.

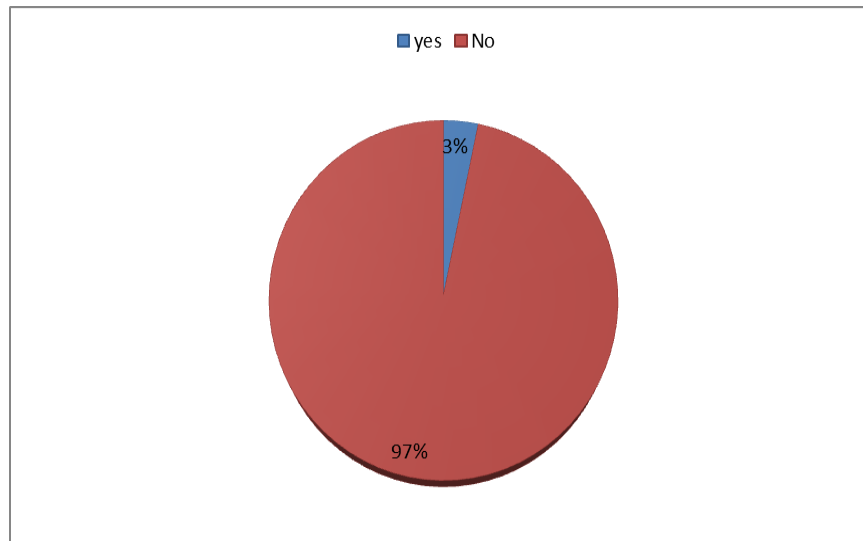


Fig 1: Prevalence of Planter fasciitis

Age range

Among all the participants n=28 (70%) affected by planter fasciitis in between 25-45 years of age, n=12 (30%) in between 46- more years of age. Result shows that 25-45 years are more vulnerable age group to develop planter fasciitis.

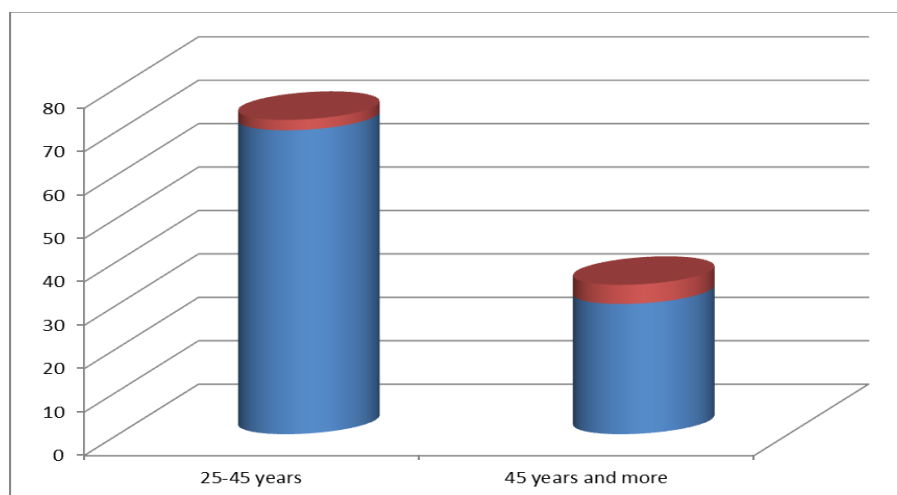


Figure 2: Age group of the patient.

Gender

Among all the participants n=19 (47.5%) was male and n=21 (52.5%) was female. Result shows that female are more affected by planter fasciitis than male.

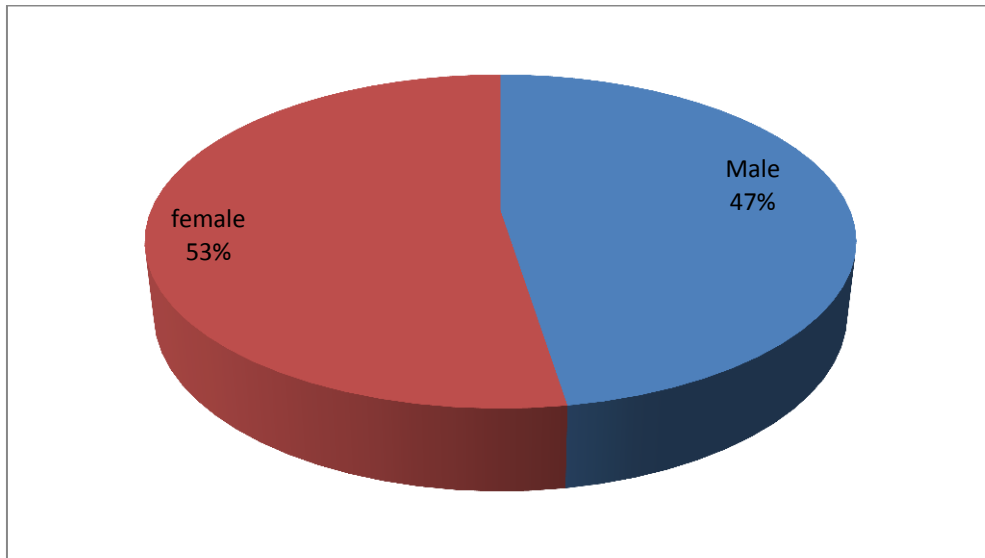


Figure 3: Gender of the participants

Religion

Study showed that among the 40 participants there were n=38 (95%) Muslim and n=2 (5%) Hindu.

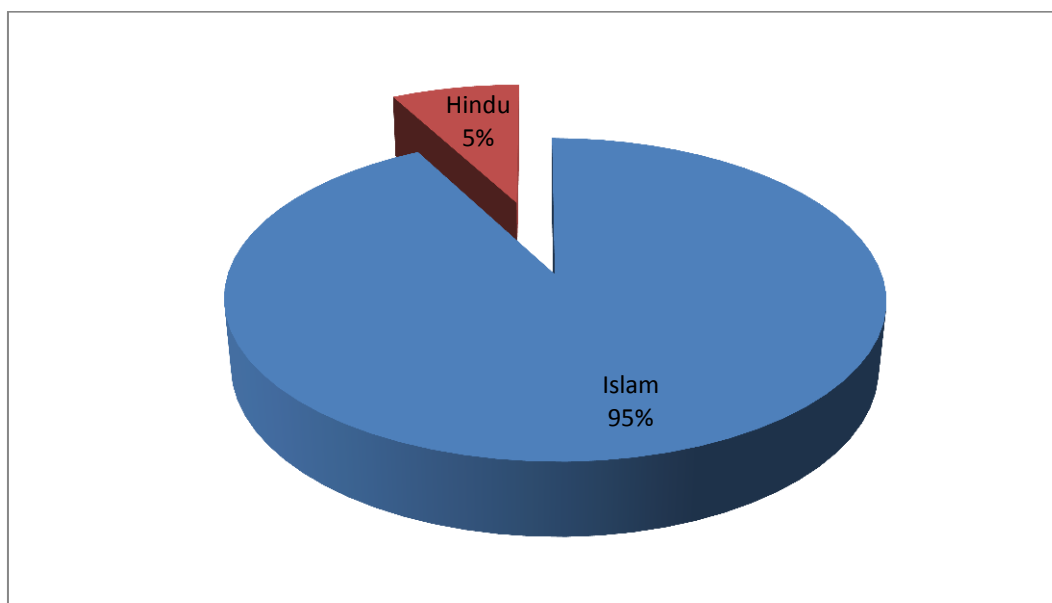


Figure 4: Religion of the participants.

Residential area

The analysis showed that most of the sufferers came from urban area. Most of participants among 40 patients who sufferings from planter fasciitis urban people were n=21 (52.5%) and rural people were n=19 (47.5%).

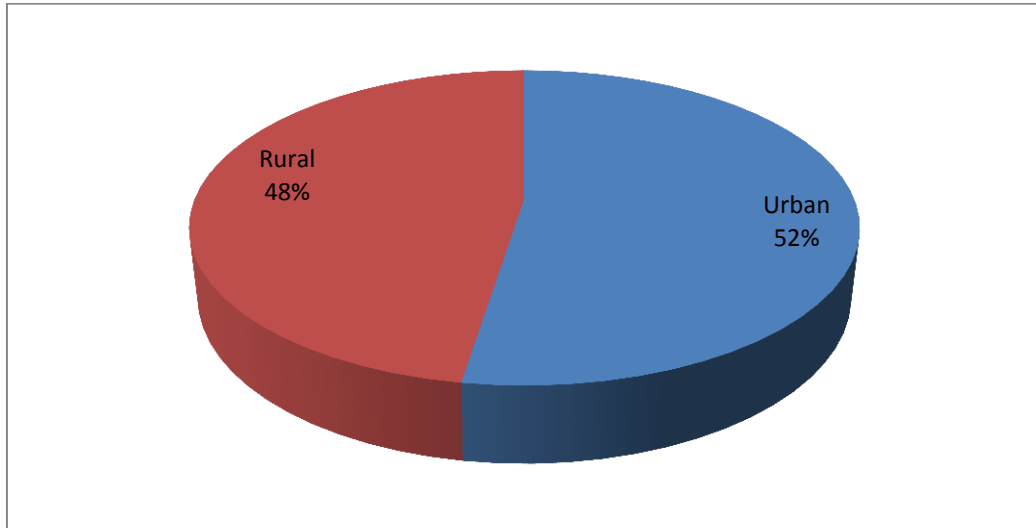


Figure 5: Residential area of the patients.

Occupation

Among the 40 participant affected by planter fasciitis, n=8 approximately (20%) person was Government employ, n=1 (2.5%) was agriculture, n=6 (15%) was Garments worker, n=3 (7.5%) was Businessman, n=1 (2.5%) was Day laborer, n=18 (45%) was Housewife, n=1 (2.5%) was Teacher, n=2 (5%) were in others occupation like office job, service. The occupation of those patients who had taken physiotherapy treatment from CRP MS outdoor department is given below as a Bar graph-

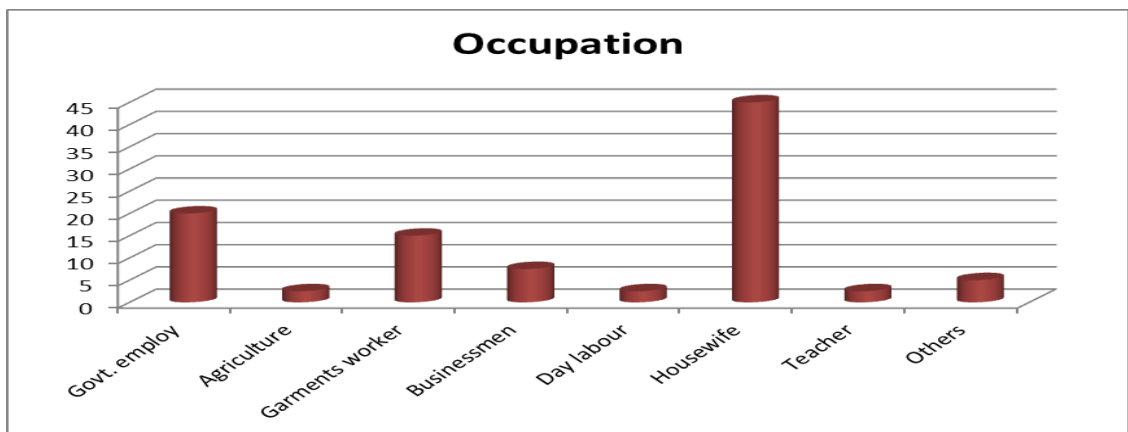


Figure 6: Occupation of the participants

Educational level

Among of the 40 participants most of them were n=1 (2.5%) no formal schooling. Less than primary school completed were n=5 (12.5%), primary completed were n=13 (32.5%), SSC completed were n=7 (17.5%), HSC completed were n=6 (15.5%), Graduation completed were n=4 (10%), Masters completed were n=4 (10%). The study shows that PF is higher in lower educational level rather than higher educational level because of lack of awareness.

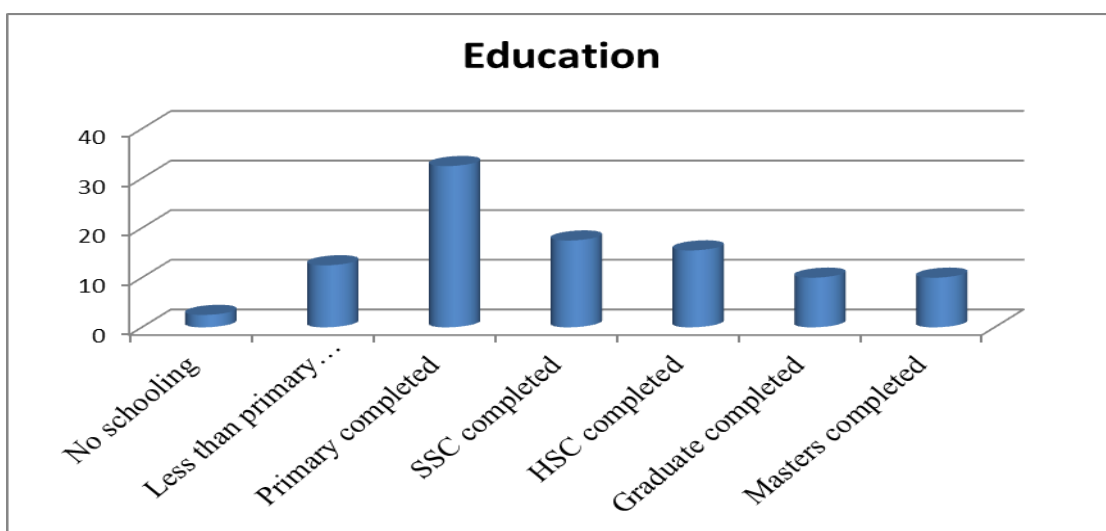


Figure 7: Educational level

Monthly Income

Average family income of the participants was 1000-5000 taka n=10 (25%), 6000-10000 taka n=19 (47%), 11000-15000 taka n=5 (12.5%) and More than 15000 taka n=6 (15%).

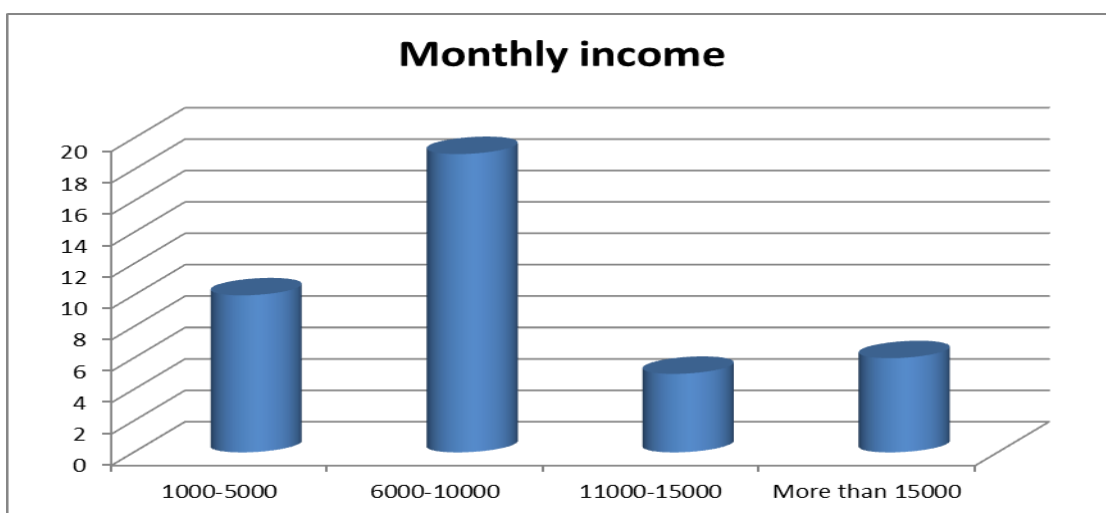


Figure 8: Monthly income of the patients

Affected foot

Among participants affected by Planter fasciitis, n=18 (45%) was affected by right foot, n=14 (35%) was affected by left foot and n=8 (20%) patients was affected by both foot.

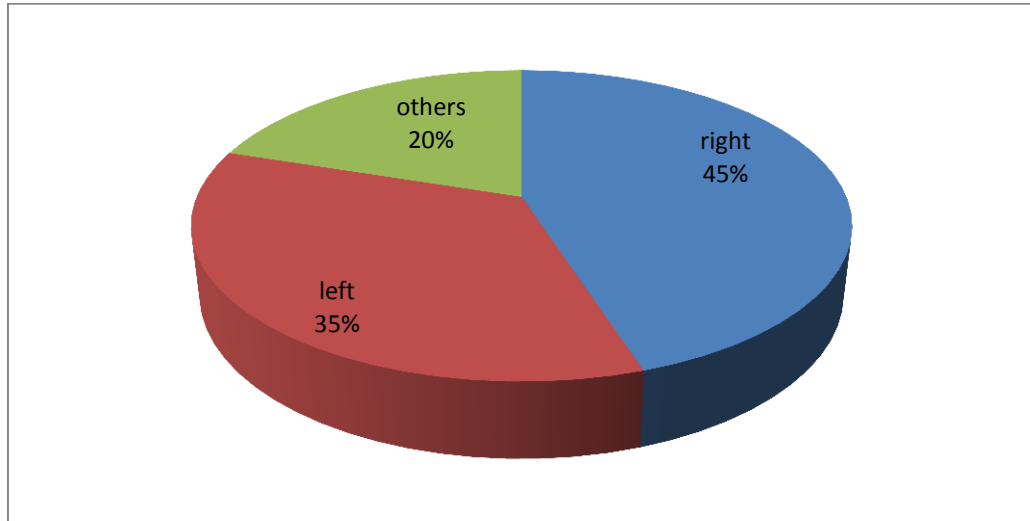


Figure 9: Affected food

Onset of pain

Outcome showed that among the 40 participants who were suffering from Planter fasciitis n=10 (25%) had sudden onset of pain & n=30 (75%) had gradual onset of pain.

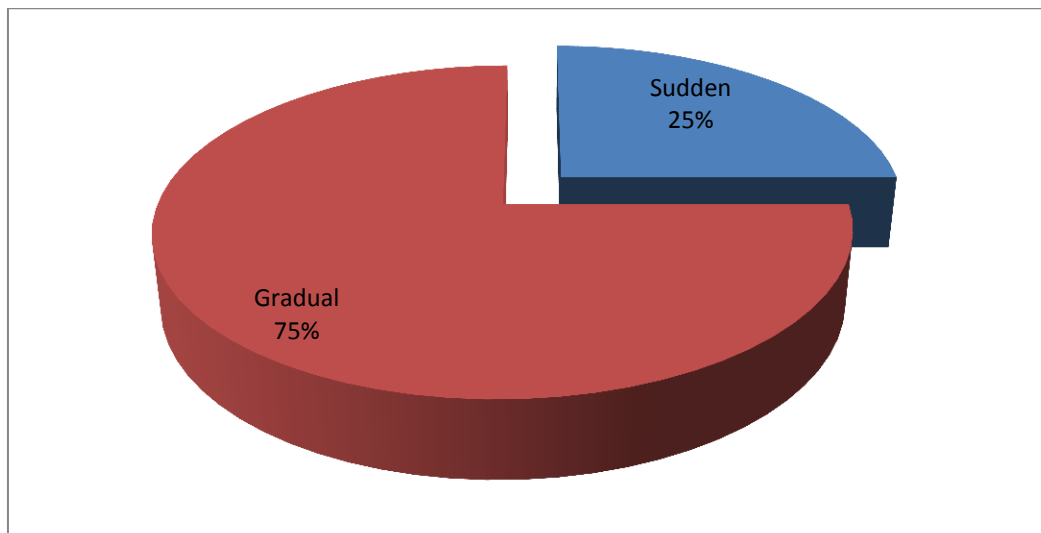


Figure 10: Onset of Planter fasciitis

Severity of Pain

The study find that among the 40 participants who were suffering from n=5 (12.5%) had mild pain, n=26 (65%) had moderate pain & n=9 (22.5%) had severe pain.

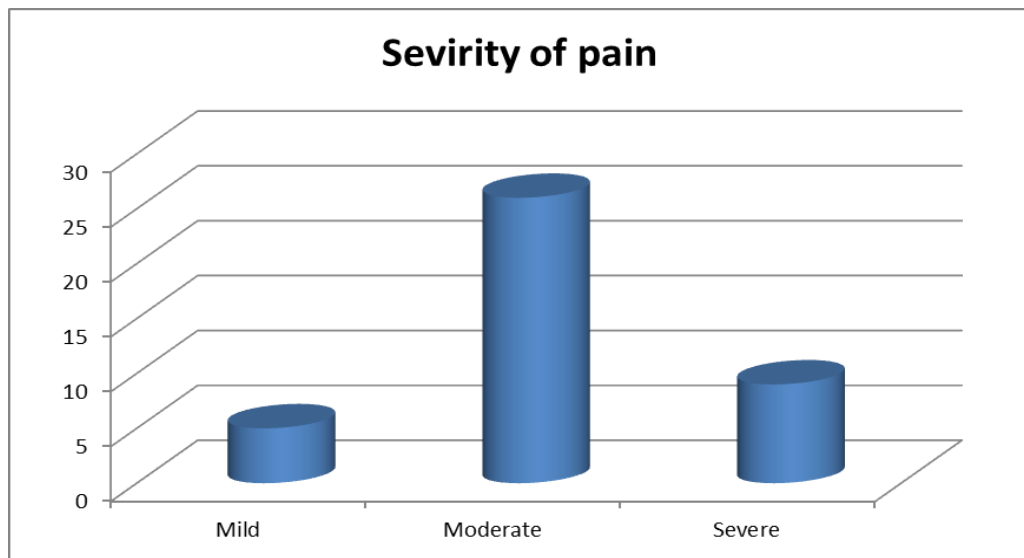


Figure 11: Severity of pain of the patients

Major disease

Among 40 participants approximately n=5 (12.5%) was have diabetes mellitus, n=11 (27.5%) was have hypertension, n=3 (7.5%) was have lung disease, n=21 (52.5%) was have others disease.

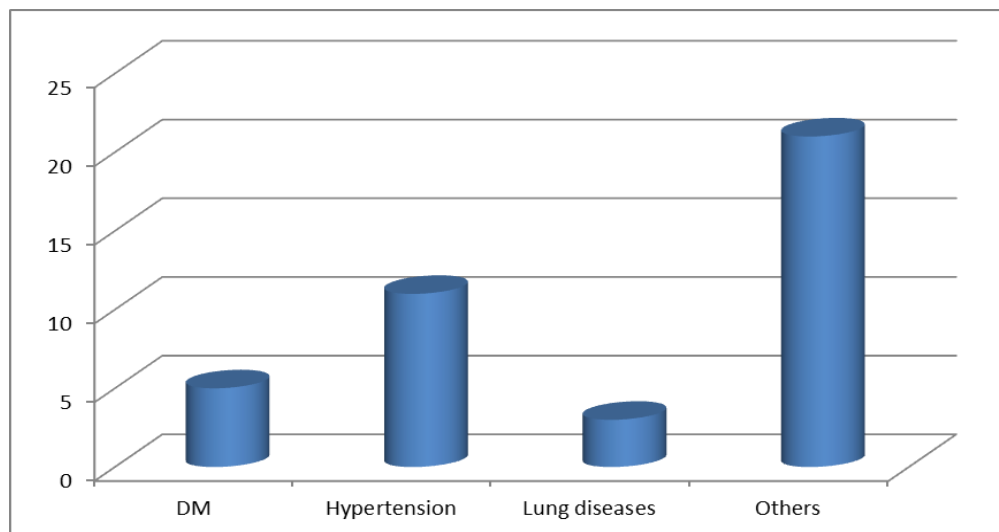


Figure 12: Major disease of the participant

Exercise

In exercise domain it is found that maximum participant does not involve any kind of exercise. Only n= 15 participant perform walking activity.

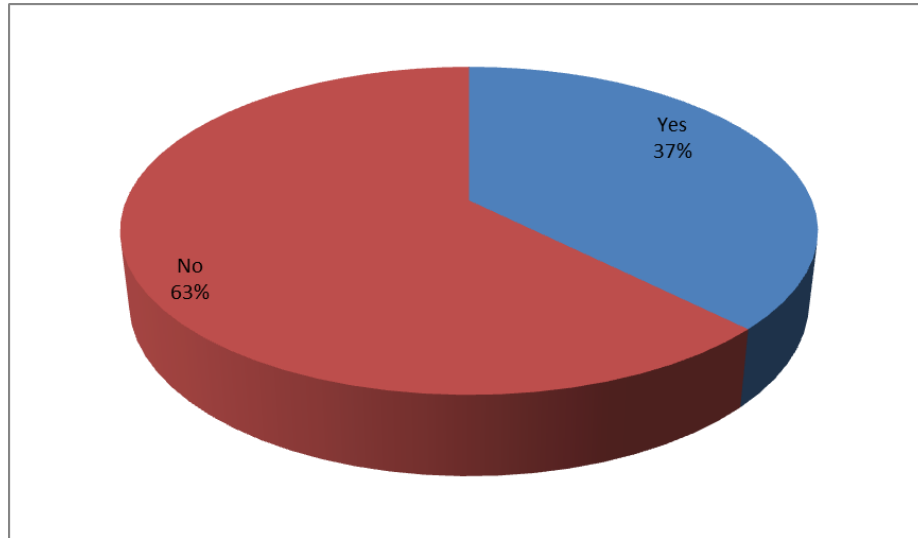


Figure 13: Exercise

Sports

In this study the researcher found that most of the participant does not involve any type of sports. Only n= 4 participant engage in playing football.

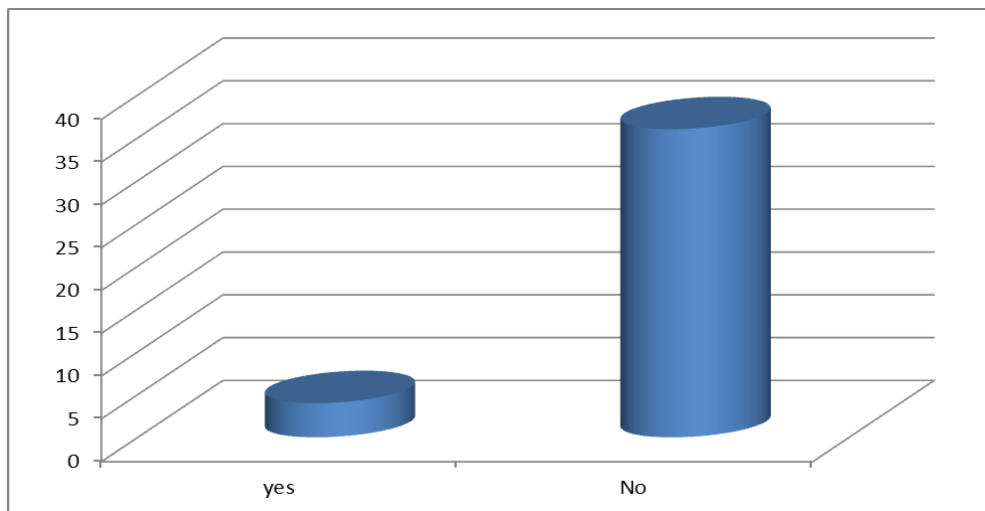


Figure 14: Sports

History of trauma

Among the 40 participants, n=9 (22.5%) participants had no history of trauma and n=31 (77.5%) participants had history of trauma at the heel.

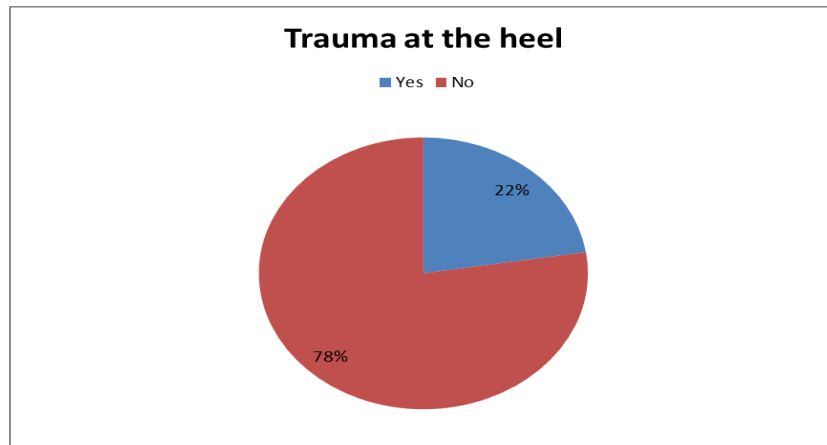


Figure 15: History of trauma at the heel

Footwear

In this study among 40 participant, the researcher found maximum are use sandal n=36 (90%) and rest of participant n=4 (10%) uses shoe. Among 36 participants who use sandal 29 participant had used hard sole & 7 participants had used soft sole. There were no soft sole has been found among the participant who used shoe.

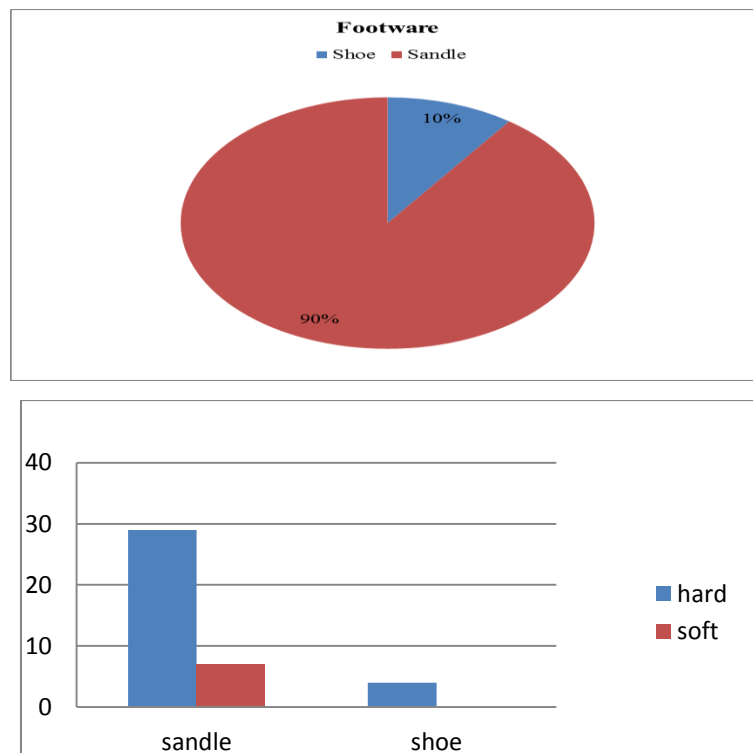


Figure 16: Footwear

In this study, the researcher found that the prevalence of PF was 3.29%. One study conducted in United States of America showed that 10 % of the U.S. population will experience plantar heel pain during the course of a lifetime (Roxas, 2005). Another study conducted in Australia found that heel pain prevalence was 3.6% (Hill et al., 2008). This is almost similar with my study.

In this study, the researcher found out the male female ratio of those participants who have received Physiotherapy treatment for Planter fasciitis from CRP Musculoskeletal outdoor physiotherapy department. This data shows that most of the Planter fasciitis patients were female who had come to take physiotherapy at CRP Musculoskeletal outdoor physiotherapy department. Forty patients of PF knee were studied. Out of them, 19 (47.5%) were male and 21 (52.5%) were female. This data indicates that females were more affected than male. In other study conduct in Nigeria Showed that women are more affected than in men. And male female ratio was 1: 1.9 (Oguntona & Ogunsemi, 2013). The current literature is in consistent regarding the association between sex and plantar fasciitis, some studies showed increase prevalence in men (Taunton et al., 2002). While others showed an increased prevalence in women (Rano et al., 2001).

Taunton et al found in a retrospective case-control study of running athletes that a significant sex difference within their study population, as 54% males and 46% females were affected (Taunton et al., 2002). In contrast, a prospective study including athletes of varying skill levels establish a higher percentage of women with heel pain (Rano et al., 2001). However, in the current literature of plantar fasciitis, there are no theories hypothesizing the reason for a difference in the prevalence of PF between the two sexes.

There different age group who were affected with PF. The participants were different ages. For better presentation the subjects were divided into two age groups. First age group is less than 45 years (25-45), and second age groups more than 46 years (51-77). Among them more participants were into the age groups 25-45 years. There were 28 participants out of 40. It indicates that overall 25-45 years are more vulnerable age group to be affected with PF. It is usually detected in those over 40 years of age

(Irving et al., 2007). Muecke et al. (2003) found that patients are more than 40 years old.

In this study it was found that the persons who were suffering from PF most of them 45% were housewives, 20% person was Government employ , 2.5% was agriculture, 15% was Garments worker, 7.5% was Businessman, 2.5% was Day laborer, 2.5% was Teacher, 5% were in others occupation like office job, service. Different studies suggest that the long time work on standing aggravate the risk of producing PF (Weiss, 2012). Some studies have shown an association between work-related prolonged weight bearing and development of PF (Sadat-Ali, 1998; Pfeffer et al., 1999). Other studies have also demonstrated the association of PF with high level of physical activity. Oguntona & Ogunsemi (2013) found that majority of the population (80 %) were civil servants and were not involved in high level of physical activity. Similar result found in this study where most of the patients were not involved in high level of physical activity.

40 Patients with PF were included as sample of the study showed that most of the sufferers came from urban area. Most of participants among 40 patients who sufferings from planter fasciitis urban people were n=21 (52.5%) and rural people were n=19 (47.5%). But researcher found a study where 60% of the patient lived in the rural area. PF is common among them because they are not aware about shoe or sole of the shoe (Li & Muehleman, 2007).

In this study among 40 participant, n=18 (45%) patients were affected by right foot PF, n=14 (35%) patients were affected by left foot PF and n=8 (20%) patients were affected by both foot PF. A study in Nigeria found that, n= 18 (90 %) of the patients had only one foot affected and only, n= 2 (10 %) had both feet affected in alternate pattern (Oguntona & Ogunsemi, 2013).

In my study n=5 (12.5%) participants were affected by mellitus, n=11 (27.5%) patients were affected by Hypertension, n=3 (7.5%) patients were affected by lung disease, n=21 (52.5%) patients had other disease condition. On the other hand a study found that none of the patients had metabolic abnormalities, while only 6 (30 %) were hypertensive. None had inflammatory arthritis or inflammatory back pain (Oguntona & Ogunsemi, 2013).

In this study among 40 participant, the researcher found that maximum are use sandal n=36 (90%) and rest of participant n=4 (10%) uses shoe. Researcher found a study where it is proved that a causal relationship between high-fashion footwear and foot

problems has been difficult and found that 88% of 356 women (80% had foot problems) wore shoes that were an average of 1.2 cm narrower than the size of their feet. The footwear was relatively hard sole (Maffulli et al., 2004). But in this study among 36 participants who use sandal 29 participant had used hard sole & 7 participants had used soft sole. There were no soft sole has been found among the participant who used shoe.

In this study the researcher found that most of the participant does not involve any type of exercise. Only n=15 participant perform walking activity. Different studies suggest that running activity, jumping, walking aggravate the risk of producing PF (Weiss, 2012).

5.1 Limitations

Complete accuracy is not being possible in any research so that some limitations may exist. Regarding this study, there were some limitations or barriers to consider the result of the study as below-

The first limitation of this study was minor sample size. The data was taken only in one year. The samples were 40 documents of patient with PF according to inclusion and exclusion criteria. The sample size was too small to represent the whole population of Planter fasciitis.

Documents were collected from musculoskeletal outdoor department of CRP. But it needed to collect from different places and organizations to make the result more valid or reliable.

There are no literatures about Prevalence of planter fasciitis the perspective of Bangladesh so it is difficult to compare the study with the other research.

The study was only the prevalence of the PF, in further study would be carrying out the other sectors of the PF.

6.1 Conclusion

It is important to develop research based evidence of physiotherapy practice in this area. Physiotherapist's practice which is evidence based in all aspect of health care. There are few studies on PF. These cannot cover all aspect of the vast area. So the next generation of physiotherapy members should continue study regarding this area, this may involve-use of large sample size and participants form different institute. For the fulfillment of the study, researcher was designed a quantitative and retrospective study design and collected 40 data from the samples through a standard questionnaire from the registered unit of Musculoskeletal unit. From the data base, it was found that the age range between 25-45 years is more vulnerable to have PF. Female are predominantly more affected than male. Most of the patient from urban areas and most of them not perform exercise and sports. The researcher found that maximum participant are use hard sole sandal. The study will help to diagnose PF easily and will give details information about the patient with PF so that people can modify their life style regarding PF at heel. We can provide better treatment as well as essential advice to the patients. As a health professional it improves our knowledge also. Research makes the profession strongest. So there is no alternative option to do research as a professional to develop the profession. This study will formulate to fill up the gap of knowledge in this area.

6.2 Recommendations

The aim of the study was to identify the prevalence of planter fasciitis among patients attended at the musculoskeletal department of CRP. I recommended the following things-

Should take more samples for generating the result and try to make more valid and reliable.

Should take more samples for pilot study to establish the accuracy of the questionnaire.

Should take more time.

Sample should collect from the only rehabilitative institute in Bangladesh.

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APPENDIX

Questionnaire sheet

Title: Prevalence of Planter fasciitis Among Patients Attended at CRP (A Retrospective Survey)

Identification number:
Name of the patient:
Date commenced treatment:
Address:
Mobile number:

Section 1: Socio-demographic questions

Serial No.	Question	Coding Category
1	Ageyears
2	Sex	1.Male 2.Female
3	Religion	1.Islam 2.Hindu 3. Others.....
4	Residential area	1.Urban 2.Rural
5	Occupation	1.Govt. Employ 2.Rickshaw puller 3.Agriculture 4.Factory/garments worker 5.Businessman 6.Day laborer 7.Unemployed 8.Housewife 9.Teacher 10.Others.....
6	Education	1=No formal Schooling 2=Less than primary school 3=Primary Completed 5=HSC Completed 6=Graduate Completed 7=Masters Completed 8=Others Completed
7	Monthly family income	1=No income 2=1000-5000 3=6000-10,000 4=11,000-15,000 5= > 15,000

Section 2: Planter fasciitis related questions

Serial No.	Question	Coding Category
1	Which foot is more affected?	Right Left Both
2	Main problem	Paraesthesia Numbness Others.....
3	Aggravating factor	Rest Standing Walking Squatting Stair climbing
4	Ease factor	Rest Standing Walking Squatting Stair climbing
5	Onset of Planter fasciitis	Sudden Gradual
6	Pain at Night	Morning Evening Night
7	Severity of joint pain	Mild Moderate Severe
8	Any major disease	Diabetes mellitus Hypertension Lung disease Heart disease Epilepsy Others.....
9	Exercises	1.Walking 2.Jogging 3.Others.....
10	Sports	1.Running 2.Jumping 3.Basketball 4.Tennis 5.Others.....

11	Past history of trauma at the heel	1.Yes 2.No
12	Footwear	1.Shoe: Hard/Soft 2.Sandle:Hard/Soft

March 05, 2015

Head of the Department,
Department of Physiotherapy,
Centre for the rehabilitation of the paralysed (CRP),
Chapain, Savar, Dhaka-1343.

Through: Head, Department of Physiotherapy, BHPI.

Subject: Seeking permission for data collection to conduct my research Project.

Sir,

With due respect and humble submission to state that I am Salimur Rahaman, student of 4th year B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). In 4th year course curriculum we have to do a research project for the partial fulfilment of the requirement for the degree of B.Sc. in Physiotherapy. The ethical committee has approved my research title on "Prevalence of planter fasciitis for patients those attended at CRP in 2014, A retrospective survey" under the supervision of Md., Sohrab Hossain, Associate professor of physiotherapy, BHPI & Head of programs, CRP. For this reason I need to permission for collect data from the musculoskeletal department of CRP at Savar, Dhaka.

I, therefore, pray and hope that you would be kind enough to grant my application and give me the permission for data collection and oblige thereby.

Yours faithfully

Salimur Rahaman

05/03/15

Salimur Rahaman

4th Professional B.Sc. in Physiotherapy

Class Roll: 30, Session: 2009-2010

Bangladesh Health Professions Institute (BHPI)

(An academic Institution of CRP)

CRP-Chapain, Savar, Dhaka-1343.

Forwarded for Allowed
05/03/15
Agreed to sign
Given permission for data collection at CRP-PT
Please contact with Mr. Sohrab Hossain, CPT CRP on your contact number.
05/03/15
Mohammad Sohrab Hossain
Head of Physiotherapy
CRP, Chapain, Savar, Dhaka