Faculty of Medicine

University of Dhaka

Effectiveness of Specialized Myofascial Release among Patients with Plantar Fascitis

By
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Registration no: 4026
Roll no: 122
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Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Physiotherapy

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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for acceptance of this thesis entitled, "**Effectiveness of Specialized Myofascial Release among Patients with Plantar Fascitis",** submitted by Sapia Akter, for the partial fulfillment of the requirements for the degree of Master of Science in Physiotherapy.

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List of Abbreviations or Symbols

BHPI	Bangladesh Health Professions Institute
CRP	Centre for the Rehabilitation of the Paralysed
ERC	Ethical Review Committee
FADI	Foot Ankle Disability Index
FFI	Foot Function Index
IRB	Institutional Review Board
MFR	Myofascial Release
PF	Planter Fascitis
SDT	Shahadat's Structural Diagnosis and therapy

Abstract

Background: Planter fasciitis is an inflammatory and disabling condition that needs outmost assessment of the total biomechanical system regarding function of ankle and foot. The fascia itself may be a representative cause for painful ambulation sometimes the entire muscular system of lower limbs even back can be involved responding to mechanical impediment of the fascia in sole of foot. Hence the flexibility of fascia as well as the normalization of muscle tension of surrounding structure can enable comprehensive care and modulates the outcome of physiotherapy. **Aim:** The aim of the study is to determine the effectiveness of specialized myofascial release (Shahadat's structural Diagnosis and Management) along with physiotherapy interventions in Planter fasciitis. **Methodology:** Experimental design of quantitative research which was Randomized Controlled Trail (RCT) sign was conducted in the exploratory investigation. It was a single blinded investigation where the members were blinded. **Result:** 30 patients has been randomly assigned to shahdat's MFR and control group. Till now, this is the maiden study in on Shahadat's Structural diagnosis and management. The approaches found as a scientific based approach to improve the impairments related to pain, dysfunction, ROM, disability and overall health for the patient's with planter fasciitis. The result concludes both group had significant improvement from baseline, hence Shahadat's specialized MFR is superior in improving range of motion of ankle. **Conclusion:** The study needs to be strengthen concentrating on the limitations and also implementation to the findings in imperial phases is necessary to elevate the treatment approaches in patients having planter fasciitis or planter heel pain.

Key words: *Planter fasciitis, shahadat's Structural diagnosis and Therapy, MFR*

CHAPTER I INTRODUCTION

1.1 Background

Plantar fasciitis is a typical reason for pain around heel and foot in adult populations. The painful presentation is generally brought about by collagen degeneration, which is some of the time incorrectly named "aggravation by chronic inflammation" at the inception of the plantar fascia at the calcaneal medial tubercle. This degeneration is like the chronic episode of tendonosis, which highlights loss of collagen progression, increments in ground substance as framework of connective tissue and vascularity, and the nearness of fibroblasts as opposed to the inflammatory cells more often than not observed with the intense irritation of tendonitis (Khan, Cook, Taunton & Bonar, 2000).

Plantar fasciitis is one of the conspicuous reason behind heel pain with a frequency to in excess of 2 million of every a given year in USA (DiGiovanni, 2006). In the investigation of Riddle and Schappert (2004) expressed, 83% of cases with plantar fasciitis (PF) were dynamic, working grown-ups going from 25 to 64 years old. Plantar fasciitis can be likewise alluded to as planter heel pain disorder, painful heel disorder, sprinter's heel, subcalcaneal torment, calcaneodynia, and calcaneal periostitis (Dimou, Brantingham and Wood, 2004). The established signs and indications incorporates limited to average calcaneal tubercle and torment in the initial phase toward the beginning of the day for no less than ten months. The patient more often than not has delicacy around the average calcaneal tuberosity at the plantar aponeurosis (Buchbinder, 2004).

Scher, Belmont, Bear, Mountcastle and Owens (2009) investigated, the general frequency rate of plantar fasciitis found 10.5 per 1000 man in an offered year to United States military staff. The investigation discovered, Compared with male, women had a fundamentally expanded balanced rate proportion for plantar fasciitis of 1.96. The balanced occurrence rate proportion for dark administration individuals contrasted and white administration individuals was 1.12 and junior officers as the referent class, junior enrolled, senior enrolled, and senior officer rank gatherings had an altogether expanded balanced frequency rate proportion for plantar fasciitis as 1.20. In the investigation, Compared with administration individuals in the Air Force, those in the Army and Marines had an altogether expanded adjusted incidence rate proportion for plantar fasciitis of 1.85 and 1.28.

The explanation behind the degeneration is grim microtears of the plantar fascia that rout the body's ability to fix itself. The model sign of plantar fasciitis is that the most exceedingly painful scenes occurs with the initial steps scarcely any methods close to the start of the day, anyway few out of each odd patient will have this symptom. Patients as often as possible see pain around the beginning of development that reduces or settle as they warm up. The agony may similarly occur with drawn out standing and is all over joined by stiffness. In extra outrageous cases, the painful scenes will moreover worsen around the day's end (Young, Rutherford and Niedfeldt, 2001).

Plantar fasciitis commonly causes lower part of heel pain and occurs in up to 10 percent of the U.S. masses. Plantar fasciitis speaks to more than 600,000 outpatient visits yearly in the United States. The condition impacts dynamic and latent grown-

ups everything being equivalent. Plantar fasciitis will undoubtedly occur in individuals who are heavy, who experience an expansive part of the day on their feet, or who have compelled lower leg flexion. Specialists believe that the torment is achieved by serious or interminable harm to the wellspring of the plantar scarf from joined over-load weight (Cole, Seto and Gazewood, 2005).

Different physiotherapy treatment conventions have been upheld in the past, for example, rest, taping, orthotics, silicon heel glasses, extending, myofascial message and positional release treatment, henceforth Non weight-bearing extending practices of stretching have appeared to be useful in diminishing extreme torment which happens toward the beginning of the day (Young, Rutherford and Niedfeldt, 2001).

Regular Physiotherapy interventions has been coordinated to treat the planter fascia and inferior heel structure. Decline of ankle dorsiflexion scope of movement has a sign in Planter Fascitis (Martin et al., 2014). Likewise, pain and a corresponding tight Achilles and confined development in lower leg assume an essential role in planter fascitis (Roxas, 2005).

Knight, Rutledge, Cox, Acosta, and Hall (2001) states, extending of the abbreviated and contracted plantar flexors may decidedly impact a person's practical experiences in life situation of day by day living and abatement the danger of injury. Myofascial release strategy is a delicate tissue therapeutic procedure for the most part given in the constant conditions that causes snugness and confinement in delicate tissues; Positional discharge treatment is an aberrant myofascial method concentrated on the neurologic segment of the neuro-vascular myofascial substantial brokenness. This strategy is proposed to expand muscle adaptability by setting the muscle in an

abbreviated position to advance muscle unwinding as opposed to putting the muscle in a protracted or extended position (D'Ambrogio and Roth, 2002).

Expanded plantar fascia thickness was observed to be related with manifestations. Additionally, a positive affiliation was found between hamstring snugness, leg-length inconsistency (with pain in the more extended appendage) and plantar fasciitis (Martin et al., 2014). Myofascial release has likewise appeared to relieve pain and improve functional foot index in subjects with plantar fasciitis. Myofascial therapeutic procedure and uninvolved extending with remedial ultrasound has appeared to diminish painful impairments and standardize the connective tissue by increasing flexibility, stretching and realigns the planter sash (Meseguer et al., 2006).

Patients with plantar fasciitis present with decreased lower leg range of movement and incredible ankle dorsiflexion because of pain and an accompanying tight Achilles. The objective of MFR is to ease weight in the fibrous band of the connective tissue work. Delicate and supported extending of myofascial therapeutics is accepted to free adhesions and relaxes and protracts the fascia. It helps in change of the thickness of the ground substance and animating fibroblast expansion, prompting collagen blend that may advance recuperating of plantar fasciitis by supplanting deteriorated tissue with a more grounded and increasingly useful tissue (Dyck and Boyajian-O'Neil, 2004).

1.2 Justification

Myofascial release (MFR) is a for the most part used manual treatment that incorporates unequivocally guided low sufficiency, long haul mechanical forces to control the myofascial debries, expected to restore perfect length, decay pain, and improve work. MFR when used in mix with normal treatment is said to be practical to give fast mitigation of pain and tissue triggers (Hou et al., 2002; McKenney et al., 2013). It has been assessed that fascial containments in a solitary piece of the body cause undue distress in various districts of the body due to fascial congruity. This may result in weight on any structures that are wrapped, isolated, or supported by fascia (Schleip, 2003).

MFR generally incorporates moderate, proceeded with weight going from 120-300 seconds associated with restricted fascial layers either clearly by direct MFR methodology or in an indirect manner by roaming MFR technique. Direct MFR system is thought to work clearly over the restricted band: experts use knuckles or elbow or different gadgets to steadily sink into the belt, and the weight associated is two or three kilograms of capacity to contact the constrained scarf, apply weight, or stretch the belt. Winding MFR incorporates a sensitive stretch guided along the path of least resistance until free improvement is practiced (Fryer, Morse and Johnson, 2009).

The technique for thinking for these frameworks can be pursued to various examinations that investigated plastic, viscoelastic, and piezoelectric properties of connective tissue (Schleip, 2012). Ongoing Fascia Research Congresses (FRC) portray scarf as a fragile tissue section of the connective tissue system that soaks the human body (Huijing and Langevin, 2009).

The all out fascial layers consolidates thick planar tissue sheets, ligaments, tendons, shallow scarf and even the most profound intramuscular layer of the endomysium. The term belt as of now additionally fuses the Dura mater, the periosteum, perineurium, the stringy capsular layer of vertebral plates, organ cases similarly as bronchial connective tissue and the mesentery of the stomach zone. Fascial tissues are seen as one interconnected tensional framework that modifies its fiber strategy and thickness, according to adjacent tensional solicitations (Schleip, et al., 2012).

The estimated prediction of the study is myofascial release and conventional physiotherapy will bring positive results to improve in impairments, activity limitations and disability state of the patient. Almubarak & Foster (2012), reviewed several study found stretching in planter fascia had proven effective than electrotherapeutic management, also stretching in achilis and planter fascia bought satisfactory outcome. Pati and Gaigale (2016), found Myofascial release to be effective in 30 patients of planter fasciitis in relieving pain and disability index. Treatment applied for 7 weeks, one a week and had more benefit than taping techniques.

Scientific background of Cuff release and Ankle correction to be beneficial for Planter fasciitis can be mentioned in the ways of the windless mechanism. The windless mechanism describes the importance of position of calcaneus and its impact on abnormal biomechanics to stress the planter fascia. Hicks (1954) had an initial study exploring a triangle tress by the calcaneus, mid tarsal and metatarsal joints. Lately the study has been continued by Kim and Voloshin (1995) exploring role of plantar fascia in the load bearing capacity of the human foot.

Figure 1: The triangle shows the truss formed by the calcaneus, midtarsal joint, and metatarsals. The hypotenuse (flat line) speaks to the plantar fascia. The upward bolts show ground response powers. The descending bolt delineates the body's vertical power. The introduction of the vertical and ground response powers would cause a breakdown of the bracket; in any case, expanded plantar-sash pressure in light of these powers keeps up the support's respectability.

Bolgla and Malone (2004) depicts plantar fasciitis and the windlass instrument asthe plantar fascia averts foot breakdown by highlight of its anatomical introduction and elasticity. The plantar aponeurosis begins from the base of the calcaneus and stretches out distally to the phalanges. Extend strain from the plantar belt forestalls the spreading of the calcaneus and the metatarsals and keeps up the average longitudinal curve.

The hypothesis has its base that windless mechanism creates excessive arch and shortening to planter fascia, creating tension and pain to dorsiflex the ankle. Limited ankle dorsiflexion creates an abnormal biomechanics that creating stress to cuff muscle and trigger point occurs.

Shahadat's structure diagnosis and therapy (SDM) aims to stretch the planterfascia by ankle correction. Subsequently stress the gastrocnemius and soleus to enhance the flexibility of cuff that promotes normal biomechanics of ankle dorsiflexion facilitating eccentric activity of cuff in dorsiflexion. The normalized dorsiflexion promotes correction of arch and relieves stress to planter fascia. This management protocol breaks down the abnormality created by windless mechanism created by abnormal biomechanics.

There was no relevant studies proving efficacy of physiotherapy interventions or conventional approaches in planter fascitis cases having related recurrence or complications in the country context in Bangladesh. Hereby, the aim of the thesis is to evaluate the outcome of MFR adjunct with Physiotherapy interventions in planter fasciitis.

1.3 Aim of the study

To identify the effectiveness of Specialized Myofascial release on Planter Fascitis patients

1.4 Specific objectives

- To explore socio-demographics related to planter fasciitis.
- To identify the effectiveness of pain after specialized myofascial release on plantar fasciitis patients.
- To find out the muscle power after introducing specialized Myofascial release.
- To determine the range of motion after introducing specialized Myofascial release.
- To estimate the improvement of disability status after introducing specialized Myofascial release.

1.5 Hypothesis

Null Hypothesis

$H_0 = \mu_1 - \mu_1 = 0$ or $\mu_1 = \mu_2$, where the experimental group and control group initial and final mean difference is same.

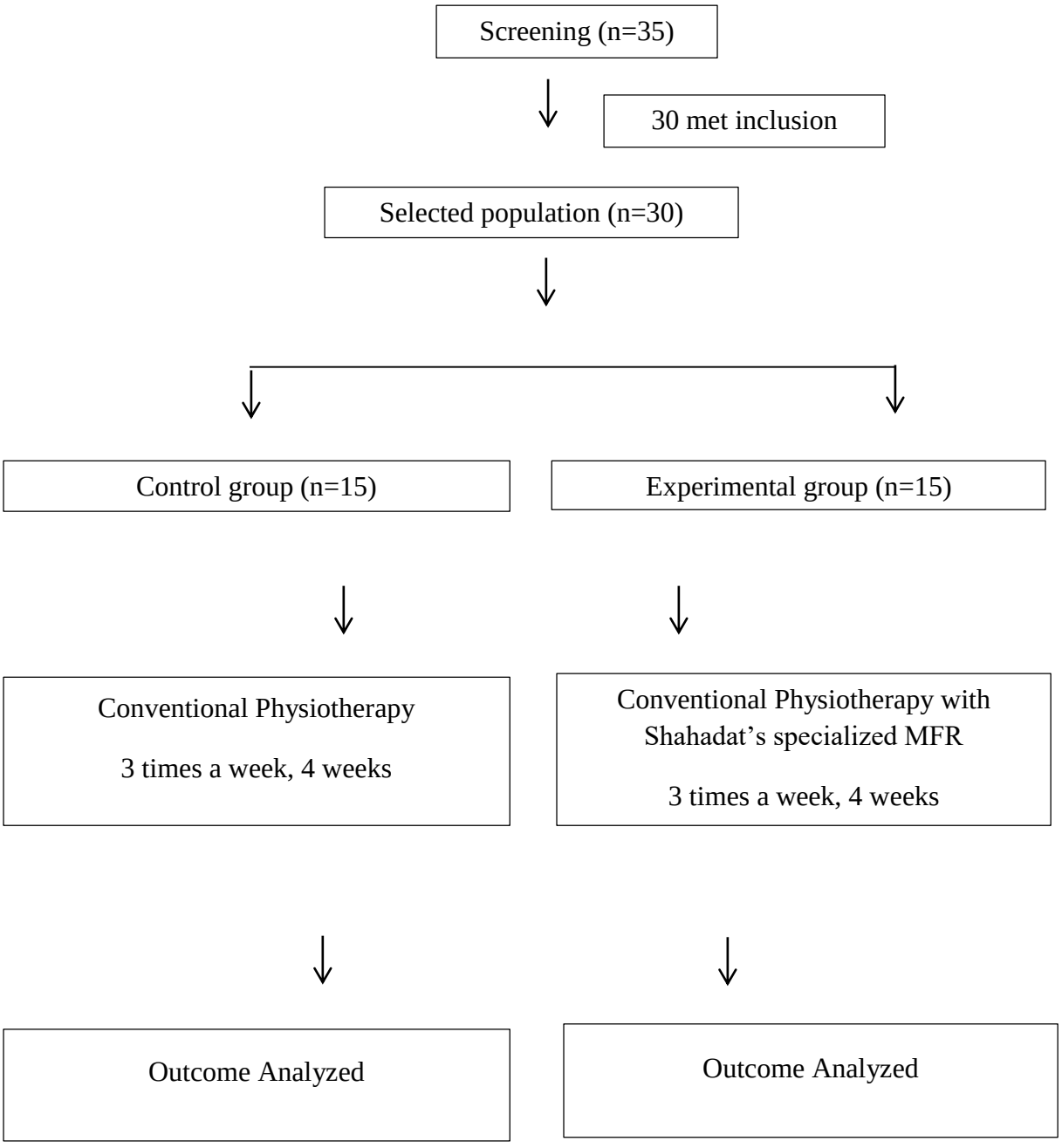
Specialized Myofascial release along with conventional physiotherapy is no more effective than only conventional physiotherapy for the treatment of patients with plantar fasciitis.

Alternative Hypothesis

$H_\alpha = \mu_1 - \mu_1 \neq 0$ or $\mu_1 \neq \mu_2$, where the experimental group and control group initial and final mean difference is not same.

Specialized Myofascial release along with conventional physiotherapy is better than only conventional physiotherapy for the treatment of plantar fasciitis.

1.7 Flow chart



1.8 Operational definition

Planter Fascitis

Plantar fasciitis, ordinarily a limited incendiary state of the plantar aponeurosis of the foot, is accounted for to be the most widely recognized reason for inferior heel pain. Plantar fasciitis causes heel pain in dynamic just as inactive grown-ups all things considered. The condition is bound to happen in people who are corpulent or in the individuals who are on their feet the vast majority of the day. A determination of plantar fasciitis depends on the patient's history and physical discoveries. The precision of radiologic contemplates in diagnosing plantar heel torment is obscure.

Conventional Physiotherapy Interventions

Physiotherapy interventions in the study describes as a series of non-invasive procedure such as manual therapy, exercise, electrotherapy, thermotherapy, education and home exercises for managing the impairments related to Planter Fascitis.The approaches are described as a conventional protocol of the Department of Physiotherapy of Centre for the Rehabilitation of the Paralysed (CRP).

Shahadat’s Structural Diagnosis and Therapy (SDM) approach of MFR

The approach uses a stretching and releasing approach and biomechanical correction to accelerate the biological process of healing. The stretching and releasing techniques for planter fasciitis includes releasing cuff muscles, hamstring and ankle prime movers. The approach described in intervention section. The approach is a consecutive approach and theory derived from several years’ musculoskeletal practice of Dr. M Shahadat Hossain.

CHAPTER II LITERATURE REVIEW

Plantar fasciitis is a biomechanical disorder of plantar fascia coming about because of repeated injury at its starting point on the calcaneus (Tong, & Furia, 2010). In spite of the fact that a misnomer, this condition is now and again alluded to as heel spur by the overall population. There are numerous determinations inside the differential of heel pain (Lennard, 1995). The common introduction is sharp painful episode that restricted at the foremost part of calcaneus. Plantar fasciitis is regularly connected with a heel spur; in any case, numerous asymptomatic people have hard heel spur, while numerous patients having plantar fasciitis don't have a spur (Young, 2016).

Plantar fasciitis seems to be a troublesome case to treat, with no cure-all accessible. Luckily, most patients with this condition inevitably have acceptable results with nonsurgical treatment (Hicks, 1954). Therefore, the interventions for patient desires limits dissatisfaction for both the patient and the provider. The pain is most exceedingly awful promptly in the first part of the day and frequently improves with action. Tolerant gripes of agony in the planter aspect of foot or heel amid weight distribution and is soothed once it is stopped to do so (Boberg & Dauphinee, 2001). On objective findings, there is delicacy over the medial side of the calcaneum. It is portrayed by painful episode that enables inclusion of the plantar fascia. Finding depends on history of the respondents and on the aftereffect of the physical examination. The client regularly gives substandard heel pain on loading activities. Pain related with the condition might throb, burning, or penetrating, particularly with the initial couple of ventures toward the beginning of the day or after times of inactivity (Woelffer, Figura, Sandberg & Snyder, 2000).

The plantar aponeurosis is a thick fasciae structure that extends about the whole length of the foot. Albeit many latent structures add to the support of arch, the role of the plantar aponeurosis is especially vital. It starts the medial tubercle of the calcaneus behind and proceeds anteriorly to join by digits to the plantar plates and after that, through the plates, the proximal phalanx of each toe (Kraushaar & Nirschl, 1999). From the earliest starting point as far as possible of the position period of step, the strain of the plantar aponeurosis expands demonstrates that the plantar sash twists 9% to 12% on extending amid this time (Khan, Cook, Kannus, Maffulli & Bonar, 2002). The plantar belt, fundamentally because of its anatomical position, extraordinary mechanical and biomechanical possessions. Burst and fractional or complete careful separating of the plantar fascia, may prompt dynamic pes planus with associated (Khan, Cook, Bonar, Harcourt & Astrom, 1999). The plantar aponeurosis, as the tie-pole, holds together the anterior and posterior swaggers when body weight is stacked on the triangle. This auxiliary plan is effective for the weight-bearing foot in light of the fact that the swaggers (bone) are exposed to pressure powers; though the tie-bar (aponeurosis) is exposed to compression stress. Twisting snapshots of the bone that can cause damage are limited. The fibrocartilaginous plantar plates of the MTP joints are sorted out not exclusively to oppose compressive powers from weight bearing on the metatarsal heads yet in addition to oppose malleable burdens .Plantar aponeurosis , as the tierod , holds together the foremost and back swaggers when the body weight is stacked on the triangle. This auxiliary plan is productive for the weight-bearing foot on the grounds that the strats (bone) are exposed to pressure powers; while the tie-rod (aponeurosis) is exposed to strain forces. Bending snapshots of the bone that can cause damage are minimized (Alfredson & Lorentzon, 2000).

The fibrocartilaginous plantar plates of the MTP joints are sorted out not exclusively to oppose compressive powers of weight bearing on the metatarsal heads yet in addition to oppose ductile anxieties apparently connected through the strained plantar aponeurosis. The pressure in the plantar aponeurosis (the tie-pole) in the stacked foot in obvious if dynamic or inactive MTP expansion is endeavored while the triangle is smoothed as when the subtalar and transverse tarsal joint are pronated. The scope of MTP augmentation will be constrained. Through the pulley impact of the MTP joints on the plantar aponeurosis, the plantar aponeurosis , acts interpedently with the joints of the hindfoot to add to expanding the longitudinal curve as supination of the foot, and as the impact point ascends amid the metatarsal break, in this way adding to changing over the foot to an unbending force for successful push-off . The fixed plantar fascia at the MTP joints, anticipates exorbitant toe extension that may pressure the MTP joints or enable the limbs to move front to the toes (Tasto, 2006).

The reason for plantar fasciitis is frequently misty and might be multifactorial. Due to the high rate in sprinters, it is best hypothesized to be brought about by recitative microtrauma. Conceivable hazard factors incorporate corpulence, occupations requiring delayed standing and weight-bearing, and heel spurs (Cavanagh & Lafortune, 1980). Other hazard components might be extensively delegated either outward as training mistakes and modalities used or internal mechanism as functional, structural, or degenerative. Training mistakes are among the real reasons for plantar fasciitis. Competitors for the most part have a past filled with an expansion in separation, force, or term of movement. The expansion of speed exercises, plyometric, and slope exercises are especially high-hazard practices for the advancement of plantar fasciitis. Running inside on ineffectively padded surfaces is additionally a hazard factor. Appropriate equipment is imperative. Competitors and other people

who invest prolonger duration energy in their feet should wear a fitting shoe type for their foot type and action (Riddle, Pulisic, Pidcoe & Johnson, 2003). Athletic shoes quickly lose padding properties (Werner, Gell, Hartigan, Wiggerman, & Keyserling, 2010).

Intense diffuse swelling of digits, Pain at the average calcaneal tuberosity, swelling over Achillis addition, Enthesopathy, Periostitis. The traditional introduction of PF in pain in the underside of the foot at the mediocre locale of the impact point. Tolerant report the pain to be especially awful with the initial couple of steps taken on ascending toward the beginning of the day or after an all-encompassing abstain from weight-bearing action. The painful episode can be so serious the patient limps or totters around with the influenced heel off the ground. After a couple of steps and through the course of the day, the heel pain subsides, however returns whether serious or delayed weight-bearing movement is embraced. By and large, the pain is more significant when weight bearing exercises are included, and can regularly be connected to expanded sum or power of physical movement before the beginning of indications. A few patients may likewise optionally create lower back pain (Guatham, Nuhmani & Kachanathu, 2015).

Diagnosis of Planter fascitis is generally made based on history and physical examination. Pain on first ascending toward the beginning of the day is run of the mill of Planterfascitis, and might be useful in recognizing it from different types of heel pain. Related paresthesia is definitely not a typical normal for Planter fascitis. Nighttime pain should raise doubt of different reasons for heel torment, for example, tumors, contaminations, and neuralgia. Planter fascitis is typically one-sided, however up to 30% of cases have a respective introduction (Acevedo & Beskin, 1998). Patients regularly report a deceptive beginning of pain and impairments under the plantar

surface of the heel upon weight bearing after a time of non-weight bearing. This torment in the plantar heel area is most discernible toward the beginning of the day with the initial couple of ventures subsequent to strolling or after a time of inertia. At times, the pain is severe to the point that it results in an antalgic walk (McMillan, Landorf, Barrett, Menz & Bird, 2009).

The differential diagnosis can be Calcaneal stress, Bone bruise, Fat pad atrophy, Soft-tissue necrosis, Tarsal tunnel syndrome, primary or metastatic bone tumors, Paget disease of bone, Saver's disease or Referred pain from proximal sources (Riddle, Pulisic, Pidcoe & Johnson, 2003).

The non-operative managements concentrate on diminishing pain, advancing recuperating, reestablishing scope of movement and quality, redressing overuse blunders, constraining biochemical deviations brought about by structural variations from the norm and improving the nutrition (McMillan, Landorf, Barrett, Menz & Bird, 2011).

Foot orthotics is utilized to diminish abnormal foot pronation that is thought to cause expanded weight on the average band of the plantar fascia (Mahowald, Legge & Grady, 2011).

Posterior strain night support keeps up lower leg dorsiflexion and expansion, making a consistent mellow stretch of the plantar belt that enables it to recuperate at a practical length. One Cochrane review discovered constrained proof to help the utilization of night braces to treat patients with agony enduring over a half year (DiMarcangelo & Yu, 1997).

Modification to shoes ought to have sufficient curve support and padded heels. For people with pes planus, a shoe with longitudinal curve backing can help decline torment related with significant lots of standing. An adjustment in footwear was refered to by 14% Planter fascitis patients as the treatment that had better improvements (Barrett, Day, Pignetti & Egly, 1995).

NSAID operators, regardless of whether directed per mouth, topically or through an infusion, have been a foundation in the treatment of plantar fasciitis. There are constrained proofs to help the utilization of steroid infusion to give transient pain relief (Furey, 1975).

Physiotherapy management

Ultrasound may inhibit pain by its transmission on discernment or by changing the bio-physiological condition causing the pain. These impacts might be the aftereffect of incitement of the cutaneous warm receptors on expanded delicate tissue extensibility because of expanded tissue temperature. The aftereffect of progress in nerve conduction because of expanded tissue temperature is the non-warm impact of ultrasound. The adjustment of aggravation is expected to the non-warm impacts of ultra-sound. Constant ultrasound of 0.5 to 2.0 w/cm2 force and 1.5 MHz recurrence has additionally been accounted for to be more viable than shallow warming with paraffin or profound warming with short wave diathermy for easing the pain from delicate tissue wounds when connected inside 48 hours of damage (Cole, Seto & Gazewood, 2005).

Low-power LASER treatment or low dimension LASER treatment is a nonexclusive term that characterizes the remedial utilization of moderately low out putt. LASER and monochromatic overly iridescent diodes for the treatment of malady and damage

at a measurements (usually<35/cm2) for the most part viewed as too low to even consider affecting any discernible warming of the illuminated tissue (Feinblatt, 2014).

Stretching and strengthening projects are significant in light of the fact that they can help right utilitarian viable factors, for example, tightness of the Achilles ligament and shortcoming of characteristic muscles of the foot. Regularly utilized stretches are twists or stair extends, which center around extending the gastrocnemius and soleus muscles. Extending of the plantar sash can be led comparatively like the self myofascial discharge technique Cole, Seto & Gazewood, 2005).

The dose for calf stretching can be either 3 times each day or 2 times each day using either a continued (3 minutes) or discontinuous (20 seconds) extending time, as both are appeared to deliver comparable impacts (Martin, Irrgang & Conti, 1998).

Studies show that taping causes improvement in capacity of planter fascia in Planterfascitis. Calcaneal or low-Dye taping can be utilized to give present moment (7 to 10 days) relief from discomfort. Low Dye taping of the foot has been appeared to be compelling in restricting pronation (Lohrer, Alt & Gollhofer, 1999).

Surgical management

Isolated partial or complete release of the plantar fascia or a fascia release combined with resection of the plantar calcaneal spur and excision of the spur are surgical treatment options for recalcitrant planter fasciitis. Study revealed that 50% of patients with heel pain were totally satisfied with the results of surgical intervention. Although only 57% of their patients had functional recovery postoperatively. On the basis of evidence, it is believed that it is important to further optimize conservative treatments prior to considering surgical options (McPoil, et al., 2008).

CHAPTER III METHODOLOGY

3.1 Study design

The study was a Randomized Clinical Trial (RCT). The aim of this study was to find out effectiveness of specialized myofascial release for the treatment for planter fascitis patients attended to musculoskeletal unit at CRP-Savar and Mirpur. Experimental design of quantitative research which was Randomized Controlled Trail (RCT) sign was picked on the grounds that the exploratory investigation is the most ideal approach to discover the adequacy of the examination. The researcher has directed the examination with trial gathering and control bunch with expect to look at in the middle of experimental group and control group. It was a single blinded investigation where the members were blinded.

3.2 Study Area

The study was conducted in musculoskeletal department of CRP, Savar and CRP, Mirpur. Because these patients came at CRP from all over the Bangladesh from all economic groups for comprehensive rehabilitation, so it reflects the entire population.

3.3 Study population

The patient with plantar fasciitis has been chosen as study population. Primarily 35 subjects has been screened with PF and from which 30 patient has been confirmed by consultant Physiotherapist based on the inclusion criteria. Then the subjects were assigned by simple randomization process (Suresh K, 2011).

3.4 Study Duration

6 months: 1st November 2018 to 30th April 2019

3.5 Sample Size

Researcher has accepted 30 members as sample from 35 screened patients. Clearly this is a little example however still we trust they will be given a delegate image of the investigation. All the patient arrived at physiotherapy department diagnosed as Planter fasciitis from 1st November 2018 to 30th March 2019 has been taken as sample.

3.6 Sampling scheme

The examination bunch subjects were considered so that those patients coming to CRP at Savar and CRP at Mirpur with in a specific timespan. As these patients accomplished in these CRP haphazardly without the decision of CRP expert or the pecialist's decision, so they might be considered as a random example.

3.8 Inclusion Criteria

- Age group (35-55years)
- Both sex (male and female)
- Planter fascities patients with hamstring and calf muscles tightness.
- Planter fascities patients with dysfunction.
- Patients who were willing to participate.

3.9 Exclusion Criteria

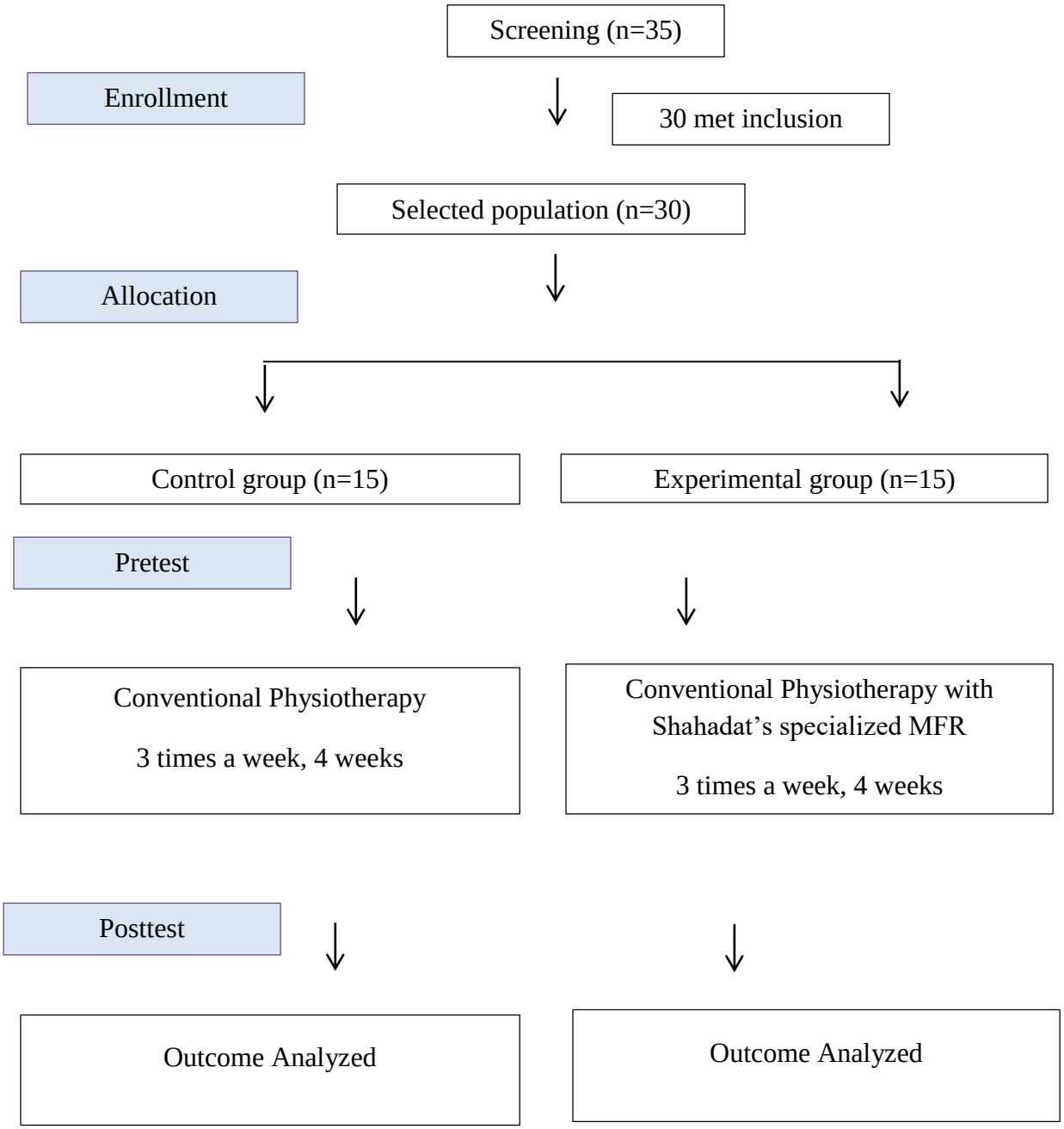
- Patients who had any clinical disorder (infective condition of foot/ankle), where myofacial release is contraindicated.

- Diagnosis of tumor, fracture and severe osteoporosis chances.
- Patients who have any surgery of knee and ankle

3.10 Method of data collection

Screening has been carried out by physiotherapist. Then 30 subjects has been screened with PF which has been confirmed by consultant Physiotherapist based on the inclusion criteria. A baseline assessment has been done then according to the previous discussed protocol or flowchart that has been provided. An individual data collector was assigned and two assessor has been employed in both setting. The patient has been randomized by the physiotherapists who were treating them. Randomization of physiotherapist in the department has been done and the patient with planter fasciitis in a particular physiotherapist's appointment were determined as control or experimental. One physiotherapist has been included as control or experimental for single patient only.

The researcher used internationally accepted structured questionnaire for collecting data



3.11 Data collection tools

Researcher used several data collection tools to conduct the study

- Informed Consent
- Structured questionnaire
- Pen, paper, pencil, eraser

3.12 Measurement tools

Researcher complied several measurement tools that were incorporating global outcome measurement tools for pain, ROM and disability in planter fasciitis

- Universal Goniometer to measure active and passive range of motion in ankle joint.
- Manual muscle testing technique by using OXFORD muscle grade scale to assess the muscle strength.
- Foot Function Index
- Foot Ankle Disability Index
- Structured questionnaire with socio-demographics, range of movement, muscle strength, planter fasciitis related data and disability related data has been documented.

3.12.1 Goniometer

A goniometer is an instrument which estimates the accessible scope of movement at a joint. In the event that a patient is experiencing diminished scope of movement in a

specific joint, the specialist can utilize a goniometer to survey what the scope of movement is at the underlying evaluation, and after that ensure the effectiveness by utilizing the goniometer in resulting sessions. Goniometer have various sorts; the most use is the universal goniometer, it comprises of a stationary arm, a portable arm and a support. There is some study about whether the utilization of a goniometer is an adequately legitimate and dependable instrument to decide if a treatment has been effective. Some exploration contends that the dependability of the estimation gotten from a goniometer relies upon the sort used, while some did not perceive any huge distinction between some instruments (Rome & Cowieson, 1996). Martin and McPoil (2005) stated universal goniometer to be a valid and reliable tool for assessing ROM in a joint.

3.12.2 Manual muscle testing

Manual muscle tests assess the capacity of the neurological system to adjust the muscle to meet the changing weight of the analyst's test. This necessitates the analyst be prepared in the biomechanical science of muscle work. The activity of the muscle being tried, just as the job of synergistic muscles, must be comprehended.. To accomplish exact outcomes, muscle tests must be performed by an exact testing convention. The accompanying elements must be deliberately viewed as when testing muscles in clinical and trial setting. One way scientists decide whether a clinical test is steady and repeatable more than a few preliminaries is to determine its reliability. Contingent upon the kind of estimation that is performed, various sorts of dependability coefficients can be determined. In all coefficients, the closer the esteem is to 1, the higher the dependability. The tool is confident as a valid and reliable tool (Cuthbert & Goodheart, 2007).

3.12.3 Foot Function Index

A Foot Function Index (FFI) was created to quantify the effect of foot pathology on capacity regarding pain, inability and movement confinement. The FFI is a self-regulated tool comprising of 23 section partitioned into 3 sub-scales. Both aggregate and sub-scale scores are delivered. The FFI was analyzed for test-retest reliability quality, inside consistency, and build and basis legitimacy. In a study, Test-retest reliability of the FFI aggregate and sub-scale scores went from 0.87 to 0.69. Inside consistency extended from 0.96 to 0.73. Evident relationship between the FFI total and sub-scale scores and clinical proportions of foot pathology upheld the criterion legitimacy of the index (Landorf & Radford, 2008).

3.12.4 Foot Ankle Disability Index

Patient rated reports of function are delegated nonexclusive or explicit measures, which incorporate condition specific, populace explicit, and persistent explicit instruments. Conventional measures recognize by generalized health and are intended to be clinically important crosswise over different populaces, body parts, and disabilities. Interestingly, explicit measures are expected to evaluate disability identified with explicit conditions or specific body parts. The FADI is an area explicit self-report of capacity with 2 components. The index was first portrayed in 1999 by Martin that surveys impairments of everyday living (Hale & Hertel, 2005).

3.13 Treatment regime:

Graduate physiotherapists who are expert in treatment of musculoskeletal patient has been involved in treatment of patients. The physiotherapists had the experience have more than two years, in the aspect of musculoskeletal physiotherapy. Researcher arranged service training to share the information. Practical demonstration involved training on specialized myofacial release including procedure, dose, intensity, frequency, repetition and patient position. In addition the types, dose repetition, duration of conventional care including manual therapy, exercise therapy and elelctrotherapy has been taken permission from head of Physiotherapy department, centre for the rehabilitation of the paralyzed (CRP).

A. Control Group: Conventional Physiotherapy Techniques has been provided from the guideline of Department of Physiotherapy, CRP.

Conventional Management
Friction message
Ischemic compression
Ice compression
Ultrasound therapy
Shoe modification
Stretching exercise
Strengthening exercise
Postural education

Table 1: Conventional Physiotherapy

B. Trial Group:

a) Conventional physiotherapy techniques.

b) Shahadat's Structural Diagnosis and Therapy (SDT) in Planter Fasciitis an specialized myofascial release technique

1) Dorsiflexion Mobilization Grade 1
2) Dorsiflexion Mobilization Grade 2
3) Dorsiflexion Mobilization Grade 3
4) Full range TA stretch
5) Biomechanical Ankle correction in Planter flexion
6) Cuff stretch in Leg raise
7) Release of Cuff in prone lying lateral to medial and medial to lateral
8) Release of Cuff in prone lying upwards to downwards
9) Release of Cuff in prone lying downwards to upwards
10) Knee Flexion, traction and mobilization
11) Rolling technique of Release

Table 2: Shahadat's Structural diagnosis and Therapy (SDT)

The complete video of the technique has been uploaded in YouTube.

3.15 Data analysis

Statistical analysis has been performed by using statistical package for social science (SPSS) version 20. Researcher used pie chart, bar chart, linear line diagram and also percentage and parametric tests were conducted using paired t-test and unrelated t-test, Mean whitney U test and Wilcoxon test.

The researcher had calculated the variables mean, mean difference, standard deviations, standard error, degree of freedom and significant level to show that experimental group and control group mean difference in within group was significantly different than the standard table values. In the between group, the data shows that the mean difference was greater than the control group

3.16 Quality control and confirmation

The specialist had enough learning in the assigned examination, henceforth the investigation zone also, underneath issues had been acutely investigated by him. The arrangement of the study was simply basic, accordingly it empowered a complete answer. The trial was created by the review of literature; pursue the universal acknowledged trial and companion explored for dependable poll. The examiner endeavored to keep away from choice predisposition because of carefully kept up incorporation and exclusion criteria.

The examination was stayed away from strife the determination of the members. The information was gathered by experience physiotherapist who was distinguished lumbar plate prolapsed patients as a members. The data has been collected by separate data collector employed for the study.

3.17 Ethical issues

The whole process of this research project has been done by following the national guidelines of Bangladesh Medical Research Council (BMRC) and World Health Organization (WHO) Research guidelines. A written approval from Institutional Review Board (IRB) has been obtained. For data collection, a separate approval from Head- Department of Physiotherapy, CRP has been taken. During the data collection procedure- written consent has been taken from the patients. Every participant had to right to proceed or withdrawal from the study anytime.

3.18 Informed consent

Prior to leading examination and interviews with the respondents, it is important to pick up assent from the subjects. For this investigation, researcher has given informed consent structure to each members and disclosed to the subject verbally. Data collector has been referenced those respondents who were completely volunteer and they reserved the privilege to pull back whenever. Researcher assured them that secrecy would be kept up. Data may be distributed in the method for introduction or composing group however they didn't be recognized. The examination results might not have any direct impacts on them however the individuals from lumbar disc herniation and seeking Physiotherapy might be profited from the examination in future. Nobody won't be humiliated by the investigation. Also, whenever the researcher would be accessible to address any extra inquiries concerning the examination.

CHAPTER IV RESULT

4.1 Baseline variables

Variable	Control	Experimental
Gender, no (%)		
Male	4 (13.3%)	4 (13.3%)
Female	11 (37%)	11 (37%)
Age (years) ± SD	41.80± 8.19	48.80± 7.16
Height (cm) ± SD	153.76± 27.95	153.21± 8.50
Weight (kg) ± SD	65.8 ± 8.27	68.7 ± 5.95
BMI ± SD	26.02 ± 2.44	30.48 ± 5.09
Occupation, no (%)		
Garments	3 (10%)	1 (3.3%)
Business	2(7%)	0
Housewife	8 (25%)	10 (33%)
Teacher	2 (7%)	0
Farmer	0	2 (7%)
Professional	0	2 (7%)
Marital status, no (%)		
Married	15 (50 %)	15 (50 %)
Education, no (%)		
No formal education	0	1 (3.3%)
Primary	1 (3.3%)	5 (16.8%)
Secondary	5 (16.8%)	3 (10%)

Higher secondary	5 (16.8%)	3 (10%)
Bachelor/Masters/ above	4 (13%)	3 (10%)
Family member ± SD	5.27 ± 1.7	4.80 ± 1.5
Residence, no (%)		
Rural	0	7 (23%)
Semi urban	11 (36.3%)	2 (6.9%)
Urban	4 (18.7%)	6 (20%)
Earning Members ± SD	1.46±.5	1.47±.5
Monthly expenses (BDT) ± SD	24333 ±4952	23666 ±6113
Systemic illness, no (%)		
DM	15 (50 %)	10 (33 %)
HTN	0	1 (3.3%)
IHD	0	1 (3.3%)
Hyperlipidaemia	0	1 (3.3%)
None	24 (80%)	2 (6.9%)
Onset (month) ± SD	8.53 ±2.8	21.47 ± 19.7
Treatment before CRP, no (%)		
Physician	1(3.3%)	12 (40%)
No treatment	14 (46.7%)	3 (10%)
Shoe, no (%)		
Sandal	4 (13.3%)	4 (13.3%)
High heel	6 (20%)	1 (3.3%)
Shoe	4 (13.3%)	2 (6.9%)
Walk barefoot	1 (3.3%)	8 (25.1%)
Job type, no (%)		

Livelihood work	4 (13.3%)	4 (13.3%)
Housekeeping	8 (26.6%)	10 (33.6%)
Job and household	3 (10.1%)	1 (3.3%)
Duration of Walk daily, no (%)		
>1	5 (17.1%)	4 (13.3%)
30 min – 1 hr	5 (17.1%)	0
<30 min	5 (17.1%)	11 (36.7%)
Pain affects mental health, no (%)		
Yes	15 (50%)	15 (50%)
Affected leg, no (%)		
one	14 (46. 7%)	13 (43.3%)
two	1 (3.3%)	2 (6. 6%)
Social interaction problem, no (%)		
Yes	15 (50%)	13 (43%)
No		2 (7%)

Table 3: Baseline demographic variables

4.1.1 Age of the participants

The mean age of participants were 41.80 years in control group and 48.80 in experimental group with subsequent Standard deviation 8.19 and 7.16. Among the participants, minimum age was 27 and maximum was 68 years. From 29-40 years there was 8 respondents (26.7%), 41-50 years there was 13 respondents (43.3%), 51-62 years was 9 (30%) of patients.

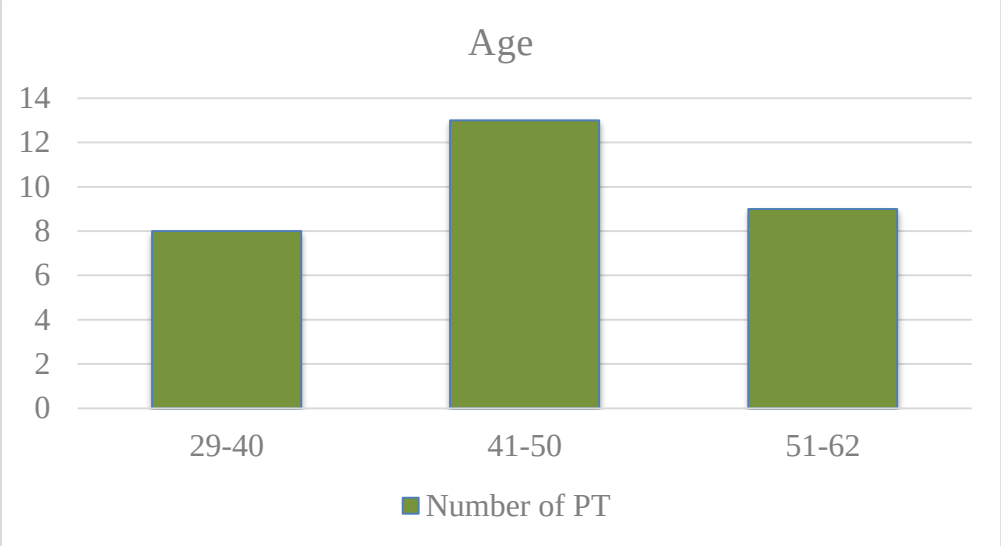


Figure 2: Age of the respondents

4.1.2 Gender of the participants

Among the respondents male were 8 in number (26.7%), female were 22 persons (73.3%). Both control and experimental had separately 4 (13.3%) male and 11 (37%) were female in equal distribution.

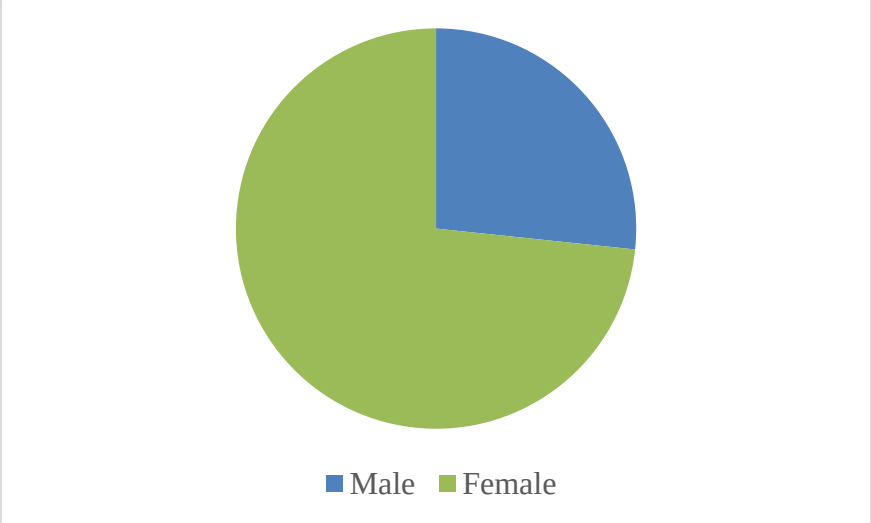


Figure 3: Gender of the respondents

4.1.3 Marital Status of the participants

Among the respondents male were 30 in number (100%) were married.

4.1.4 Education of the participants

From the participants 1 person (3.3%) had no formal education, Primary education 20% (n=6), secondary 26.7% (n=8) and Higher secondary was 26.7% (n=8), masters and graduation was 23.3% (n=7).

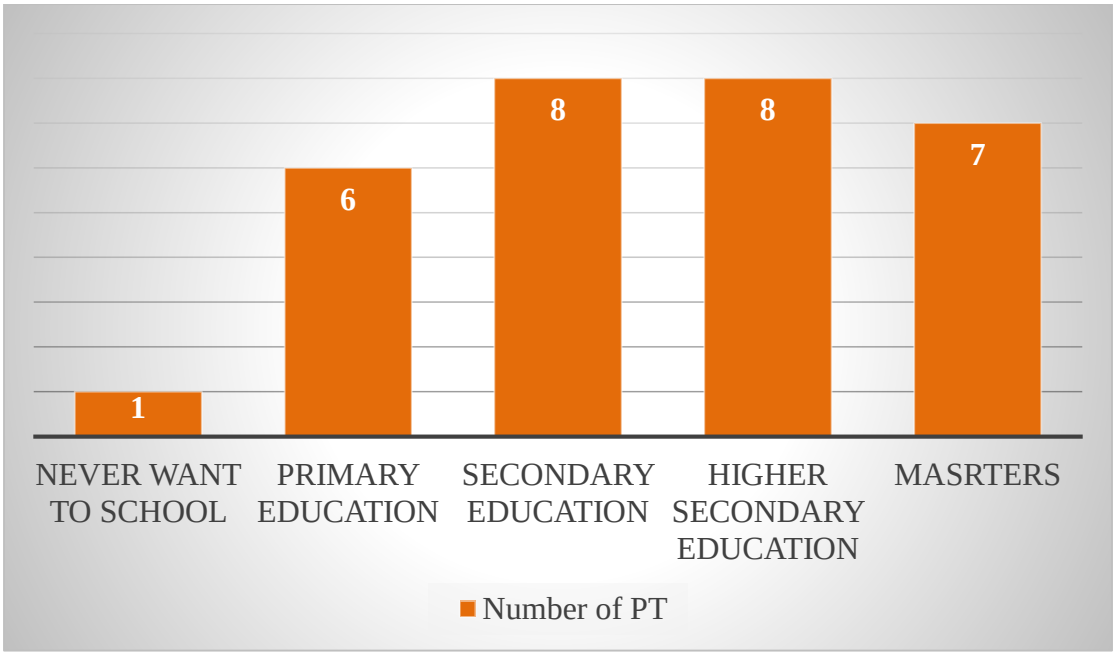


Figure 4: Education of the respondents

4.1.5 Occupation of the participants

From the respondents, 2 person were farmer (6.7%), garments worker 13.3% (n=4), businessman 2 person (6.7%), housewife 18 person (60%), teacher 2 person (6.7%), professional 2 person (6.7%).

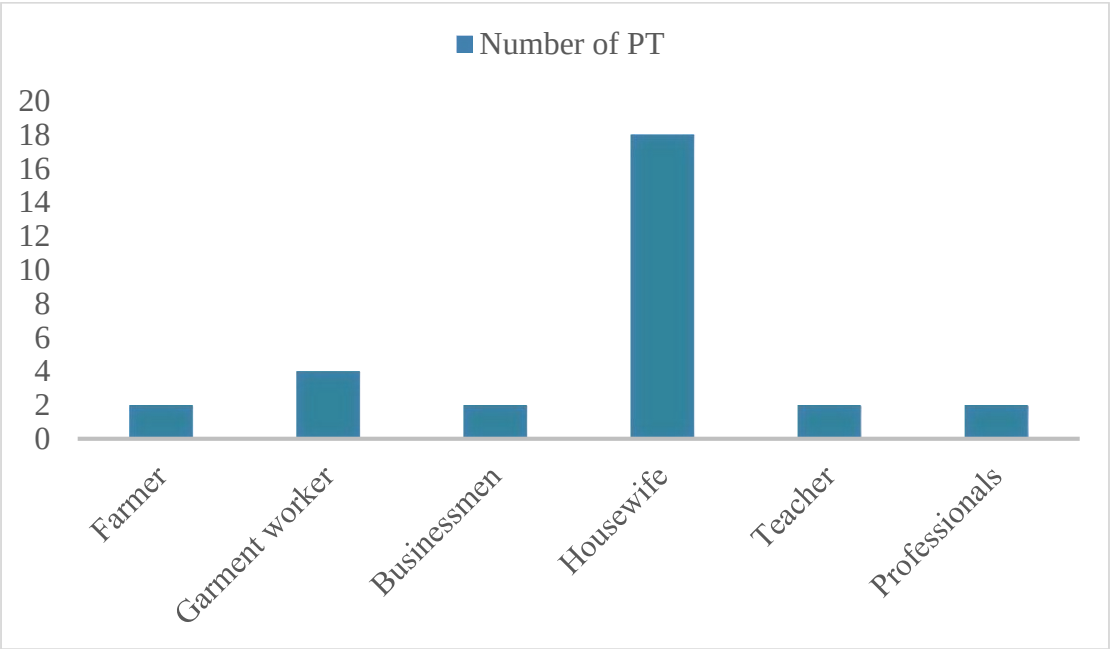


Figure 5: Occupation of the respondents

4.1.6 Height of the participants

The mean height of participants were 153.76 cm in control group and 153.21cm in experimental group with subsequent Standard deviation 27.95 and 8.50. Among the participants, 63-150 cm was 8 person (26.7%), 152-176 cm was 22 person (76.7%).

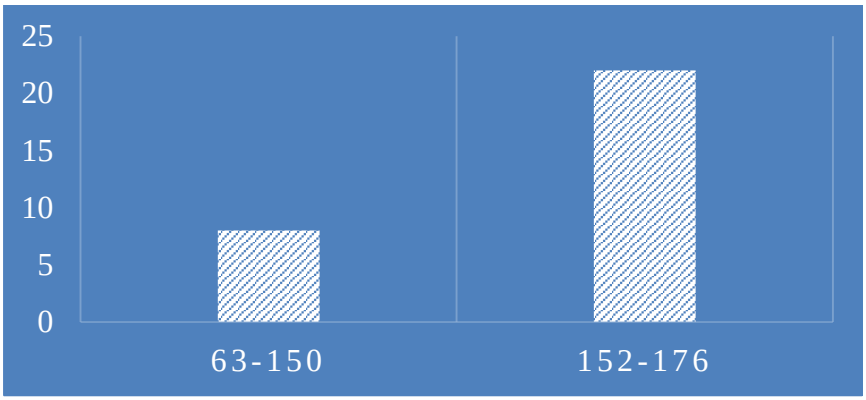


Figure 6: Height of the respondents

4.1.7 Weight of the participants

The mean weight of participants were 65.8 kg in control group and 68.7 kg in experimental group with subsequent Standard deviation 8.27 and 5.95. Among the participants, 52-70kg was 20 person (66.7%), 72-80kg was10 person (43.3%).

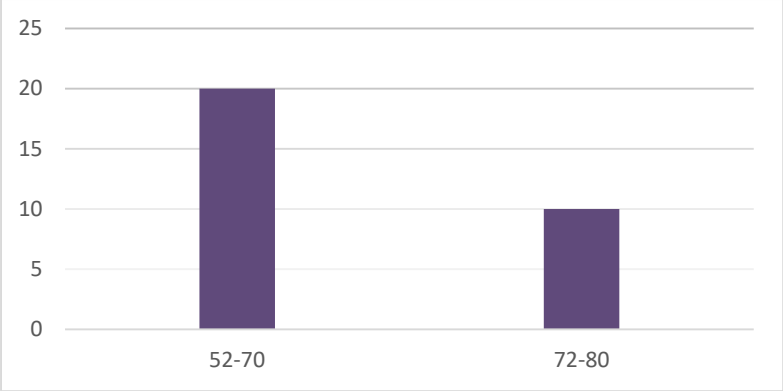


Figure 7: weight of the participants

4.1.8 BMI of the participants

The mean BMI of participants were 26.02 in control group and 30.48 in experimental group with subsequent Standard deviation 2.44 and 5.09. Among the respondents 20-24 was 20% (n=6), 25-30 was 17 participants (57.7%), 31-39 was 7 respondents (24%)

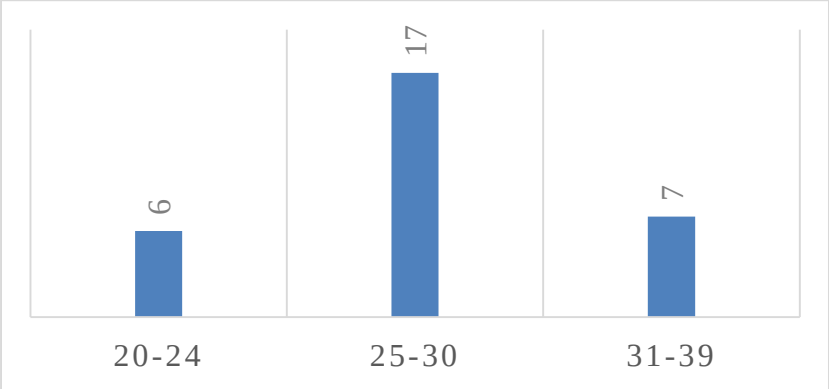


Figure 8: BMI of the respondents

4.1.9 Residence of the participants

7 respondents were in rural area (23.3%), semi urban (43.3%) and urban 10 respondents (33.3%)

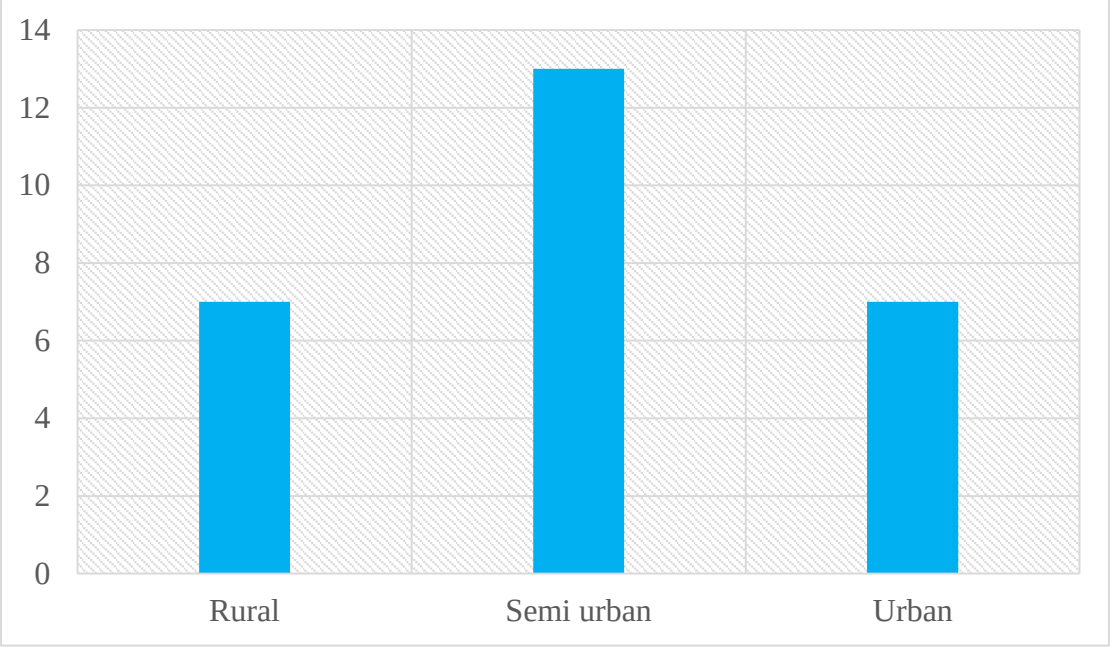


Figure 9: Residence of the respondents

4.1.10 Monthly expense of the participants

The mean monthly expense of participants were 24333 in control group and 23666 in experimental group with subsequent Standard deviation 4952 and 6113. 4 participants (13.3%) had income 15000, 9 respondents had (30%) 20000 income, 6 participants had income 250000 (20%) and 11 respondents (36.7%) had 30000 income.

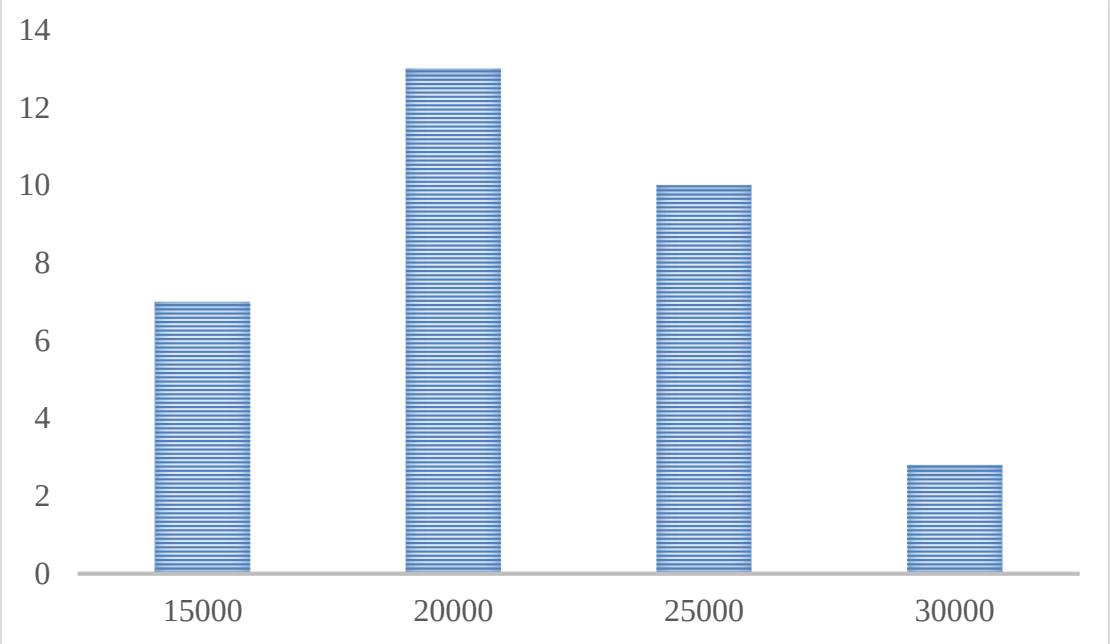


Figure 10: Monthly expense of the respondents

4.1.11 Number of households earning of the participants

14 respondents family (46.7%) had 1 member and 16 respondents (53.3%) family had 2 earning members

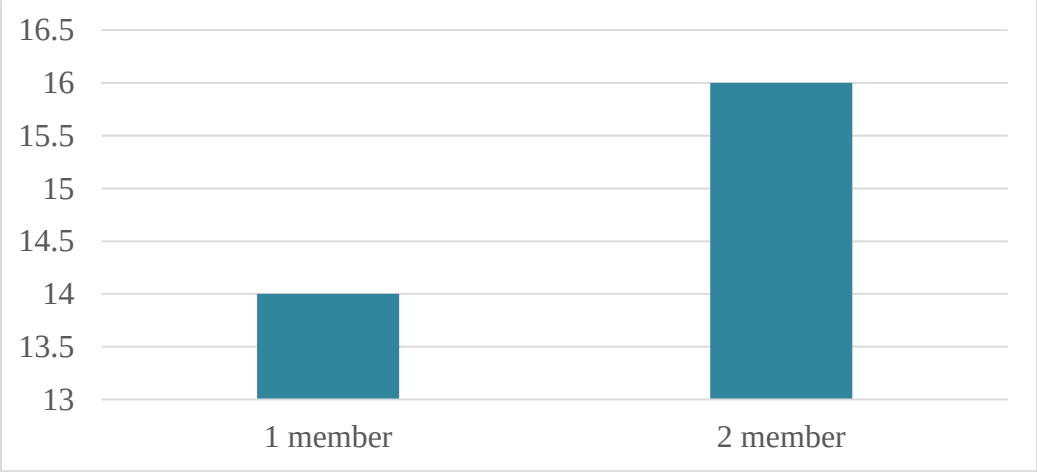


Figure 11: Earning member of the respondents

4.1.12 No of receiving PT before coming here the participants

27 respondents (90%) received physiotherapy for the first time and 3 respondents received physiotherapy (10%) for 2-4 times before CRP.

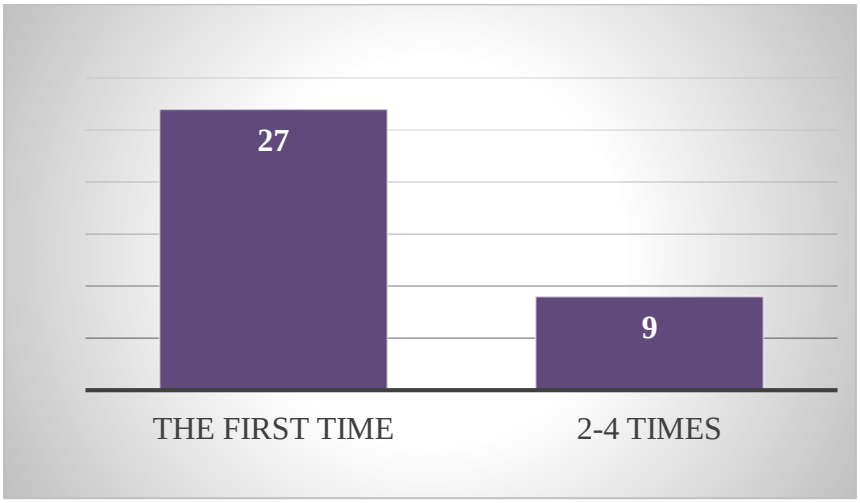


Figure 12: number of receiving PT of the respondents

4.1.13 Kind of treatment participant received before arriving CRP

13 respondents (43.3%) received medicine and Physician treatment, 17 respondents (56.7%) received no treatment.

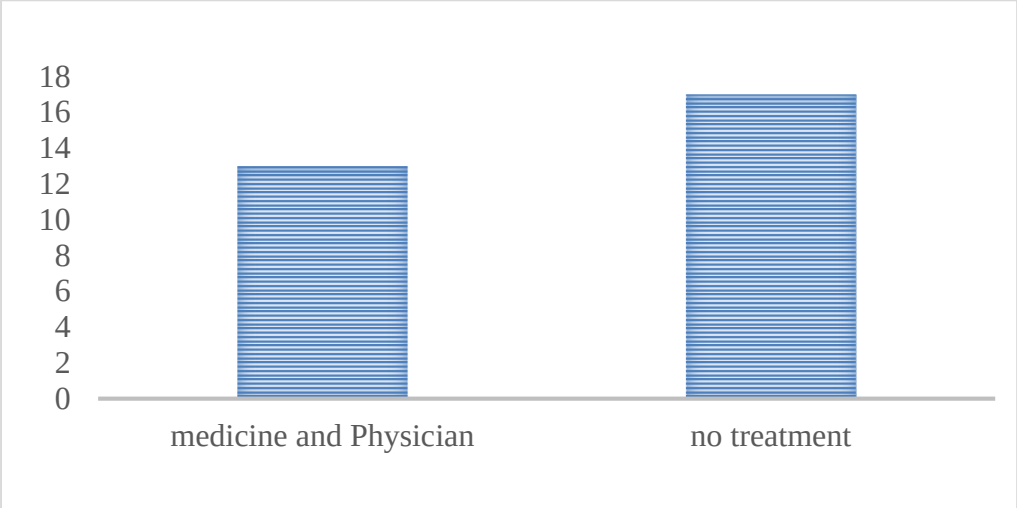


Figure 13: treatment received of the respondents

4.1.14 Household size

9 respondents (30%) belongs to small family and 21 respondents belongs to joint family (70%)

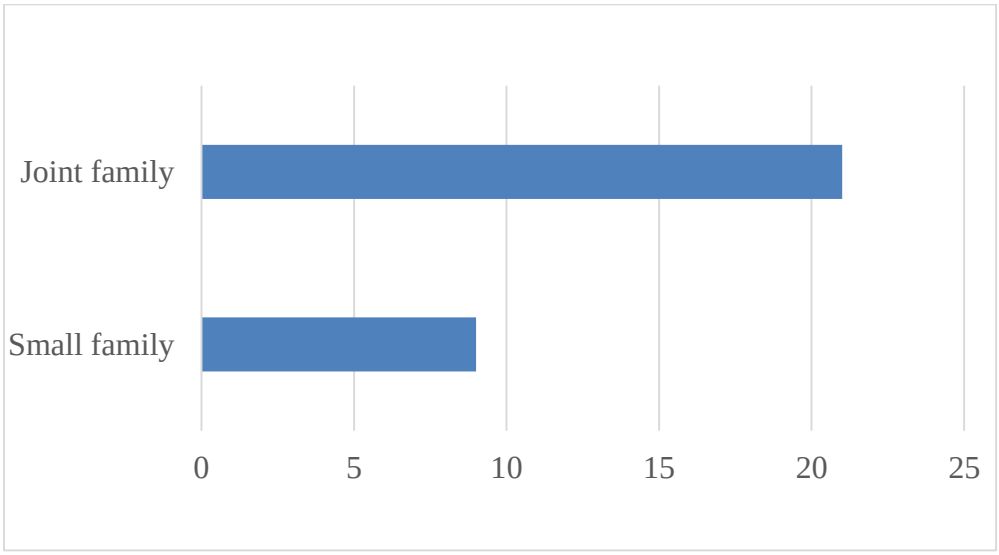


Figure 14: household size of the respondents

4.1.15 Kind of shoes participants usually wear most of the day

8 respondents (26.7%) used sandal, 7 respondents (23.3%) used high heel, 6 respondents (20%) used shoes and 9 respondents (30%) walked barefoot.

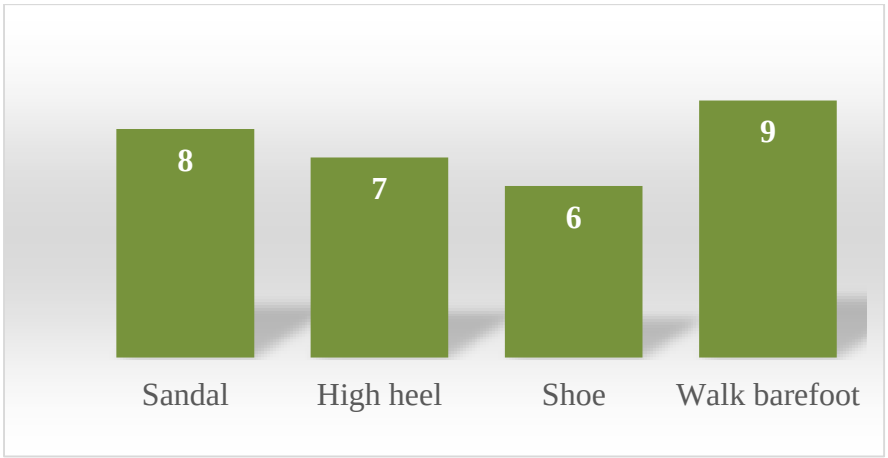


Figure 15: shoes of the respondents

4.1.16 Associate disease

25 person (83.3%) had diabetes, 1 respondent had heart disease (3.3%), 2 person had (6.7%) hyperlipidemia and 2 persons had other diseases.

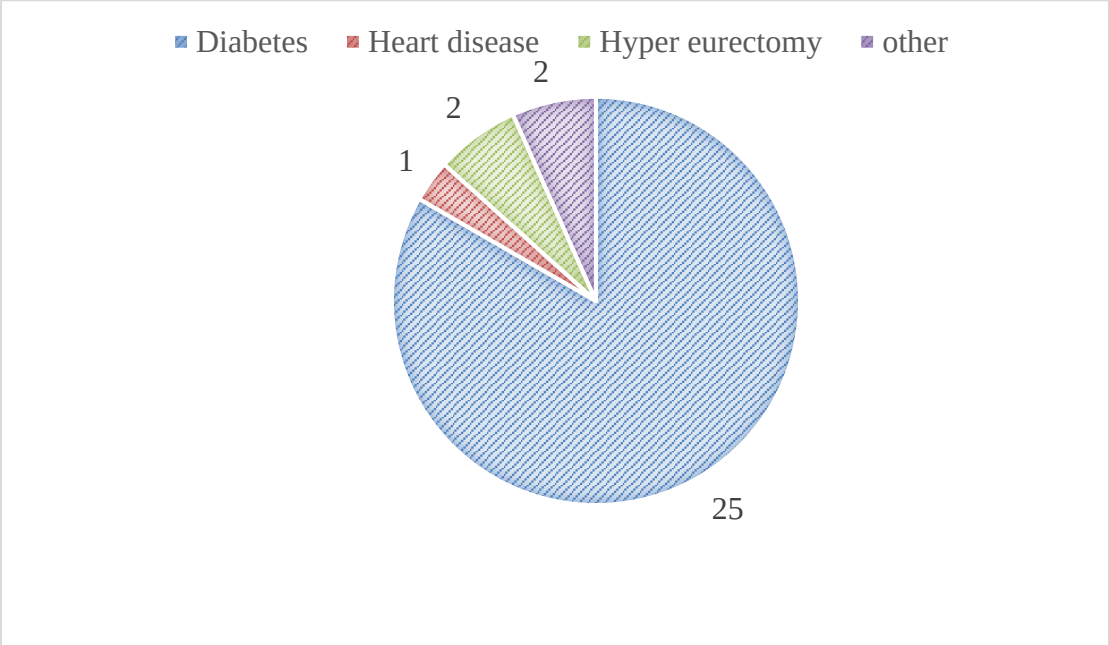


Figure 16: associated diseases of the respondents

4.1.17 Duration of participants walking per day

9 respondents (30%) walks more than an hour, 5 person (16.7%) had 30 minutes to one hour and 16 respondents (53.3%) had less than 30 minutes' walk in a day.

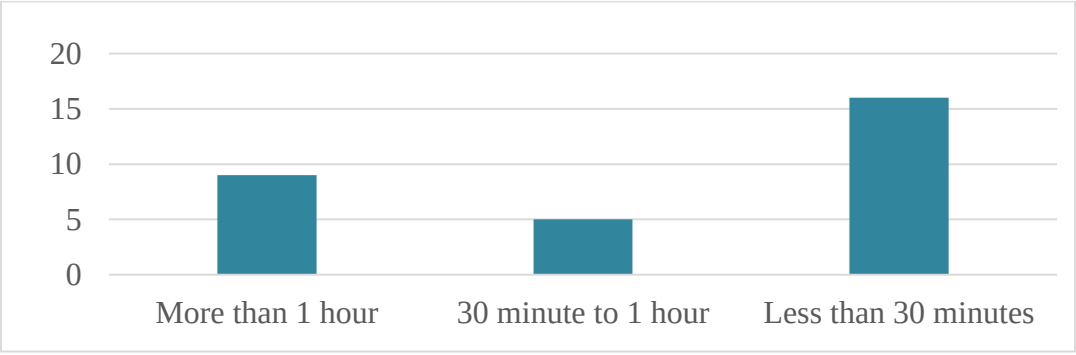


Figure 17: Working per day

4.1.18 Pain affects participant's mental health

30 participants (100%) had pain that affects to mental health.

4.1.19 Per day working hour of participants

8 persons (26.7%) had job or livelihood work, 18 persons (60%) involved in housekeeping and 4 person (13.3%) had work and household activity.

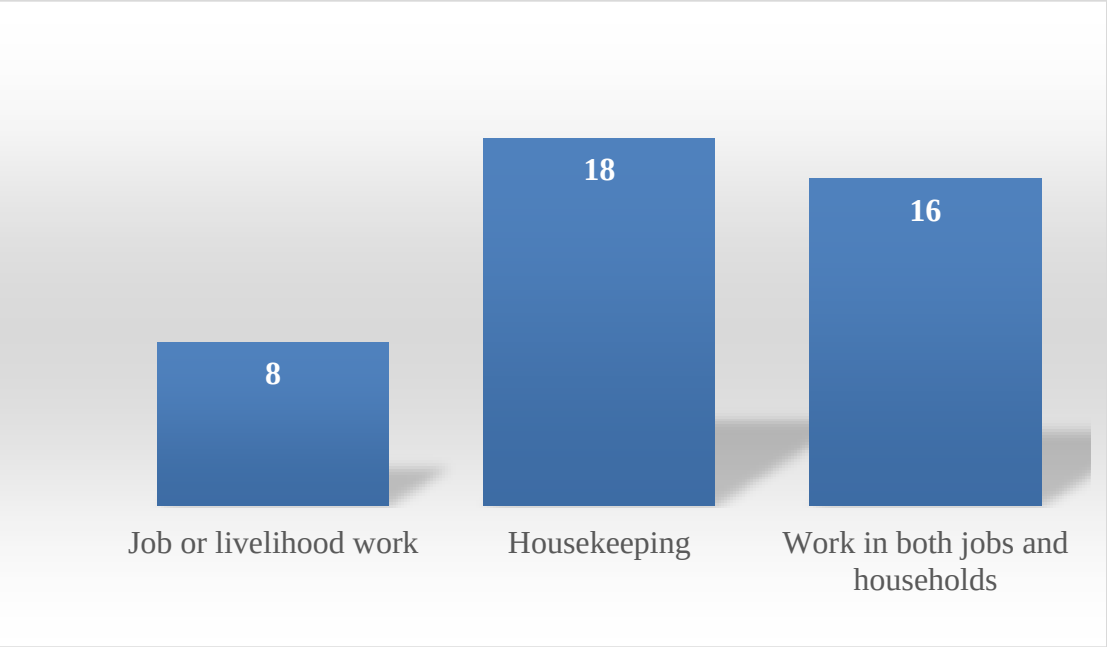


Figure 19: job duration of the respondents (hours)

4.1.20 Number of affected legs

27 person (90%) had unilateral symptom and 3 persons (10%) had bilateral symptoms.

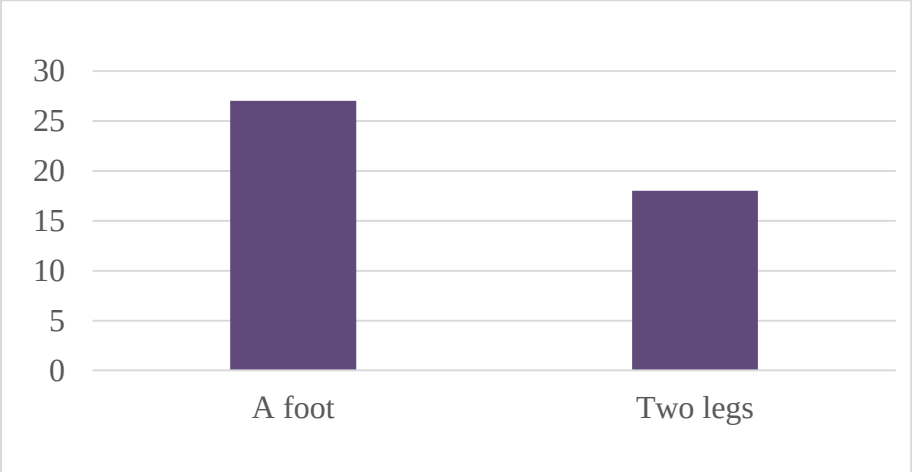


Figure 20: affected leg of the respondents

4.1.21 if participant faced any problem with social interaction

28 persons (93.3%) had problem in social interaction and 2 person (6.7%) had no problem in social interaction.

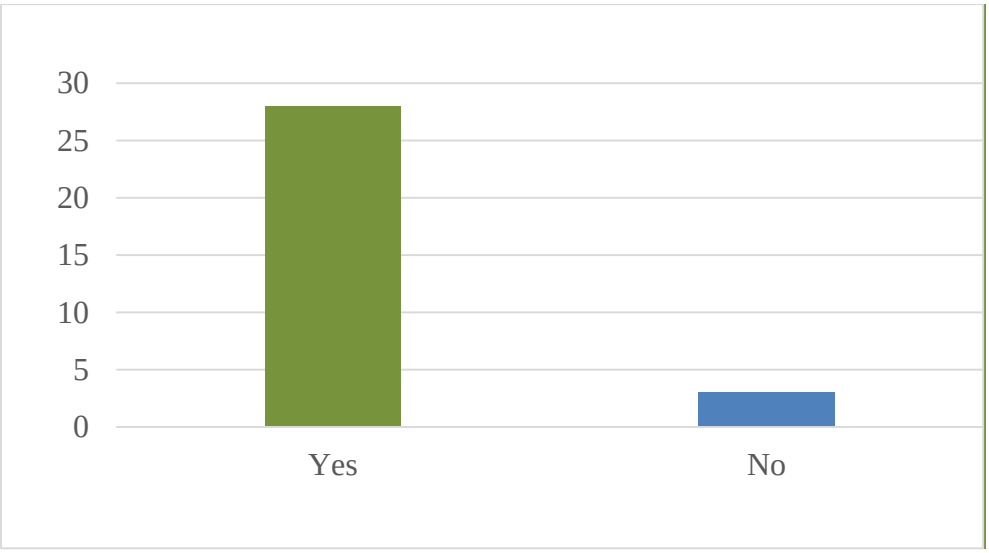


Figure 22: problem in social interaction of the respondents

4.1.22 Onset of the symptom

The patient had onset 4 weeks earlier to 52 weeks earlier receiving the intervention. 1 patient (3.3%) had onset of 4 weeks, 3 patients (10%) had onset of 5 weeks, 4 patients (13.3%) had onset of 6-7 weeks, 8patients (26.7%) had onset of 8 weeks, 6 patients (20%) had onset of 12 weeks and 4 patients (13.3%) had onset of 52 weeks. The onset in baseline in control was 8.53 weeks with standard deviation 2.8 and 21.4 weeks in experimental group with standard deviation 19.7.

Onset (weeks) before	Number of patients	Percent
4	1	3.3
5	3	10.0
6	1	3.3
7	3	10.0
8	8	26.7
9	2	6.7
12	6	20.0
16	1	3.3
26	1	3.3
52	4	13.3
Total	30	100.0

Table 4: Onset of Symptoms

4.2. Range of Movement

Unrelated “t” test has been determined to measure the changes between pretest and posttest followed by physiotherapy interventions.

Variable	df	t	Sig.	Level of Significant
Planter flexion	28	8.642	.000	<.05
Dorsiflexion	28	-7.032	.000	<.05
Inversion	28	-6.372	.000	<.05
Eversion	28	-9.613	.000	<.05

Table 5: Unrelated “t” test in ROM between groups

The test has a significant result according to statistical test revealing changes between posttest of control and experimental group in Planter flexion (t =8.642), P=.000; Dorsiflexion (t =-7.032), P=.000; Inversion (t =-6.372), P=.000; Eversion (t =-9.613), P=.000; all the parameters is highly significant (<.001). For this reason, the null hypothesis rejected and alternative hypothesis accepted. Specialized myofascial release along with conventional physiotherapy is more effective to improve ROM than Physiotherapy alone in patients with planter fasciitis.

Paired sample “t” test has been determined to measure the changes between pretest and posttest followed by physiotherapy interventions in Experimental group

Variable	df	t	Sig.	Level of Significant
Planter flexion	14	-.8.500	.000	<.05
Dorsiflexion	14	-1.640	.123	<.05
Inversion	14	2.103	.05	<.05
Eversion	14	.397	.698	<.05

Table 6: Paired sample “t” in ROM within experimental group

The test has a significant result according to statistical test revealing changes between pretest and posttest of experimental group in Planter flexion (t =-8.50), P=.000; Dorsiflexion (t =-1.640), P=.123; Inversion (t =2.103), P=.05; Eversion (t =.397), P=.698; Planter flexion and inversion parameters is highly significant (<.001) and significant respectively. In this regard, the null hypothesis rejected and alternative hypothesis accepted. This can be concluded that, specialized myofascial release along with conventional physiotherapy is more effective to improve ROM than baseline in patients with planter fasciitis. Paired sample “t” test has been determined to measure the changes between pretest and posttest followed by physiotherapy interventions in Control group

Variable	df	t	Sig.	Level of Significant
Planter flexion	14	-.8.475	.000	<.05
Dorsiflexion	14	-1.640	.123	<.05
Inversion	14	.349	.683	<.05
Eversion	14	.397	.698	<.05

Table 7: Paired sample “t” in ROM within control group

The test has a significant result according to statistical test revealing changes between pretest and posttest of control group in Planter flexion (t =-8.47), P=.000; Dorsiflexion (t =-1.640), P=.123; Inversion (t =.349), P=.683; Eversion (t =.397), P=.698; Planter flexion is highly significant (<.001) and significant respectively. As a result, the null hypothesis rejected and alternative hypothesis accepted. The test supports that, conventional physiotherapy is more effective to improve ROM than baseline in patients with planter fasciitis.

4.3. Muscle Strength

Mann Whitney U test has been determined to measure the changes between posttest of experimental and control group of muscle strength followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
Planter flexion	.000	1.00	<.05
Dorsiflexion	.000	1.00	<.05
Inversion	.000	1.00	<.05
Eversion	.000	1.00	<.05

Table 8: Mann Whitney U test for changes in muscle strength

The test do not have a significant result according to statistical test revealing changes between posttest of control and experimental group in Planter flexion (z =.000), P=1.00; Dorsiflexion (z =.000), P=1.00; Inversion (z =.000), P=1.00; Eversion (z =.000), P=1.00; all the parameters is not significant (>.05). As the result supports that, the null hypothesis accepted and alternative hypothesis rejected. This can be uttered, specialized myofascial release along with conventional physiotherapy is no more effective to improve muscle strength than Physiotherapy alone in patients with planter fasciitis.

Wilcoxon test has been determined to measure the changes between pretest and posttest of muscle strength followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
Planter flexion	-1.000	.317	<.05
Dorsiflexion	-1.000	.317	<.05
Inversion	.000	1.00	<.05
Eversion	.000	1.00	<.05

Table 9: Wilcoxon test for changes in muscle strength in experimental

The test do not have a significant result according to statistical test revealing changes between pretest and posttest of experimental group in Planter flexion (z =-1.000), P=.317; Dorsiflexion (z =-1.000), P=.317; Inversion (z =.000), P=1.00; Eversion (z =.000), P=1.00; all the parameters is not significant (>.05). For this result, the null hypothesis accepted and alternative hypothesis rejected. This result supports, specialized myofascial release along with conventional physiotherapy is no more effective to improve muscle strength than baseline in patients with planter fasciitis. Wilcoxon test has been determined to measure the changes between pretest and posttest of muscle strength followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
Planter flexion	-1.000	.317	<.05
Dorsiflexion	-1.000	.317	<.05
Inversion	.000	1.00	<.05
Eversion	.000	1.00	<.05

Table 10: Wilcoxon test for changes in muscle strength in control

The test do not have a significant result according to statistical test revealing changes between pretest and posttest of control group in Planter flexion (z =-1.000), P=.317; Dorsiflexion (z =-1.000), P=.317; Inversion (z =.000), P=1.00; Eversion (z =.000), P=1.00; all the parameters is not significant (>.05). In this regard, the null hypothesis accepted and alternative hypothesis rejected. It has been explored, conventional physiotherapy is no more effective to improve muscle strength than baseline in patients with planter fasciitis.

4.4. Disability

Mann Whitney U test has been determined to measure the changes between posttest of control and experimental group of changes in foot function index followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
FFI Pain	-.042	.967	<.05
FFI Disability	-1.313	.189	<.05
FFI Activity Limitation	-.375	.707	<.05

Table 11: Mann Whitney U test for changes in foot function index

The test do not have a significant result according to statistical test revealing changes between posttest of control and experimental group in FFI Pain (z =-.042), P=.967; FFI Disability (z =1.313), P=.189; FFI Activity limitation (z =-.375), P=.707; all the parameters is not significant (>.05). For this responses, the null hypothesis accepted and alternative hypothesis rejected. It can be stated, specialized myofascial release along with conventional physiotherapy is no more effective to improve foot function index in pain, disability or activity limitations than Physiotherapy alone in patients with planter fasciitis.

Wilcoxon test has been determined to measure the changes between pretest and posttest in changes in disability (FFI) followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
FFI Pain	-3.417	.001	<.05
FFI Disability	-3.411	.001	<.05
FFI Activity Limitation	-3.434	.001	<.05

Table 12: Wilcoxon test for changes in disability (FFI)

The test have a significant result according to statistical test revealing changes between pretest and posttest of experimental group in FFI Pain (z =-3.417), P=.001; FFI Disability (z =-3.411), P=.001; FFI Activity limitation (z =-3.434), P=.001; all the parameters is significant (<.05). For this reason, the null hypothesis rejected and alternative hypothesis accepted. Specialized myofascial release along with conventional physiotherapy is more effective to improve foot function index in pain, disability or activity limitations than baseline in patients with planter fasciitis.

Wilcoxon test has been determined to measure the changes between pretest and posttest in changes in disability (FFI) followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
FFI Pain	-3.419	.001	<.05
FFI Disability	-3.425	.001	<.05
FFI Activity Limitation	-3.420	.001	<.05

Table 13: Wilcoxon test for changes in foot function index

The test have a significant result according to statistical test revealing changes between pretest and posttest of control group in FFI Pain (z =-3.417), P=.001; FFI Disability (z =-3.425), P=.001; FFI Activity limitation (z =-3.420), P=.001; all the parameters is significant (<.05). For this circumstances, the null hypothesis rejected and alternative hypothesis accepted. It has been proven that, conventional physiotherapy is more effective to improve foot function index in pain, disability or activity limitations than baseline in patients with planter fasciitis.

Mann Whitney U test has been determined to measure the changes between posttest of control and experimental group of changes in foot ankle disability index followed by physiotherapy interventions.

Variable	**Z**	**Sig.**	**Level of Significant**
FADI	-.104	.917	<.05

Table 14: Mann Whitney U test for changes in FADI

The test do not have a significant result according to statistical test revealing changes between posttest of control and experimental group in FADI (z =-.104), P=.917; all the parameters is not significant (>.05). In this circumstances, the null hypothesis accepted and alternative hypothesis rejected. It can be concluded, specialized myofascial release along with conventional physiotherapy is no more effective to improve foot ankle disability index than Physiotherapy alone in patients with planter fasciitis.

Wilcoxon test has been determined to measure the changes between pretest and posttest of foot ankle disability index followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
FADI	-3.413	.001	<.05

Table 15: Wilcoxon test for changes in foot ankle disability index

The test have a significant result according to statistical test revealing changes between pretest and posttest of experimental group in FADI (z =-3.413), P=.001; all the parameters is significant (<.05). For this responses, the null hypothesis rejected and alternative hypothesis accepted. It can be uttered, specialized myofascial release along with conventional physiotherapy is more effective to improve foot ankle disability index than baseline in patients with planter fasciitis.

Wilcoxon test has been determined to measure the changes between pretest and posttest of foot ankle disability index followed by physiotherapy interventions.

Variable	Z	Sig.	Level of Significant
FADI	-3.413	.001	<.05

Table 16: Wilcoxon test for changes in foot ankle disability index

The test have a significant result according to statistical test revealing changes between pretest and posttest of control group in FADI (z =-3.413), P=.001; all the parameters is significant (<.05). Hence, the null hypothesis rejected and alternative hypothesis accepted. The test supports that, conventional physiotherapy is more

effective from baseline to improve foot ankle disability index in patients with planter fasciitis.

CHAPTER V DISCUSSION

The researcher intended to determine the effectiveness of specialized myofascial release along with conventional physiotherapy interventions in patients with planter facsitis. An experimental study design has been applied as randomized clinical trial to find the effectiveness of specialized myofascial release named Shahadat's structural diagnosis and therapy (SDT) in planter fasciitis. The hypothesis was specialized myofascial release along with physiotherapy interventions play an effective role to improve pain, ROM, muscle strength and disability related to planter fasciitis of the heel and foot.

The study was randomized clinical trial where researcher employed control and experimental group, the control group received conventional physiotherapy management and experimental group received specialized myofascial release named Shahadat's structural diagnosis and therapy (SDT) in addition. For the study every patients attended with a diagnosis of planter fasciitis or diagnosed so in outdoor at Centre for the Rehabilitation of the Paralysed from 1st November 2018 to 30th April 2019 has 35 patients have been screened for eligibility criteria and 30 patients met the criteria for participation. This 30 respondents had been analyzed for quantitative analysis and completed the pretest, intervention and posttest in both experimental and control group. Simillar studies has been reported by Ajimsha, Binsu and Chithra (2014) to evaluate the effectiveness of myofascial release in planter fasciitis patients.

In the study the usual care protocol of physiotherapy department of CRP has been observed with a defined time frame and protocol and the interventions were applied by physiotherapists with minimum qualification of graduation in Physiotherapy. The

physiotherapist has also been randomized. The protocol has been shared and minimum skill of care has been obtained through in-service training as schedule of the department.

The mean age of participants were 41.80 years in control group and 48.80 in experimental group with subsequent Standard deviation 8.19 and 7.16. Among the participants, minimum age was 27 and maximum was 68 years. From 29-40 years there was 8 respondents (26.7%), 41-50 years there was 13 respondents (43.3%), 51-62 years was 9 (30%) of patients.

Among the respondents male were 8 in number (26.7%), female were 22 persons (73.3%) Among the respondents male were 30 in number (100%) were married. From the participants 1 person (3.3%) had no formal education, Primary education 20% (n=6), secondary 26.7% (n=8) and Higher secondary was 26.7% (n=8), masters and graduation was 23.3% (n=7).

From the respondents, 2 person were farmer (6.7%), garments worker 13.3% (n=4), businessman 2 person (6.7%), housewife 18 person (60%), teacher 2 person (6.7%), professional 2 person (6.7%). The mean height of participants were 153.76 cm in control group and 153.21cm in experimental group with subsequent Standard deviation 27.95 and 8.50. Among the participants, 63-150 cm was 8 person (26.7%), 152-176 cm was 22 person (76.7%). The mean weight of participants were 65.8 kg in control group and 68.7 kg in experimental group with subsequent Standard deviation 8.27 and 5.95. Among the participants, 52-70kg was 20 person (66.7%), 72-80kg was10 person (43.3%). The mean BMI of participants were 26.02 in control group and 30.48 in experimental group with subsequent Standard deviation 2.44 and 5.09.

Among the respondents 20-24 was 20% (n=6), 25-30 was 17 participants (57.7%), 31-39 was 7 respondents (24%) .

7 respondents were in rural area (23.3%), semi urban (43.3%) and urban 10 respondents (33.3%). The mean monthly expense of participants were 24333 in control group and 23666 in experimental group with subsequent Standard deviation 4952 and 6113. 4 participants (13.3%) had income 15000, 9 respondents had (30%) 20000 income, 6 participants had income 250000 (20%) and 11 respondents (36.7%) had 30000 income. 14 respondents family (46.7%) had 1 member and 16 respondents (53.3%) family had 2 earning members. 27 respondents (90%) received physiotherapy for the first time and 3 respondents received physiotherapy (10%) for 2-4 times before CRP. 13 respondents (43.3%) received medicine and Physician treatment, 17 respondents (56.7%) received no treatment. 9 respondents (30%) belongs to small family and 21 respondents belongs to joint family (70%). 8 respondents (26.7%) used sandal, 7 respondents (23.3%) used high heel, 6 respondents (20%) used shoes and 9 respondents (30%) walked barefoot. 25 person (83.3%) had diabetes, 1 respondent had heart disease (3.3%), 2 person had (6.7%) hyperlipidemia and 2 persons had other diseases. 9 respondents (30%) walks more than an hour, 5 person (16.7%) had 30 minutes to one hour and 16 respondents (53.3%) had less than 30 minutes' walk in a day. 30 participants (100%) had pain that affects to mental health. 8 persons (26.7%) had job or livelihood work, 18 persons (60%) involved in housekeeping and 4 person (13.3%) had work and household activity. 27 person (90%) had unilateral symptom and 3 persons (10%) had bilateral symptoms. 28 persons (93.3%) had problem in social interaction and 2 person (6.7%) had no problem in social interaction. The patient had onset 4 weeks earlier to 52 weeks earlier receiving the intervention.

In the study of Ajimsha, Binsu and Chithra (2014) it was to research whether myofascial discharge (MFR) decreases the pain and practical incapacity related with plantar heel pain (PHP) in examination with a control bunch accepting fake ultrasound treatment (SUST). As it was a Randomized, controlled, twofold blinded preliminary study and the setting was a nonprofit research establishment facility in India the study employed Sixty-six patients, 17men and 49 ladies with a clinical determination of PHP were arbitrarily appointed into MFR or a control gathering and given 12 sessions of treatment for every customer more than about a month. The Foot Function questionnaire (FFI) scale was utilized to evaluate torment seriousness and practical incapacity. The essential result measure was the distinction in FFI scale scores between week 1 (pretest score), week 4 (posttest score), and follow-up at week 12 after randomization. Furthermore, pressure pain limits (PPT) were surveyed over the influenced gastrocnemii and soleus muscles, and over the calcaneus, by an assessor blinded to the treatment distribution.

The between group test for ROM has a significant result according to statistical test revealing changes between posttest of control and experimental group in Planter flexion (t =8.642), P=.000; Dorsiflexion (t =-7.032), P=.000; Inversion (t =-6.372), P=.000; Eversion (t =-9.613), P=.000; all the parameters is highly significant (<.001). For this reason, the null hypothesis rejected and alternative hypothesis accepted. Specialized myofascial release along with conventional physiotherapy is more effective to improve ROM than Physiotherapy alone in patients with planter fasciitis. The test has a significant result according to statistical test revealing changes between pretest and posttest of experimental group in Planter flexion (t =-8.50), P=.000; Dorsiflexion (t =-1.640), P=.123; Inversion (t =2.103), P=.05; Eversion (t =.397), P=.698; Planter flexion and inversion parameters is highly significant (<.001) and

significant respectively. For this reason, the null hypothesis rejected and alternative hypothesis accepted. Specialized myofascial release along with conventional physiotherapy is more effective to improve ROM than baseline in patients with planter fasciitis. In control the test has a significant result according to statistical test revealing changes between pretest and posttest of control group in Planter flexion (t =-8.47), P=.000; Dorsiflexion (t =-1.640), P=.123; Inversion (t =.349), P=.683; Eversion (t =.397), P=.698; Planter flexion is highly significant (<.001) and significant respectively. For this reason, the null hypothesis rejected and alternative hypothesis accepted. Conventional physiotherapy is more effective to improve ROM than baseline in patients with planter fasciitis.

The Mann whitney U test test do not have a significant result according to statistical test revealing changes between posttest of control and experimental group in Planter flexion (z =.000), P=1.00; Dorsiflexion (z =.000), P=1.00; Inversion (z =.000), P=1.00; Eversion (z =.000), P=1.00; all the parameters is not significant (>.05). For this reason, the null hypothesis accepted and alternative hypothesis rejected. Specialized myofascial release along with conventional physiotherapy is no more effective to improve muscle strength than Physiotherapy alone in patients with planter fasciitis. Subsequently in experimental The test do not have a significant result according to statistical test revealing changes between pretest and posttest of experimental group in Planter flexion (z =-1.000), P=.317; Dorsiflexion (z =-1.000), P=.317; Inversion (z =.000), P=1.00; Eversion (z =.000), P=1.00; all the parameters is not significant (>.05). For this reason, the null hypothesis accepted and alternative hypothesis rejected. Specialized myofascial release along with conventional physiotherapy is no more effective to improve muscle strength than baseline in patients with planter fasciitis. Besides, in control group The test do not have a

significant result according to statistical test revealing changes between pretest and posttest of control group in Planter flexion (z =-1.000), P=.317; Dorsiflexion (z =-1.000), P=.317; Inversion (z =.000), P=1.00; Eversion (z =.000), P=1.00; all the parameters is not significant (>.05). For this reason, the null hypothesis accepted and alternative hypothesis rejected. Conventional physiotherapy is no more effective to improve muscle strength than baseline in patients with planter fasciitis. In this section the within group variable has a positive result in both groups, but between group no superiority analysis.

To explore the disability The mann whitney U test do not have a significant result according to statistical test revealing changes between posttest of control and experimental group in FFI Pain (z =-.042), P=.967; FFI Disability (z =1.313), P=.189; FFI Activity limitation (z =-.375), P=.707; all the parameters is not significant (>.05). For this reason, the null hypothesis accepted and alternative hypothesis rejected. Specialized myofascial release along with conventional physiotherapy is no more effective to improve foot function index in pain, disability or activity limitations than Physiotherapy alone in patients with planter fasciitis. In experimental group, The test have a significant result according to statistical test revealing changes between pretest and posttest of experimental group in FFI Pain (z =-3.417), P=.001; FFI Disability (z =-3.411), P=.001; FFI Activity limitation (z =-3.434), P=.001; all the parameters is significant (<.05). For this reason, the null hypothesis rejected and alternative hypothesis accepted. Specialized myofascial release along with conventional physiotherapy is more effective to improve foot function index in pain, disability or activity limitations than baseline in patients with planter fasciitis. In control The test have a significant result according to statistical test revealing changes between pretest and posttest of control group in FFI Pain (z =-3.417), P=.001; FFI Disability (z =-

3.425), P=.001; FFI Activity limitation (z =-3.420), P=.001; all the parameters is significant (<.05). For this reason, the null hypothesis rejected and alternative hypothesis accepted. Conventional physiotherapy is more effective to improve foot function index in pain, disability or activity limitations than baseline in patients with planter fasciitis. Simillarly both group had improvement and no one is better than anyone.

In case of FADI The test do not have a significant result according to statistical test revealing changes between posttest of control and experimental group in FADI (z =-.104), P=.917; all the parameters is not significant (>.05). For this reason, the null hypothesis accepted and alternative hypothesis rejected. Specialized myofascial release along with conventional physiotherapy is no more effective to improve foot ankle disability index than Physiotherapy alone in patients with planter fasciitis. In experimental The test have a significant result according to statistical test revealing changes between pretest and posttest of experimental group in FADI (z =-3.413), P=.001; all the parameters is significant (<.05). For this reason, the null hypothesis rejected and alternative hypothesis accepted. Specialized myofascial release along with conventional physiotherapy is more effective to improve foot ankle disability index than baseline in patients with planter fasciitis. In control, The test have a significant result according to statistical test revealing changes between pretest and posttest of control group in FADI (z =-3.413), P=.001; all the parameters is significant (<.05). For this reason, the null hypothesis rejected and alternative hypothesis accepted. Conventional physiotherapy is more effective from baseline to improve foot ankle disability index in patients with planter fasciitis.

Ajimsha, Binsu and Chitra (2014) conducted a similar study where The basic principle impacts investigation demonstrated that the MFR group performed superior

to anything the control group in weeks 4 to 3 months ($P < 0.001$). Patients in the MFR and control bunches revealed a 72.4% and 7.4% decrease, separately, in their pain and useful incapacity in week 4 contrasted and that in week 1, which endured as 60.6% in the follow-up at week 12 in the MFR contrasted with the standard. The mixed ANOVA likewise uncovered huge gathering by-time connections for changes in PPT over the gastrocnemii and soleus muscles, and the calcaneus ($P < 0.05$).

PF is believed to be brought about by non-inflammatory degenerative changes in the plantar fascia. Histological evaluations of tissues from patients with incessantly creating painful episodes in plantar fascia exhibit discoveries increasingly steady with an alteration of healing reaction process, without histo-pathological proof of aggravation. The tissue is described histologically by invasion with macrophages, lymphocytes, and plasma cells; tissue annihilation; and fix including juvenile vascularization and fibrosis (Lemont, Ammirati & Usen, 2003).

The ordinary planter fascia tissue is supplanted by an angio-fibroblastic hyperplastic tissue which spreads itself all through the encompassing tissue making a self-propagating cycle of degeneration. The definite components of the viability of MFR in the administration of plantar heel pain is vague, yet they might be identified with an abatement in pressure over the plantar fascia or diminishing of hazardous factors, for example, snugness of the Gastrocnemii and Soleus muscles and confined lower leg dorsiflexion. An examination has demonstrated that treatment with MFR after tedious strain damage brought about standardization in apoptotic rate, cell morphology changes, and reorientation of fibroblasts. It is conceivable that treatment with MFR in PF may result in an end in the degenerative procedure of the plantar fascia by encouraging the recuperating procedure and the fascial design to return toward ordinariness (Meltzer, et al., 2010).

Notwithstanding, wounds coming about because of physical injury, tedious strain damage, and irritation are thought to diminish fascial tissue length and versatility, bringing about fascial confinement. It is moreover conceivable that help with discomfort due to MFR is auxiliary to restoring the fascial tissue to its regularizing length by collagen redesign; this is a speculation that merits examination. It has additionally been recommended that compacting the sarcomeres by direct weight, joined with dynamic constriction or extending of the included muscle, may level the length of the sarcomeres and therefore decline the pain; be that as it may, this hypothesis has not been experimentally investigated. As with any representative strategies, the analgesics impact of MFR can likewise be owing to the incitement of afferent pathways and the excitation of afferent a delta filaments, which can cause segmental torment modulation. Just as adjustment through the actuation of plunging pain hindering systems (Srbely, Dickey, Lee & Lowerison, 2010).

A goniometer is an instrument which estimates the accessible scope of movement at a joint. In the event that a patient is experiencing diminished scope of movement in a specific joint, the specialist can utilize a goniometer to survey what the scope of movement is at the underlying evaluation, and after that ensure the effectiveness by utilizing the goniometer in resulting sessions. Goniometer have various sorts; the most use is the universal goniometer, it comprises of a stationary arm, a portable arm and a support. There is some study about whether the utilization of a goniometer is an adequately legitimate and dependable instrument to decide if a treatment has been effective. Some exploration contends that the dependability of the estimation gotten from a goniometer relies upon the sort used, while some did not perceive any huge distinction between some instruments (Rome & Cowieson, 1996). Martin and McPoil

(2005) stated universal goniometer to be a valid and reliable tool for assessing ROM in a joint.

In the study, the measurement tools were Manual muscle tests assess the capacity of the neurological system to adjust the muscle to meet the changing weight of the analyst's test. This necessitates the analyst be prepared in the biomechanical science of muscle work. The activity of the muscle being tried, just as the job of synergistic muscles, must be comprehended. The tool is confident as a valid and reliable tool (Cuthbert & Goodheart, 2007). A Foot Function Index (FFI) was created to quantify the effect of foot pathology on capacity regarding pain, inability and movement confinement. The FFI is a self-regulated tool comprising of 23 section partitioned into 3 sub-scales. Evident relationship between the FFI total and sub-scale scores and clinical proportions of foot pathology upheld the criterion legitimacy of the index (Landorf & Radford, 2008). Patient rated reports of function are delegated nonexclusive or explicit measures, which incorporate condition specific, populace explicit, and persistent explicit instruments. The FADI is an area explicit self-report of capacity with 2 components (Hale & Hertel, 2005). Uses of similar outcome measurement tools has been reported to perform (Ajimsha, Binsu & Chitra, 2004; Meltzer, et al., 2010).

In the study, both specialized myofascial release and conventional physiotherapy had significant results related to baseline in the means of pain, disability and ROM but the specialized myofascial release group had significant improvement in achieving ROM than the control. Carlson, Fleming and Hutton (2000) explains outlines the biomechanical connection between the tendoachilles, the plantar fascia, also, the metatarsophalangeal joint dorsiflexion movement. The estimations and figuring demonstrated that dorsiflexion of the toes fixes the plantar belt (the windlass impact)

and expands the impact that a pliable power in the tendoachilles has on the pliable strain and pliable power in the plantar fascia.

Shahadat's Structural Diagnosis & Therapy (SDT) of specialized myofascial release has a profound impact in improving ankle range of motion that enhances the flexibility of prime movers of ankle that promotes the disability induced by planter fasciitis. The mechanism how the concept worked as, decreasing the mechanical impediment that hinders muscle flexibility, promote a better biomechanical alignment to ankle and foot, weight bearing status and thus promoting the normal healing process. Fuller (2000) stated the greatest load set on the foot is identified with body weight. More power on the horizontal foot will diminish the heap on the middle foot. The weight on the average side of the foot in addition to the weight on the horizontal side must equivalent body weight. Forefoot valgus wedges have been appeared to diminish strain in the plantar fascia in vitro. Also, strain in the plantar belt makes a supination minute at the subtler joint and the metatarsophalangeal joint.

CHAPTER VI LIMITATION

The study had some limitations, however researcher tried to minimize the them but some had to be improved in further study

- There was scarcity of data due to less referral of patients to physiotherapy following surgery.
- The sample size should be even more, considering calculations. Randomization process has been ensured by hospital randomization (screening all the patients attended in a specific time frame). The longer duration of study can bring more patients.
- The interventions were applied as a department protocol, even this is the only structured protocol regarding specialized concept of MFR interventions of planter fasciitis.
- Research has been conducted in a physiotherapy setting only where the concept was not used 2 years back. Hence the skill of the practitioners are also a part of limitation.
- The structural organogram, qualification of physiotherapists and experience of care may manipulate the improvement for the respondents. These are far more different than other practices outside CRP, so the result may not be generalized to every physiotherapy setting in Bangladesh.

CHAPTER VII CONCLUSION & RECOMMENDATIONS

Planter fasciitis is an inflammatory and disabling condition that needs outmost assessment of the total biomechanical system regarding function of ankle and foot. The fascia itself may be a representative cause for painful ambulation sometimes the entire muscular system of lower limbs even back can be involved responding to mechanical impediment of the fascia in sole of foot. Hence the flexibility of fascia as well as the normalization of muscle tension of surrounding structure can enable comprehensive care and modulates the outcome of physiotherapy.

Till now, this is the maiden study in on Shahadat's Structural diagnosis and management. The approaches found as a scientific based approach to improve the impairments related to pain, dysfunction, ROM, disability and overall health for the patient's with planter fasciitis. The study needs to be strengthen concentrating on the limitations and also implementation to the findings in imperial phases is necessary to elevate the treatment approaches in patients having planter fasciitis or planter heel pain.

- Planter fasciitis needs to be assessed not by local examinations but the entire biomechanical system of ankle, foot and lower limb that also can extend to back.
- Following diagnosis conservative management must be prioritize with specialized concept of MFR along with conventional physiotherapy approaches.
- A national guideline for the concept needed to be published by the professional body with appropriate in-service training.
- Prior to application of the concept, a spot screening by Physiotherapist in musculoskeletal practice can reduce the unnecessary hazard or improve usefulness and justification to MFR. Subsequently early referral for physiotherapy is strongly recommended.
- Adequate certification and training is necessary, hence the academic institutes and professional body can initiate for massive hands on training.
- More research to create evidences on this concept not only for planter fasciitis but also for other conditions related to similar biomechanical impairments is strongly recommended in a country context in Bangladesh.

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Annexure

Annexure A: IRB Permission

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

BANGLADESH HEALTH PROFESSIONS INSTITUTE

Ref. CRP-BHPI/IRB/12/18/1285 *Date:* 02/12/2018

To,
Sapia Akter
M.Sc. in Physiotherapy(MPT)
Session: 2017-2018, Student ID 111170047
BHPI, CRP-Savar, Dhaka-1343, Bangladesh

Subject: Approval of thesis proposal **"Effectiveness of Myofascial release of Cuff muscle among Patients with Planter Fasciitis"** by ethics committee.

Dear Sapia,

Congratulations,

The Institutional Review Board (IRB) of BHPI has reviewed the above mentioned thesis, with yourself, as the Principal Investigator" The Following documents have been reviewed and approved:

S.N.	Name of Documents
1.	Thesis Proposal
2.	Questionnaire (Bengali & English version)
3.	Information sheet & consent form.

Since the study involves use of **Numeric Pain Rating Scale, Foot ankle disability scale, Foot functional index and objective assessment** to explore the outcome of myofascial release in planter fasciitis patients that may take 15 minutes to answer and fill in the questionnaire by assessors. Since, there is no likelihood of any harm to the participants, the members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 08.30 AM on 25th September, 2018 at BHPI.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন ঃ ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স ঃ ৭৭৪৫০৬৯
CRP-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org

Annexure B: Management Protocol

C. Control Group: Conventional Physiotherapy Techniques has been provided from the guideline of Department of Physiotherapy, CRP.

1st line Management	
Friction message	Applied transverse friction in Cyriax concept, 5-6 minutes, 3 times a week
Ischemic compression	Applied and demonstrated in trigger points, advised to patient, 7 days a week for 10 times per set, one set a day
Ice compression	Applied directly for 5-6 minutes and advised 3 times a day for first 5 days, than tape over by 20% rate for 3 weeks
Ultrasound therapy	Applied 7 minutes in 1 hartz, pulsed mode, three sessions a week for 3 weeks
Shoe modification	Advised soft sole and shoes in household work
2nd Line management	
Stretching exercise	Manual passive stretch to ankle movements, 10 repetitions, once a day for 4 weeks
Strengthening exercise	Concentric exercise of ankle and intrinsic muscles of foot, once a day for 4 weeks

Postural education	Education on condition, posture in standing, sitting and lifestyle

Conventional Physiotherapy

D. Trial Group:

c) Conventional physiotherapy techniques.

d) Shahadat's Structural Diagnosis and Therapy (SDT) in Planter Fasciitis an specialized myofascial release technique

12) Dorsiflexion Mobilization Grade 1		Place in supine lying, hold proximal part of lower leg with a hand, hold another hand in foot to apply gentle stretch, hold 15 seconds, repeat 10 times
13) Dorsiflexion Mobilization Grade 2		Place in supine lying, hold proximal part of lower leg with a hand, hold another hand in foot to apply moderate stretch, hold 15 seconds, repeat 10 times
14) Dorsiflexion Mobilization Grade 3		Place in supine lying, hold proximal part of lower leg with a hand, hold another hand in foot to apply maximum stretch, hold 15 seconds, repeat 10 times

15) Full range TA stretch		Place in supine lying, hold proximal part of lower leg with a hand, hold another hand in foot to apply stretch throughout dorsiflexion, repeat 10 times
16) Biomechanical Ankle correction in Planter flexion		Place in supine lying, hold distal tibia with a hand, hold another hand in foot to apply gentle stretch in planter flexion, hold 15 seconds, repeat 3 times
17) Cuff stretch in Leg raise		Place in supine lying and hip flexed in 90 degree, hold distal part of femur with a hand, hold another hand in foot to apply stretch in dorsiflexion, hold 15 seconds, repeat 3 times
18) Release of Cuff in prone lying lateral to medial and medial to lateral		Place in prone lying, place treated leg on a pillow, apply pressure throughout cuff medial to lateral and lateral to medial , repeat 10 times

19) Release of Cuff in prone lying upwards to downwards		Place in prone lying, place treated leg on a pillow, apply pressure throughout cuff upwards to downwards, repeat 10 times
20) Release of Cuff in prone lying downwards to upwards		Place in prone lying, place treated leg on a pillow, apply pressure throughout cuff downwards to upwards, repeat 10 times
21) Knee Flexion, traction and mobilization		Place in supine lying, place knee rest on your knee, hold proximal part of femur with a hand, hold another hand in distal tibia to apply traction, stretch and knee flexion hold 15 seconds, repeat 10 times
22) Rolling technique of Release		Place in supine lying, place knee rest on your knee, hold proximal part of femur with a hand, hold another hand in distal tibia to apply rolling of cuff on your knee, repeat 10 times

Shahadat's Structural diagnosis and Therapy (SDT

Annexure C: Informed Consent (English)

Consent Form

Research Name: “Effectiveness of Specialized Myofascial Release in Patients with Planter Fasciitis"

Assalamu Alaiqum / Namaste, I am Shafia Akhtar, second year student of MSc in Physiotherapy. I am conducting a research project under the guidance of Associate Professor Muhammad Anwar Hossain, Head of Physiotherapy Department, my research topic is “Effectiveness of Myofascial Release of Cuff Muscle in Patients with Planter Fasciitis"

This study is an experimental study and if you are interested to participate in this study, you will be asked a few questions. You can leave the questionnaire anytime during the question period. This data will be kept safe and will not be provided to anyone other than the patient's permission. It can take you 10 minutes to complete the entire question paper. Follow the instructions given in the questionnaire, if you need any help to write the answer you can take. We hope that through this research we can determine the benefits of the myofasial release among patients.

If you have something to know about this research, you can find out from me on the phone (01615451526). Are you willing to participate in this research project voluntarily? Move forward if you have.

Code No.

Participant's signature

Researcher's signature

Witness's signature

Annexure D (Questions)

Title: "Effectiveness of Specialized Myofascial Release in Patients with Planter Fasciitis"

Questionnaire

SECTION-1: Socio-Demographic Question

Date:	Code No:
Address:	
Mobile number:	
1.1 Age	……..years ……month ……..day
1.2 Sex	1. Male 2. Female
1.3 Marital Status:	1. Married 2. Unmarried 3. Widow or widower 4. Divorced or separated
1.4 Educational Qualification (Check marks)	1. Never went to school 2. Primary Education 3. Secondary education 4. Higher Secondary Education 5. Masters
1.5 Occupation (tick mark)	1. Farmer 2. Day labour 3. Service holder 4. Garment workers 5. Driver 6. Rickshaw puller 7. Businessman 8. Unemployed

	9. Housewife 10. Teacher 11. Student 12. Professionals 13. Abroad Job 14. Other
1.6 Enter the following information	1. Height 2. Weight 3. BMI
1.7 Residence:	1. Rural 2. Semi urban 3. Urban
1.8 Monthly expense	
1.9 Number of households earning	
1.10 Family member	…….

SECTION 2-Factors responsible for Planter fasciitis

2.1 How many times you received physiotherapy treatments for this problem before coming here?	1. The first time 2. 2-4 times 3. 5 times 4. More than 5 times
2.2 What kind of treatment you received before arrived in the CRP?	1. Medicines or Physician Treatments (Last Month) 2. Physiotherapy treatment (last month) 3. Treatment from rural doctor (last month) 4. Unani or Homeopathic Medicine (last month) 5. Any medical treatment (last month) 6. No treatment at the hospital
2.3 Household size	1. Small family 2. Joint Family

2.4 What kind of shoes do you usually wear most of the day?	1. Sandal 2. High heel 3. Shoe 4. walk barefoot
2.5 Have you any associate disease?	1. Diabetes 2. Heart disease 3. Hyper eurectomy 4. Other
2.6 How much time do you walk per day	1. More than 1 hour 2. 30 minutes to 1 hour 3. Less than 30 minutes 4. Not the hawk
2.7 Does pain affect your mental health?	1. Yes 2. No
2.8 How many hours per day you work?	1. Job or livelihood work 2. Housekeeping 3. Work in both jobs and households
2.9 How many legs are affected?	1. A foot 2. Two legs
2.10 Is there any problem you faced with social interactions?	1. Yes 2. No
2.11 How long you suffered?	……(Days)

Title: "Effectiveness of Specialized Myofascial Release in Patients with Planter Fasciitis"

Pre-Test Assessment

Code No:

SECTION 3-Part A: Estimate the range of motion

This section of questionnaire will be filled by the physiotherapist or examiner using a black or blue colored ball pen and measure ROM by using Goniometer.

1. How Active ROM of Affected Ankle at Planter flexion?	…….. Degrees
2. How Active ROM of Affected Ankle at Dorsiflexion?	…….. Degrees
3. How Passive ROM of Affected Ankle at Inversion?	…….. Degrees
4. How Passive ROM of Affected Ankle at Eversion?	…….. Degrees

Pre-Test Assessment

Section 3-Part B: Estimate Muscle Power (Sparrow, J. M. et al., 1986)

How much muscle power in foot and heel? (OXFORD Grade Scale)

Dorsiflexion	
Planter flexion	
Eversion	
Inversion	

Section 3-Part C Foot Function Index Questionnaire (FFI):

[Budiman-Mak E et al., 1991] For the following questions, we would like you to score each question on a scale from 0 (no pain) to 10 (worst pain imaginable) that best describes your foot over the past WEEK.

Pain Scale	
1. Pain in the morning upon taking	_____

your first step	0 1 2 3 4 5 6 7 8 9 10
2. Pain standing barefoot	0 1 2 3 4 5 6 7 8 9 10
3. Pain walking barefoot	0 1 2 3 4 5 6 7 8 9 10
4. Pain standing with shoes	0 1 2 3 4 5 6 7 8 9 10
5. Pain walking with shoes	0 1 2 3 4 5 6 7 8 9 10
6. Pain standing with orthotics	0 1 2 3 4 5 6 7 8 9 10
7. Pain walking with orthotics	0 1 2 3 4 5 6 7 8 9 10
8. How is your pain at the end of the day	0 1 2 3 4 5 6 7 8 9 10
9. How severe is your pain at its worst	0 1 2 3 4 5 6 7 8 9 10
Disability Scale	
10. Difficulty when walking in the house	0 1 2 3 4 5 6 7 8 9 10
11. Difficulty when walking outside	0 1 2 3 4 5 6 7 8 9 10
12. Difficulty when walking four blocks	0 1 2 3 4 5 6 7 8 9 10
13. Difficulty when climbing stairs	0 1 2 3 4 5 6 7 8 9 10
14. Difficulty when descending stairs	

	0 1 2 3 4 5 6 7 8 9 10
15. Difficulty when getting out of chair	0 1 2 3 4 5 6 7 8 9 10
16. Difficulty when standing tip toe	0 1 2 3 4 5 6 7 8 9 10
17. Difficulty when climbing curbs	0 1 2 3 4 5 6 7 8 9 10
18. Difficulty when running or fast walking	0 1 2 3 4 5 6 7 8 9 10
Activity Limitation	
19. Stay indoors all day due to feet	0 1 2 3 4 5 6 7 8 9 10
20. Stay in bed all day due to feet	0 1 2 3 4 5 6 7 8 9 10
21. Use an assistive device (stick, walker, crutches, frame) indoors	0 1 2 3 4 5 6 7 8 9 10
22. Use an assistive device outdoors	0 1 2 3 4 5 6 7 8 9 10
23. Limit physical activity	0 1 2 3 4 5 6 7 8 9 10

Section 3: Part D Pre-Test Assessment The Foot & Ankle Disability Index (FADI) Score

	No Difficulty at all	Slight Difficulty	Moderate Difficulty	Extreme difficulty	Unable to do

1. Standing					
2. Walking on even ground					
3. Walking on even ground without shoes					
4. Walking up hills					
5. Walking down hills					
6. Going up stairs					
7. Going down stairs					
8. Walking on uneven ground					
9. Stepping up and down curves					
10. Squatting					
11. Sleeping					
12. Coming up to your toes					
13. Walking initially					
14. Walking 5 minutes or less					
15. Walking approximately 10 minutes					
16. Walking 15 minutes or greater					
17. Home responsibilities					
18. Activities of daily living					

19. Personal care					
20. Light to moderate work (standing, walking)					
21. Heavy work (push/pulling, climbing, carrying)					
22. Recreational activities					

	No Pain	Mild	Moderate	Severe	Unbearable
23. General level of pain					
24. Pain at rest					
25. Pain during your normal activity					
26. Pain first thing in the morning					

Title: "Effectiveness of Specialized Myofascial Release in Patients with Planter Fasciitis"

Post-Test Assessment

Code No:

SECTION 3-Part A: Estimate the range of motion

This section of questionnaire will be filled by the physiotherapist or examiner using a black or blue colored ball pen and measure ROM by using Goniometer.

5. How Active ROM of Affected	

Ankle at Planter flexion?	…….. Degrees
6. How Active ROM of Affected Ankle at Dorsiflexion?	…….. Degrees
7. How Passive ROM of Affected Ankle at Inversion?	…….. Degrees
8. How Passive ROM of Affected Ankle at Eversion?	…….. Degrees

Post-Test Assessment

Section 3-Part B: Estimate Muscle Power (Sparrow, J. M. et al., 1986)

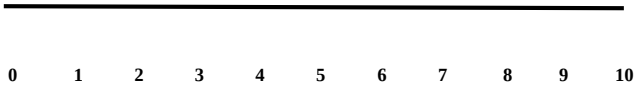
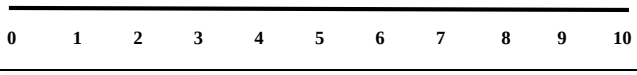
How much muscle power in foot and heel? (OXFORD Grade Scale)

Dorsiflexion	
Planter flexion	
Eversion	
Inversion	

Section 3-Part C Foot Function Index Questionnaire (FFI):

[Budiman-Mak E et al., 1991] For the following questions, we would like you to score each question on a scale from 0 (no pain) to 10 (worst pain imaginable) that best describes your foot over the past WEEK.

Pain Scale	
1. Pain in the morning upon taking your first step	0 1 2 3 4 5 6 7 8 9 10

2. Pain standing barefoot	
3. Pain walking barefoot	
4. Pain standing with shoes	
5. Pain walking with shoes	
6. Pain standing with orthotics	
7. Pain walking with orthotics	
8. How is your pain at the end of the day	
9. How severe is your pain at its worst	
Disability Scale	
10. Difficulty when walking in the house	
11. Difficulty when walking outside	
12. Difficulty when walking four blocks	
13. Difficulty when climbing stairs	
14. Difficulty when descending stairs	

15. Difficulty when getting out of chair	0 1 2 3 4 5 6 7 8 9 10
16. Difficulty when standing tip toe	0 1 2 3 4 5 6 7 8 9 10
17. Difficulty when climbing curbs	0 1 2 3 4 5 6 7 8 9 10
18. Difficulty when running or fast walking	0 1 2 3 4 5 6 7 8 9 10
Activity Limitation	
19. Stay indoors all day due to feet	0 1 2 3 4 5 6 7 8 9 10
20. Stay in bed all day due to feet	0 1 2 3 4 5 6 7 8 9 10
21. Use an assistive device (stick, walker, crutches, frame) indoors	0 1 2 3 4 5 6 7 8 9 10
22. Use an assistive device outdoors	0 1 2 3 4 5 6 7 8 9 10
23. Limit physical activity	0 1 2 3 4 5 6 7 8 9 10

Section 3: Part D Post-Test Assessment The Foot & Ankle Disability Index (FADI) Score

	No Difficulty at all	Slight Difficulty	Moderate Difficulty	Extreme difficulty	Unable to do
1. Standing					

2. Walking on even ground					
3. Walking on even ground without shoes					
4. Walking up hills					
5. Walking down hills					
6. Going up stairs					
7. Going down stairs					
8. Walking on uneven ground					
9. Stepping up and down curves					
10. Squatting					
11. Sleeping					
12. Coming up to your toes					
13. Walking initially					
14. Walking 5 minutes or less					
15. Walking approximately 10 minutes					
16. Walking 15 minutes or greater					
17. Home responsibilities					
18. Activities of daily living					
19. Personal care					
20. Light to moderate work (standing, walking)					
21. Heavy work (push/pulling,					

climbing, carrying)					
22. Recreational activities					

	No Pain	Mild	Moderate	Severe	Unbearable
23. General level of pain					
24. Pain at rest					
25. Pain during your normal activity					
26. Pain first thing in the morning					

Annexure E: Informed Consent (Bangla)

মৌখিক সম্মতিপত্র

গবেষনার নামঃ প্লানটার ফাসাইটিস রোগীর ক্ষেত্রে ম্যায়োফেসিয়াল রিলিজ এর উপকারতা"

আস্সালামুআলাইকুম / নমস্কার, আমি **ছাপিয়া আক্তার**, এম এস সি ইন ফিজিওথেরাপি বিষয়ের দ্বিতীয় বর্ষের শিক্ষার্থী। আমি ফিজিওথেরাপি বিভাগীয় প্রধান সহযোগী অধ্যাপক **মুহাম্মাদ আনোয়ার হোসেন** এর তত্বাবধানে একটি গবেষণা প্রকল্প করছি যার বিষয় হল "প্লানটার ফাসাইটিস রোগীর ক্ষেত্রে ম্যায়োফেসিয়াল রিলিজ এর উপকারতা"

এই গবেষণাটি একটি পরীক্ষামূলক গবেষণা এবং যদি আপনি অংশগ্রহনে আগ্রহী হন, তাহলে আপনাকে কিছু প্রশ্ন করা হবে। আপনি প্রশ্ন চলাকালীন যেকোনো সময়ই এই প্রশ্নোওর পর্ব ত্যাগ করতে পারবেন। এই তথ্য উপাত্ত নিরাপদে রাখা হবে ও রোগির অনুমতি ব্যাতিত অন্য কাউকে প্রদান করা হবে না। সমগ্র প্রশ্নপত্রটি সম্পাদন করতে আপনার ১০ মিনিট সময় লাগতে পারে। আপনি ছকে বর্নিত প্রশ্নের নির্দেশনা অনুসরন করুন, প্রয়োজনে উত্তর লিখাতে কারো সাহায্য নিন। আমরা আশা করছি যে,এই গবেষণার মাধ্যমে আমরা রোগীদের **ম্যায়োফেসিয়াল রিলিজ এর উপকারতা** নিরুপন করতে পারব ।

আপনার যদি এই গবেষণা সর্ম্পকে কিছু জানার থাকে তাহলে আপনি ফোনে (০১৬১৫৪৫১৫২৬) আমার নিকট থেকে জেনে নিতে পারেন। আপনি কি স্বেচ্ছায় এ গবেষণা প্রকল্পে অংশগ্রহন করতে রাজি আছেন? থাকলে সামনে অগ্রসর হোন।

কোড নংঃ

অংশগ্রহণকারীর স্বাক্ষরঃ _____

গবেষকের স্বাক্ষর ঃ _____

সাক্ষীর স্বাক্ষরঃ _____

Annexure F: Questionnaire (Bangla)

গবেষনার নামঃ প্লানটার ফাসাইটিস রোগীর ক্ষেত্রে ম্যায়োফেসিয়াল রিলিজ এর উপকারতা"

প্রশ্নপত্র

অধ্যায় ১ঃ রোগীর পরিচিতি, আর্থ-সামাজিক অবস্থা ও জনসংখ্যাতত্ব

তারিখঃ	রোগীর কোড নং ঃ
ঠিকানাঃ	মোবাইলঃ
১.১ বয়সঃ (লিখুন)	
১.২ লিঙ্গঃ (টিক চিহ্ন দিন)	১.পুরুষ ২. মহিলা
১.৩ বৈবাহিক অবস্থা ঃ (টিক চিহ্ন দিন)	১. বিবাহিত ২. অবিবাহিত ৩. বিধবা বা বিপত্নীক ৪. তালাকপ্রাপ্ত বা আলাদা
১.৪ শিক্ষাগত যোগ্যতাঃ (টিক চিহ্ন দিন)	১. কখনো স্কুলে যাইনি ২. প্রাথমিক শিক্ষা ৩. মাধ্যমিক শিক্ষা ৪. উচ্চ মাধ্যমিক শিক্ষা ৫. স্নাতক/ স্নাকোত্তর
১.৫ পেশাঃ (টিক চিহ্ন দিন)	১. কৃষক ২.দিনমজুর ৩.চাকুরীজীবি ৪. গার্মেন্টস্ কর্মী ৫. গাড়ীচালক ৬. রিক্সাচালক ৭. ব্যবসায়ী ৮. বেকার ৯. গৃহিনী ১০. শিক্ষক ১১. ছাত্র ১২. পেশাজীবী ১৩. প্রবাসী চাকুরি ১৪. অন্যান্য
১.৬ নিম্নোক্ত তথ্য লিখুনঃ	১ উচ্চতাঃ ২ ওজনঃ ৩ বিএমআইঃ
১.৭ আবাসস্থলঃ (টিক চিহ্ন দিন)	১. গ্রাম ২. শহর ৩. উপশহর
১.৮ মাসিক ব্যায়ঃ (লিখুন)	
১.৯ পরিবারে উপার্জনক্ষম ব্যাক্তির সংখ্যাঃ (লিখুন)	
১.১০ পরিবারের সদস্য সংখ্যা	

গবেষনার নামঃ **প্লানটার ফাসাইটিস** রোগীর ক্ষেত্রে ম্যায়োফেসিয়াল রিলিজ এর উপকারতা"

অধ্যায় ২ঃ প্লানটার ফাসাইটিস এর জন্য দায়ী কারণ সমূহ

২.১ এই সমস্যার জন্য আপনি এখানে আসার আগ পর্যন্ড় কতবার ফিজিওথেরাপি চিকিৎসা নিয়েছেন? (টিক চিহ্ন দিন)	১. প্রথম বার ২. ২-৪ বার ৩. ৫ বার ৪. ৫ বারের বেশি
২.২ সিআরপি আসার আগে কি ধরনের চিকিৎসা নিয়েছেন ঃ (টিক দিন)	১. ঔষধ বা ফিজিশিয়ান প্রদত্ত চিকিৎসা (গত মাস) ২. ফিজিওথেরাপি চিকিৎসা (গত মাস) ৩. পল্লী চিকিৎসকের চিকিৎসা (গত মাস) ৪. কবিরাজী বা হোমিওপ্যাথি চিকিৎসা (গত মাস

	) ৫. হাতুড়ে যে কোন চিকিৎসা (গত মাস) ৬. কোন চিকিৎসাই নেইনী
২.৩ পরিবারের আকার (টিক চিহ্ন দিন)	১. ছোট পরিবার ২. যৌথ পরিবার
২.৪ আপনি সাধারণত দিনের বেশির ভাগ সময় কি ধরনের জুতা পরেন	১ স্যান্ডেল ২। হাই হিল ৩। সু জুতা ৪ খালি পয়ে হাঁটেন
১.১৪ আপনার অন্ন কন রগ আসে কি ঃ (লিখুন)	১। ডায়াবেটিস ২। হৃদরোগ ৩। হ্যইপার ইউরেকেমিয়া ৪। অন্যান্য
১.১৫ আপনি প্রতিদিন গড়ে কত সময় হাঁটেন (লিখুন)	১। ১ ঘন্টার বেশি ২। ৩০ মিনিট থেকে ১ ঘন্টা ৩। ৩০ মিনিটের কম ৪। হাটি না
১.১৬ ব্যাথা আপনার মানসিক অবস্থাকে প্রভাবিত করে?	১। হ্যা ২। না
১.১৭ প্রতিদিন কত ঘন্টা কাজ করেনঃ (লিখুন)	১. চাকুরি বা জীবিকার কাজঃ ২. গৃহস্থালীর কাজঃ ৩. চাকুরি ও গৃহস্থালী উভয় মিলিয়ে কাজঃ
১.১৮ আপনার কয়টি পা আক্রান্ড়	১। একটি পা ২। দুইটি পা
১.১৯। আপনার ব্যাথার কারনে সামাজিক কর্ম কাে অংসগ্রহনে কোন সমস্যা হয়	১। হ্যা ২। না
১.২০ কত দিন ধরে ভুগছেনঃ (লিখুন)	

গবেষনার নামঃ **প্লানটার ফাসাইটিস** রোগীর ক্ষেত্রে ম্যায়োফেসিয়াল রিলিজ এর উপকারতা"

চিকিৎসা পূর্ববর্তী উপাত্ত সমূহ

কোড নংঃ

অধ্যায় ৩ঃ পর্ব ক: গতির পরিসীমা নির্ণয়

এই পর্বে কোন ফিজিওথেরাপিস্ট বা পরীক্ষক কাল বা নীল কালির বল পেন দিয়ে পূরণ করবে এবং গনিওমিটার দিয়ে রেঞ্জ অফ মোশন নির্ণয় করবে।

১। আক্রান্ড় পায়ের ডরসি ফ্লেক্সসন রেঞ্জ কত?	..... ডিগ্রী
২। আক্রান্ড় পায়ের প- ্যানটার ফ্লেক্সসন রেঞ্জ কত?	..... ডিগ্রী
৩। আক্রান্ড় পায়ের ইনভারশন রেঞ্জ কত?	..... ডিগ্রী
৪। আক্রান্ড় পায়ের ইভারশন রেঞ্জ কত?	..... ডিগ্রী

চিকিৎসা পূর্ববর্তী উপাত্ত সমূহ

অধ্যায় ৩ঃ পর্ব খ: পা এবং গোড়ালি এর মাংসপেশির সক্ষমতার তথ্যবলী (Sparrow, J. M. et al., 1986(

১। পা এবং গোড়ালি এর মাংসপেশির সক্ষমতার বর্তমানে কতটুকু আছে ?(**OXFORD Grade Scale**)

১. ডরসি ফ্লেক্সসন	.....
২. প-্যানটার ফ্লেক্সসন	.....
৩. ইনভারশন	.....
৪. ইভারশন	.....

চিকিৎসা পূর্ববর্তী উপাত্ত সমূহ

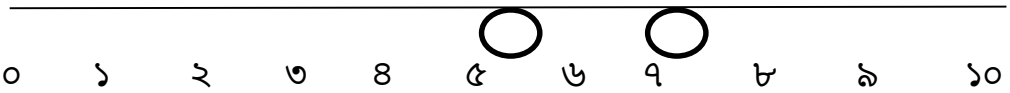
অধ্যায় ৩ঃ পর্ব গ ঃ ব্যাথার ধরন

এই প্রশ্নাবলী পণ্ড্যানটার ফেসাইটিস রোগীদের জন্য তৈরি হয়েছে। রোগীদের অনুভূত ব্যাথার মাত্রা বোঝার জন্য McCaffery, Beebe et al. 1989): একটি সাংখ্যিক স্কেল ব্যবহার করতেন। এটা সাংখ্যিক পেইন রেটিং স্কেল নামে পরিচিত। স্কেলট ০-১০ সীমায় ১০ সেমি লম্বা। এখানে ০ মানে ব্যাথা নাই, ১-৩ বোঝায় অল্প ব্যাথা, ৪-৬ মানে ব্যাথা অনেক এবং ৭-১০ মানে রোগীর সম্ভাব্য সবচেয়ে খারাপ ব্যাথার অনুভূতি।

প্রশ্নাবলির এই সেকশনে রোগিকে কাল বা নীল কালির বল পেন দিয়ে পূরণ করতে হবে। রোগী প্রশ্ন না বুঝতে পারলে সেই অংশটুকু বুঝিয়ে দিতে ফিজিওথেরাপিস্টকে অনুরোধ করা হচ্ছে। ০-১০ সীমার মাঝে আপনার পায়ের তালু এবং গোড়ালি এর গড় ব্যাথার পরিমাণ সংখ্যার উপর বৃত্তাংকন কর"ন। ০ মানে ব্যাথা নেই এবং ১০ মানে ব্যাথায় সবচেয়ে খারাপ অনুভুতি।

উদাহরণ স্বর"প-

যদি কারো ব্যাথার সীমা ৭ এবং ৯ এর মধ্যে থাকে, তাহলে সে এভাবে বৃত্তাংকন করবেঃ



এখানে ০ মানে ব্যাথা নাই, ১-৩ বোঝায় অল্প ব্যাথা, ৪-৬ মানে ব্যাথা অনেক এবং ৭-১০ মানে মারাত্নক বাথ্যা

Foot Function Index Questionnaire (FFI): [Budiman-Mak E et all., 1991]

গত সপ্তাহের অবস্থা লিখুন

Pain Scale ব্যথা সূচক	
১. সকালে আপনার প্রথম পদক্ষেপ গ্রহনের সময় ব্যথা কেমন হয়।	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২. খালি পায়ে দাঁড়িলে ব্যথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৩. খালি পায়ে হাঁটলে ব্যথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৪. জুতা পায়ে দাঁড়ালে আপনার বাথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৫. জুতা পায়ে হাঁটলে আপনার বাথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৬. অরথটিক্স পরে দাঁড়ালে আপনার বাথা	

কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৭. অরথটিক্স পরে হাটলে আপনার বাথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৮. দিন শেষে আপনার বাথার কি অবস্থা হয়।	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৯. আপনার বাথার তিব্রতা কতটা গুর"তর হতে পারে	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
Disability Scale ব্যাথের কারনে প্রতিবন্ধীতা	
১০. বাড়িতে হাটা আপনার জন্য কতটা অসুবিধা পূর্ণ	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১১. বাইরে হাটা আপনার জন্য কতটা অসুবিধা পূর্ণ	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১২. চারটা বাঁধা অতিক্রম করে হাটা কতটা অসুবিধা পূর্ণ	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৩. ধাপ বেঁয়ে উপওে উঠা কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৪. ধাপ বেঁয়ে নিচে নামা কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৫. কেদারা থেকে উঠা কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৬. আঙ্গুলের উপর ভর করে দাঁড়ান কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৭. প্রতিবন্ধকতা পার হওয়া কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৮. দোড়ান ও হাটা আপনার জন্য কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
Activity Limitation ব্যাথের কারনে অক্ষমতা	
১৯। পায়ের কারনে সব সময় ঘরে অবস্থান করি	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২০. পায়ের কারনে সব সময় বিছানায় অবস্থান করি	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২১. ঘরের ভিতরে সাহায্য কারি সরঞ্জাম ব্যবহার করি (লাঠি, ওয়াকার, ক্রাছ, ফ্রেম)	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২২. ঘরের বাইরে সাহায্য কারি সরঞ্জাম ব্যবহার করি	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২৩. শারীরিক কার্জখমতা সিমাবদ্ধ হয়ে যাছে।	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০

চিকিৎসা পূর্ববর্তী উপাত্ত সমূহ

অধ্যায় ৩ঃ পর্ব ঘ ঃ পা এবং গোড়ালি এর মাংসপেশির অক্ষমতা সূচক (**FADI**) স্কোর **(**Martin RL et al.,1999**)**

	কোন অসুবিধা নেই	সামান্য অসুবিধা	মাঝারি অসুবিধা	চরম অসুবিধা	করতে অক্ষম
১। দাঁড়ান অবস্থায়					
২। সমতল মাটিতে হাটা					
৩। জুতা না পরে সমতল মাটিতে					

হাটা					
৪। উঁচ্চতাই হাটা					
৫। নিচে হাটা					
৬। সিঁড়ি বেয়ে উপরে উঠা					
৭। সিঁড়ি বেয়ে নিচে নামা					
৮। উঁচু নিচু ভুমিতে হাটা					
৯। বক্র রেখা বরাবর উপরে ও নিচে ধাপ ফেলা					
১০। অর্ধেক বসা					
১১। ঘুমান					
১২। আপনার পায়ের আঙ্গুল পর্যন্ড় আসছে					
১৩। প্রাথমিকভাবে হাঁটা					
১৪। ৫ মিনিট অথবা তার কম হাটা					
১৫। আনুমানিক ১০ মিনিট হাটা					
১৬। ১৫ মিনিট বা তার চাইতে বেশি সময় ধরে হাটা					
১৭। সাংসারিক দায়িত্ব					
১৮। দৈনন্দিন কাজ কর্ম					
১৯। ব্যাক্তিগত পরিচর্যা					
২০। অল্প থেকে বেশি কাজ কর্ম (বসা এবং দাঁড়ান অবস্থায়)					
২১। অত্যাধিক কাজকর্ম					
২২। বিনোদনমূলক কার্যক্রম					

	ব্যাথা নেই	অল্প ব্যাথা	বেশি ব্যাথা	অনেক বেশি ব্যাথা	মারাত্নক ব্যাথা
২৩। সাধারন ধরনের ব্যাথা					
২৪। বিশ্রামের সময় ব্যাথা					
২৫। সাধারণ কাজের সময় ব্যাথা					
২৬। সকালে প্রথম কিছু করার সময় ব্যাথা					

গবেষনার নামঃ প্লানটার ফাসাইটিস রোগীর ক্ষেত্রে ম্যায়োফেসিয়াল রিলিজ এর উপকারতা"

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কোড নংঃ

অধ্যায় ৩ঃ পর্ব ক: গতির পরিসীমা নির্ণয়

এই পর্বে কোন ফিজিওথেরাপিস্ট বা পরীক্ষক কাল বা নীল কালির বল পেন দিয়ে পূরণ করবে এবং গনিওমিটার দিয়ে রেঞ্জ অফ মোশন নির্ণয় করবে।

১। আক্রান্ড় পায়ের ডরসি ফ্লেক্সসন রেঞ্জ কত?	..... ডিগ্রী
২। আক্রান্ড় পায়ের প- ্যানটার ফ্লেক্সসন রেঞ্জ কত?	..... ডিগ্রী
৩। আক্রান্ড় পায়ের ইনভারশন রেঞ্জ কত?	..... ডিগ্রী
৪। আক্রান্ড় পায়ের ইভারশন রেঞ্জ কত?	..... ডিগ্রী

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অধ্যায় ৩ঃ পর্ব খ: পা এবং গোড়ালি এর মাংসপেশির সক্ষমতার তথ্যবলী (Sparrow, J. M. et al., 1986(

১। পা এবং গোড়ালি এর মাংসপেশির সক্ষমতার বর্তমানে কতটুকু আছে ?(**OXFORD Grade Scale**)

১. ডরসি ফ্লেক্সসন	.....
২. প- ্যানটার ফ্লেক্সসন	.....
৩. ইনভারশন	.....
৪. ইভারশন	.....

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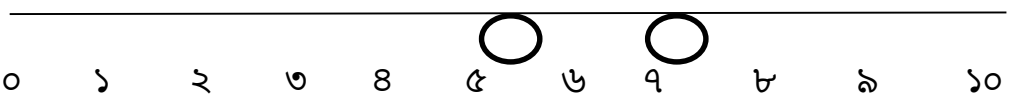
অধ্যায় ৩ঃ পর্ব গ ঃ ব্যাথার ধরন

এই প্রশ্নাবলী পণ্ড্যানটার ফেসাইটিস রোগীদের জন্য তৈরি হয়েছে। রোগীদের অনুভূত ব্যাথার মাত্রা বোঝার জন্য McCaffery, Beebe et al. 1989): একটি সাংখ্যিক স্কেল ব্যবহার করতেন। এটা সাংখ্যিক পেইন রেটিং স্কেল নামে পরিচিত। স্কেলট ০-১০ সীমায় ১০ সেমি লম্বা। এখানে ০ মানে ব্যাথা নাই, ১-৩ বোঝায় অল্প ব্যাথা, ৪-৬ মানে ব্যাথা অনেক এবং ৭-১০ মানে রোগীর সম্ভাব্য সবচেয়ে খারাপ ব্যাথার অনুভূতি।

প্রশ্নাবলির এই সেকশনে রোগিকে কাল বা নীল কালির বল পেন দিয়ে পূরণ করতে হবে। রোগী প্রশ্ন না বুঝতে পারলে সেই অংশটুকু বুঝিয়ে দিতে ফিজিওথেরাপিস্টকে অনুরোধ করা হচ্ছে। ০-১০ সীমার মাঝে আপনার পায়ের তালু এবং গোড়ালি এর গড় ব্যাথার পরিমাণ সংখ্যার উপর বৃত্তাংকন কর"ন। ০ মানে ব্যাথা নেই এবং ১০ মানে ব্যাথায় সবচেয়ে খারাপ অনুভুতি।

উদাহরণ স্বর"প-

যদি কারো ব্যাথার সীমা ৭ এবং ৯ এর মধ্যে থাকে, তাহলে সে এভাবে বৃত্তাংকন করবেঃ



এখানে ০ মানে ব্যাথা নাই, ১-৩ বোঝায় অল্প ব্যাথা, ৪-৬ মানে ব্যাথা অনেক এবং ৭-১০ মানে মারাত্নক বাথ্যা

Foot Function Index Questionnaire (FFI): [Budiman-Mak E et all., 1991]

গত সপ্তাহের অবস্থা লিখুন

Pain Scale (ব্যথা সূচক)	
১. সকালে আপনার প্রথম পদক্ষেপ গ্রহনের সময় ব্যথা কেমন হয়।	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২. খালি পায়ে দাঁড়ালে ব্যথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৩. খালি পায়ে হাঁটলে ব্যথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৪. জুতা পায়ে দাঁড়ালে আপনার ব্যাথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৫. জুতা পায়ে হাঁটলে আপনার ব্যাথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৬. অরথটিক্স পরে দাঁড়ালে আপনার ব্যাথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৭. অরথটিক্স পরে হাটলে আপনার ব্যাথা কেমন হয়	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৮. দিন শেষে আপনার বাথার কি অবস্থা হয়।	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
৯. আপনার বাথার তিব্রতা কতটা গুর"তর হতে পারে	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
Disability Scale (ব্যাথার কারনে প্রতিবন্ধীতা)	
১০. বাড়িতে হাটা আপনার জন্য কতটা অসুবিধা পূর্ণ	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১১. বাইরে হাটা আপনার জন্য কতটা অসুবিধা পূর্ণ	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১২. চারটা বাঁধা অতিক্রম করে হাটা কতটা অসুবিধা পূর্ণ	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৩. ধাপ বেঁয়ে উপওে উঠা কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৪. ধাপ বেঁয়ে নিচে নামা কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৫. কেদারা থেকে উঠা কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৬. আঙ্গুলের উপর ভর করে দাঁড়ান কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৭. প্রতিবন্ধকতা পার হওয়া কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
১৮. দোড়ান ও হাটা আপনার জন্য কতটা কঠিন	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
Activity Limitation (ব্যাথার কারনে অক্ষমতা)	
১৯। পায়ের কারনে সব সময় ঘরে অবস্থান করি	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২০. পায়ের কারনে সব সময় বিছানায় অবস্থান করি	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২১. ঘরের ভিতরে সাহায্যকারি সরঞ্জাম ব্যবহার করি (লাঠি, ওয়াকার, ক্রাছ, ফ্রেম)	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০

২২. ঘরের বাইরে সাহায্যকারি সরঞ্জাম ব্যবহার করি	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০
২৩. শারীরিক কার্জখমতা সিমাবদ্ধ হয়ে যাছে।	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০

চিকিৎসা পরবর্তী উপাত্ত সমূহ

অধ্যায় ৩ঃ পর্ব ঘ ঃ পা এবং গোড়ালি এর মাংসপেশির অক্ষমতা সূচক (**FADI**) স্কোর **(**Martin RL et al.,1999**)**

	কোন অসুবিধা নেই	সামান্য অসুবিধা	মাঝারি অসুবিধা	চরম অসুবিধা	করতে অক্ষম
১। দাঁড়ান অবস্থায়					
২। সমতল মাটিতে হাটা					
৩। জুতা না পরে সমতল মাটিতে হাটা					
৪। উঁচ্চতাই হাটা					
৫। নিচে হাটা					
৬। সিঁড়ি বেয়ে উপওে উঠা					
৭। সিঁড়ি বেয়ে নিচে নামা					
৮। উঁচু নিচু ভুমিতে হাটা					
৯। বক্র রেখা বরাবর উপরে ও নিচে ধাপ ফেলা					
১০। অর্ধেক বসা					
১১। ঘুমান					
১২। আপনার পায়ের আঙ্গুল পর্যন্ড় আসছে					
১৩। প্রাথমিকভাবে হাঁটা					
১৪। ৫ মিনিট অথবা তার কম হাটা					
১৫। আনুমানিক ১০ মিনিট হাটা					
১৬। ১৫ মিনিট বা তার চাইতে বেশি সময় ধরে হাটা					
১৭। সাংসারিক দায়িত্ব					
১৮। দৈনন্দিন কাজ কর্ম					
১৯। ব্যাক্তিগত পরিচর্যা					
২০। অল্প থেকে বেশি কাজ কর্ম (বসা এবং দাঁড়ান অবস্থায়)					
২১। অত্যাধিক কাজকর্ম					
২২। বিনোদনমূলক কার্যক্রম					

	ব্যাথা নেই	অল্প ব্যাথা	বেশি ব্যাথা	অনেক বেশি ব্যাথা	মারাত্নক ব্যাথা
২৩। সাধারন ধরনের ব্যাথা					
২৪। বিশ্রামের সময় ব্যাথা					
২৫। সাধারণ কাজের সময় ব্যাথা					
২৬। সকালে প্রথম কিছু করার সময় ব্যাথা					