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COMPARATIVE EFFECTIVENESS OF PLANTAR MASSAGE AND REFLEXOLOGY FOOT MASSAGE ON PAIN, BALANCE AND FUNCTIONAL REACH AMONG PATIENTS WITH PERIPHERAL NEUROPATHY

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ABSTRACT
Peripheral neuropathy is a prevalent disease that is linked to numerous systemic disorders. Peripheral neuropathy affects around 2.4% of the population. In elderly population groups, the frequency rises to 8. Peripheral neuropathies can have different causes such as systemic, metabolic, or toxic factors. It frequently results in discomfort, numbness, and weakness, generally in the hands and feet. The study's objective is to compare the effects of plantar massage and reflexology foot massage on pain, balance and functional reach in grade-II peripheral neuropathy. A randomized clinical trial was conducted from the physical therapy OPD of Allied Hospital Faisalabad. Patients were selected according to the selection criteria. Participants were randomly assigned to two groups using computer generated method. Group A received plantar massage with sensory brush, while group B received reflexology foot massage. Baseline treatment including balance exercises were given to both groups. S-LANSS, BBS and FRT were used to measure pain, balance and functional reach respectively in the patients. The outcomes were analyzed through SPSS version 27. Group A and B both showed sugnificant results in pain, balance and functional reach ($p<0.05$). Inter-group analusis showed that there was no significant difference ($p>0.05$) between the both groups in balance and functional reach, however there was significant difference in pain values ($p<0.05$). The study findings suggests that plantar massage and reflexology foot both are effective in reducing pain and improving balance and functional-reach among peripheral neuropathy patients. However, it was observed that reflexology foot massage exhibited greater reduction in neuropathic pain in comparison to plantar massage.

Keywords: Peripheral neuropathy, sensory brush, reflexology massage, balance, functional reach, S-LANSS, Berg Balance Scale

INTRODUCTION
Peripheral neuropathy is a prevalent disease that is linked to numerous systemic disorders. Although, studies about epidemiology have confirmed the incidence of some subtypes, such as GBS, diabetic neuropathy, and Charcot-Marie-Tooth disease, the exact prevalence of the condition in the community

remains unknown (1). Peripheral neuropathy affects around 2.4% of the population. In elderly population groups, the frequency rises to 8%. About half of people who suffer from type 1 and type 2 diabetes have diabetic neuropathy (2).

Nerve root discomfort usually presents as allopathy or unusual sensations along the peripheral nerve's pathway. Clinically, this discomfort can be evaluated using the concept of neurodynamic, which is based on the intricate relationship between the physiology and mechanics of the nervous system (3). Peripheral neuropathy can have different causes such as systemic, metabolic, or toxic factors. Some medical conditions that can cause peripheral neuropathy and can be treated are malnutrition, hypothyroidism, and diabetes mellitus (4).

Patients with neuropathy usually experience sensory complaints such as tingling, paresthesia sensation in their hands and feet. They may also feel burning sensations, discomfort in their limbs, and may have the impression of walking on cotton wool. Patients may also experience band-like feelings around their wrists or ankles and shakiness while standing (1).

Earlier research has shown that exercise can help reduce the motor impairments caused by peripheral neuropathy. Strength training not only reduces muscle loss, but also improves neural control, coordination between and within muscles, stability, and gait. Endurance training, in addition to improving cardiovascular fitness, affects metabolic variables such as insulin sensitivity, lipid abnormalities, hypertension, and glucose regulation (5). It's great to know that rehabilitation is considered a crucial component of neuropathic pain management. Its main objective is to reduce pain and the need for pharmaceuticals, improve dysfunction, physical exertion, and quality of life, and restore the patient's sense of self. Therapeutic exercise is an essential part of rehabilitation techniques, which includes conditioning, strengthening, and stretching activities. However, there is little data to assist its use in the treatment of neuralgia (6).

Massage therapy has been around for centuries and is known to have several positive effects on the body. It is believed that massage can help improve joint mobility by working on the connective tissue, which can also benefit those at risk for developing neuropathic ulceration. Additionally, massage can help enhance tissue flexibility and mobility, according to clinical experiences (7). Studies have shown that the soles of our feet are like maps that help control our balance, and that tactile information from the foot's supporting areas influences our stance control. Additionally, experiments have found that low-amplitude vibrations can stimulate these tactile sensory inputs, while proprioceptive information from the neck and ankles can be used for body orientation and balance control. For older adults, mechanical stimulation of the foot, along with massage techniques such as friction, static and glide pressure applied to the sole, can be helpful in reducing postural problems (8).

One of the methods used for plantar massage is through brushing. The pressure applied during brushing plays a crucial role in the final results. The pressure required is similar to that needed for spreading putty. It is important to apply an even and slow pressure, avoiding quick and hasty movements. It sounds like the pressure touch technique is quite complex and involves brushing various body regions in a specific way to stimulate pressure touch receptors. It's important to apply the right amount of pressure and avoid brushing too quickly or back and forth in the same spot, and always brush slowly and evenly (9).

Reflexology is a technique that helps normalize body functions by applying pressure to reflex points in the hands, feet, and ears, which are related to glands, organs, and parts of the entire body. It is a branch of neurology that involves stimulating neural pathways to send nerve impulses, correct blood flow, and maintain the body's equilibrium. Foot reflexology specifically involves applying pressure to the nerve endings in the foot (10).

This study includes plantar massage with sensory brush and reflexology foot massage to treat grade-II peripheral neuropathy specifically focusing on pain, balance and functional reach of the patients. Both of these techniques focus on stimulating tactile and pressure receptors of the feet. It is hypothesized that foot massage and stimulation of these neural cells would help the patient relax, decrease stress, and regain balance in their body (11).

METHODS

This study is a randomized clinical trial. The study was conducted in the physical therapy OPD of Allied health hospital Faisalabad. The study was completed within the time duration of 4 months after the approval of ethical committee of The University of Faisalabad. Simple random sampling was used. Target population was grade-II peripheral neuropathy patients. 36 participants were accessed for eligibility and divided randomly to both groups. Randomization was done by computer generated method. Data collection tools were Self-report Version of the Leeds Assessment of Neuropathic Symptoms and Signs pain scale (S-LANSS), Berg Balance Scale (BBS), Functional Reach Test (FRT). Informed consent form was taken from each participant. Measurements were taken at the baseline (0 week) and at the end of the 3rd week.

Inclusion criteria:

- Both genders of age between 35-60 years (12)
- Diagnosed patients grade II peripheral neuropathy
- Ability to stand on both feet (12)
- Co-operative patients
- Can perform given instructions
- Volunteered to participate (13)

Exclusion criteria:

- Cardiac problem
- Upper limb or lower limb amputation at any level
- Foot or toe ulcer (13)
- Severe visual impairment (14)
- Any vestibular disorder (12)
- Edema, peripheral thrombosis, burn, injury or fracture of lower extremity
- Ambulation difficulties or using any walking device (13)
- Neurological disorders including stroke, Parkinson's disease, dementia (14)

Outcomes

The outcomes of the study were;

1. Pain
2. Balance
3. Functional reach

Material used

Following material was used in the data collection:

- Chair with and without arm-rest
- Ruler
- Timer
- Stair step
- marker

Group A

Intervention: Plantar massage

Treatment: Group A received plantar massage with sensory brush. The patient was lying supine on a regular treatment table and the sensory brush was steadily rubbed over the bottom of the foot. Brushing was done slowly, never back and forth on the same spot, and with enough pressure to cause the brush's bristles to bend. The brush was horizontal to the direction of the stroke while covering the

skin. The goal is to trigger the feet's pressure touch receptors rapidly. Participants were informed that the therapy might "tickle." Massage will be given for 5 minutes on each foot (9, 15).

Figure 1. Plantar massage with sensory brush

Group B

Intervention: reflexology foot massage

Treatment: Group B received reflexology foot massage. Three weeks of foot reflexology were conducted, with two sessions each week lasting thirty minutes, 15 minutes for each foot. Applying the reflexology method involved raising the participant's leg level to the practitioner's chest level. Effleurage massage was given to the dorsal area, plantar region, tibialis anterior, peroneus longus-brevis, and gastro soleus muscles for five minutes. Effleurage was utilized to stimulate the autonomic nervous system, and also the reflex mechanism of action, capillaries, and lymphatic function. While applying pressure to the feet using the thumbs, it was made sure to use even, firm pressure with a controlled touch. Gentle press and release by bending and straightening the thumb alternatively, covering the entire surface of each foot region. This technique should not induce pain or tickling (16, 17, 18). Reflexology massage was done according to the following application protocol:

Table 1. Protocol for reflexology (16)

Reflex area	Foot zone	Implementation	Effects of reflex points
Solar plexus and diaphragm reflexes	In the center under the ball of foot	7*2 (on both feet)	Set up a sturdy breathing rhythm and activate all the abdomen nerves by stimulating these areas.
Adrenal gland reflexes	the inner edge of the foot	7*2 (on both feet)	Encourage the adrenal glands to release hormones necessary for the muscles' and neurons' metabolic processes.
The arm and shoulder reflexes	Lateral side of the foot, at the base of 5^{th} toe	7*2 (on both feet)	Activate the upper limb's muscles and nerves, and boost blood flow to the arms, shoulders, and the wrists and elbows.

The spine reflexes	Medial side of the foot	7*2 (on both feet)	Encourage the spine and spinal cord to improve spinal flexibility and synchronize nerve responses.
The hip, thigh and leg reflexes	Lateral arch of the foot	7*2 (on both feet)	Improve blood flow in the thighs, legs, hips, knees, and ankles by stimulating the muscles and nerves in the lower limbs.
The sciatic nerve reflexes	Lateral malleolus	7*2 (on both feet)	Activate the sciatic nerve to activate the muscles and nerves involved in standing, walking, and maintaining balancing,
Solar plexus and diaphragm reflexes	In the center under the ball of foot	7*2 (on both feet)	This nerve bundle initiates the body's conscious, synchronized state.

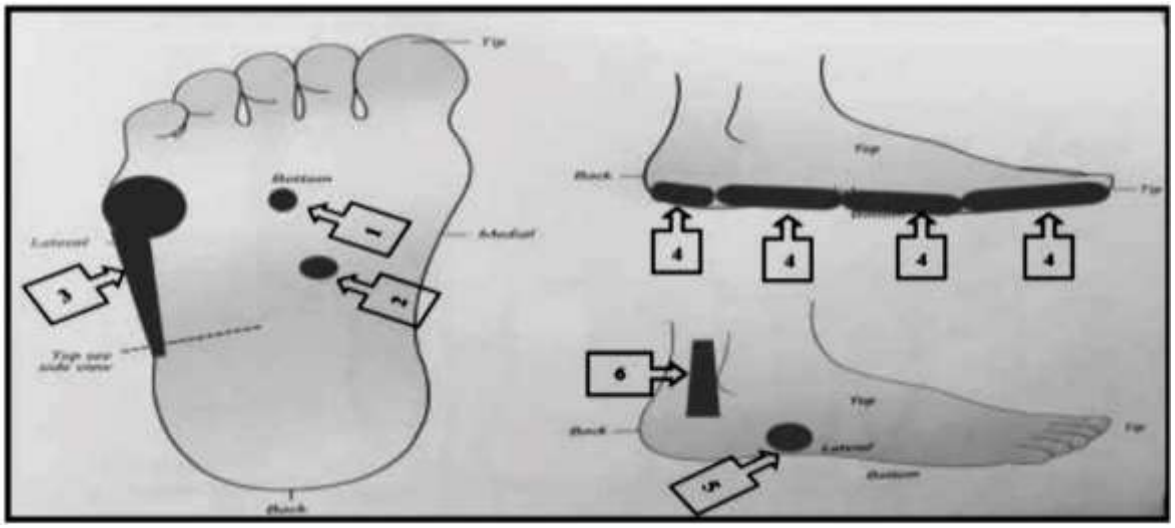

Figure 2. Target reflexology point

Figure 3. Foot reflexology

3.14.3 Baseline Treatment

Treatment: Baseline treatment was implemented for 30 minutes: single-limb stance SLS, stair ascending, ramp walking, marching on a fixed position, tandem walking, weight shifts in upright posture, heel standing, toe standing, outreach exercises, relaxed deep breathing exercises, and free ROM exercises for both ankle joints. These interventions were given to both groups (19).

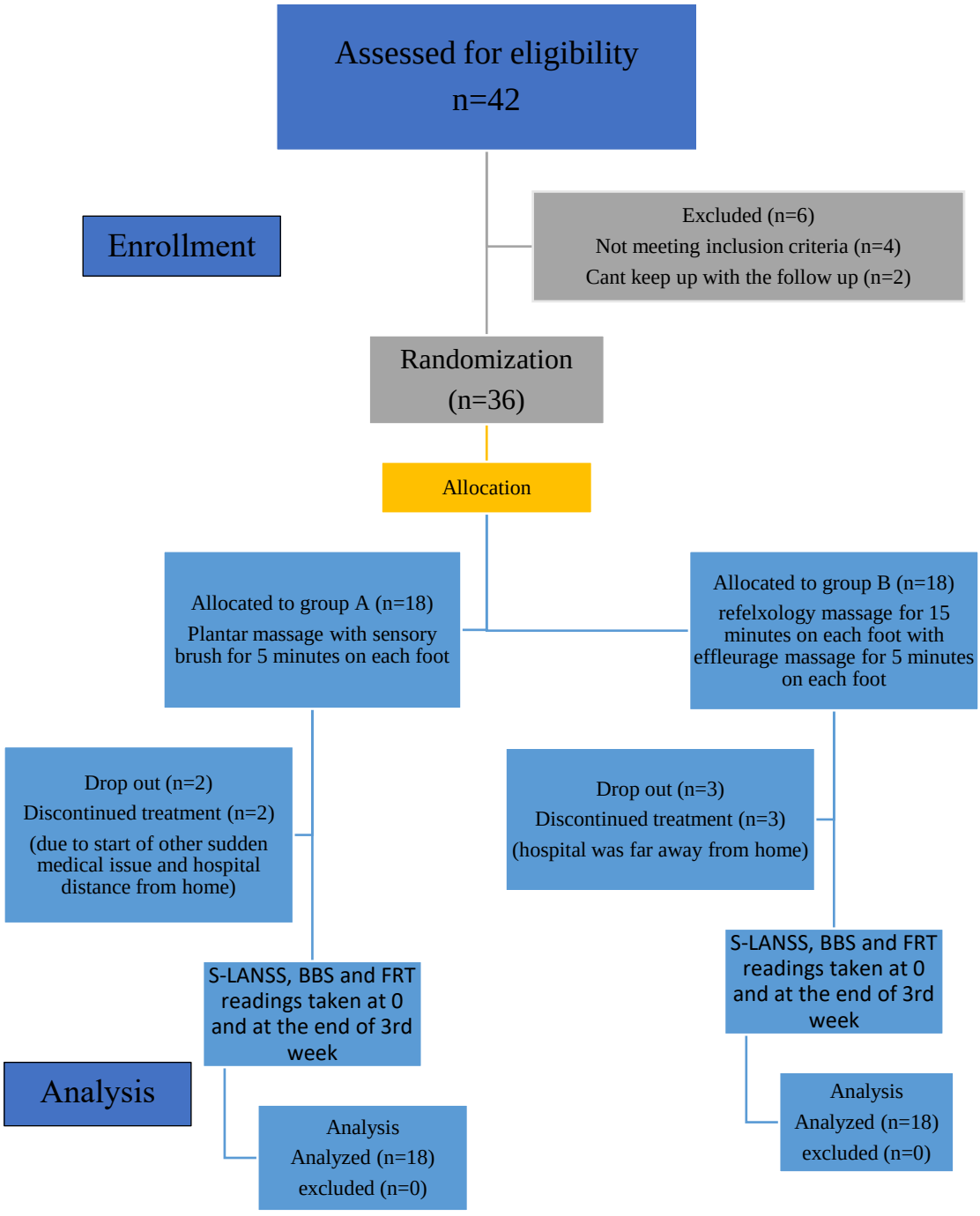

Figure 4. Study flow chart

Statistical analysis

Statistical analysis of pain, balance and functional reach in both groups (plantar massage with sensory brush and reflexology foot massage) was carried out by using Statistical Package of Social Sciences (SPSS) Windows Software, version 27 in order to find out the significance of each intervention used

in each group. Shapiro-Wilk test was used to check the normality of the data. After checking the normality non-parametric tests were analyze by SPSS version 27. As p-value was less than 0.05 so the variables were analyzed by non-parametric tests, Wilcoxon Signed Rank test for within group and Mann Whitney U test for between group analysis.

Ethics

Ethics approvals were obtained from The University of Faisalabad under the Ref. No. Tuf/IRB/358/24

RESULTS

Thirty-six participants were included in the study according to the descriptive statistics age ranging from 39-60 years. Mean±SD for age of the participants was 51.61±6.842. There were 10 male and 26 females that participated in the study. Both genders were equally distributed in the both groups. 72.22% of the participants were females while 27.70% were males in both groups. There were 12 participants with percentage of 33.33% with the condition of diabetes, 6 with the percentage of 16.7% were with the condition of nutritional deficiencies, 12 participants with the percentage of 33.33% were with the condition of spondylosis, 4 subjects were with the percentage of 11.1% which had the condition of kidney disease and 2 participants were with idiopathic condition with the percentage of 5.6%.

Test of normality was done on the baseline values of S-LANSS, BBS and FRT through Shapiro-Wilk test. All the three variable were non-significant ($p<0.05$), so non-parametric tests were applied for intra and jnter-group comparisons.

Descriptive statistics showed mean±SD score at baseline in plantar massage group was 18.55±1.97 and it was reduced to 12.43±1.89 after the intervention was applied. The mean±SD score of the S-LANSS in reflexology foot massage group before treatment was 19.94±2.38 and after treatment it was reduced to 10.00±1.30. Wilcoxon signed rank test showed the p value was <0.001 (<0.05) which showed significant results with the application of plantar massage. Also there were significant results with the reflexology foot massage with p value <0.001. The comparison between both the groups for S-LANSS was significant with p value being <0.001 showing that there was discernable difference between both groups in reducing neuropathic pain.

For BBS, mean±standard deviation before plantar massage was 37.5±2.45 and it increased to 46.37±1.36 and mean±standard deviation before reflexology foot massage was 37.72±1.31 and it increased to 47.20±1.47. Significance value of within group comparison for both groups were <0.001 which indicated that both interventions were helpful in improving balance. Mann-Whitney U test gave the p value of 0.093, indicating that there was no significant contrast between plantar massage and reflexology foot massage in increasing balance among the patients with peripheral neuropathy.

For FRT, mean±standard deviation before plantar massage was 28.0422±1.9 and it increased to 30.47±1.46 and mean±standard deviation before reflexology foot massage was 28.9±1.03 and it increased to 31.32±1.24. Significance value of within group comparison for both groups were <0.001 which indicated that both interventions were helpful in improving functional reach. Significance value after the intervention in comparison between both groups was 0.093, indicating that there was no notable difference between plantar massage and reflexology foot massage in increasing functional reach among the patients with peripheral neuropathy.

These findings suggested that plantar massage with sensory brush and reflexology foot both are effective in reducing pain and improving balance and functional-reach among patients with grade-II peripheral neuropathy. However, it was observed that reflexology foot massage exhibited greater reduction in neuropathic pain in comparison to plantar massage.

Table 2. Gender distribution in the study

Gender	Frequency	Percentage
Male	10	27.8
Female	26	72.2
Total	36	100.0

The above table showed the number of males and females in the study.

Table 3. Distribution of condition leading to neuropathy

Condition leading to neuropathy	Frequency	percentage
Diabetes	12	33.3
Nutritional deficiencies	6	16.7
Spondylosis	12	33.3
Kidney disease	4	11.1
Idiopathic	2	5.6
Total	36	100.0

Above table showed the frequency and percentage of participants suffering with different conditions leading to neuropathy.

Table 4. Within group results of the outcomes

Outcomes	Group	Before or after treatment	Mean±SD	P-value
S-LANSS	Group 1	Before	18.55±1.976	
		After	12.43±1.896	<0.001
	Group 2	Before	19.94±2.388	<0.001
		After	10.0±1.309	
BBS	Group 1	Before	37.50±2.455	<0.001
		After	46.27±1.360	
	Group 2	Before	37.72±1.319	<0.001
		After	47.20±1.473	
FRT	Group 1	Before	28.04±1.909	<0.001
		After	30.47±1.460	
	Group 2	Before	28.90±1.038	<0.001
		After	31.322±1.241	

The above table displays the pre- and post-treatment values of the outcomes for both groups. Both groups for these outcomes showed significant results post treatment as showcased by the mean±SD and p-values.

Table 1. Between-group results of all the outcomes

	Group	Mean±SD	P-value
Post S-LANSS	Group 1	12.43±1.896	<0.001
	Group 2	10.0±1.309	
Post BBS	Group 1	46.27±1.360	0.093
	Group 2	47.20±1.473	
Post FRT	Group 1	30.47±1.460	0.113
	Group 2	31.322±1.241	

The above table showed the results of between group comparison of both groups with the post-intervention values of all outcomes.

DISCUSSION

The aim of this randomized clinical trial was to compare the efficiency of plantar massage with sensory brush and reflexology foot massage on decreasing pain and improving balance and functional reach among patients of peripheral neuropathy with grade-II of the disease having the age between 35 years to 60 years.

After getting acceptance from the scrutiny and ethical committee of The University of Faisalabad, subjects were included according to the inclusion and exclusion criteria from Allied Hospital Faisalabad. Written consent was collected from the selected participants. The participants were randomly divided into 2 groups through computer generated method. After dividing the sample into 2 groups baseline reading of pain, balance and functional reach was taken through the S-LANSS scale, Berg Balance scale and Functional Reach Test respectively, then plantar massage with sensory brush will be given to group A for 5 minutes on each foot for 3 sessions per week and reflexology foot massage will be given to group B for 15 minutes on each foot for 2 sessions per week. Baseline treatment was implemented for 30 minutes: single-limb stance, stair treading, walking on a ramp, marching on a fixed spot, tandem walking, weight shifts in upright posture, heel standing, toe standing, outreach exercises, relaxed deep breathing exercises, and free ROM exercises for both ankle joints. The interventions will be applied for 3 consecutive weeks, then the post intervention reading was taken. Numeric Pain Rating Scale, Berg Balance Scale, tape and inches tape were used to measure pain, balance and functional reach in the patients respectively.

Within group analysis was done through Wilcoxon Signed Rank test, suggested that the scores of S-LANSS scale, Berg Balance scale and Functional Reach Test taken at baseline and at the end of 3rd week, improved significantly in the plantar massage group with p- values <0.05. But according to the interpretation of The Self-report version of the Leeds Assessment of Neuropathic Symptoms and Signs Pain Scale, the pain was still predominantly neuropathic, which meant that the level of neuropathic pain decreased with the sensory brush plantar massage but pain was still neuropathic after the plantar massage (20).

Within group analysis was done through Wilcoxon Signed Rank test, which suggested that the scores of S-LANSS scale, Berg Balance scale and Functional Reach Test taken at baseline and at the end of 3rd week, improved significantly in the reflexology foot massage group with p- values <0.05. Reflexology foot massage significantly decreased pain and improved balance and functional reach in peripheral neuropathy grade-II patients.

Between group analysis showed that the reflexology foot massage was more effective in comparison to plantar massage in reducing the level of neuropathic pain in the patients of grade-II peripheral neuropathy. Between group analysis of the Berg Balance Scale showed that both reflexology foot massage and plantar massage with sensory brush were equally effective in improving balance, that is, the significance value of Mann-Whitney U test was >0.05 showing no difference between the effectiveness of both interventions on the balance of peripheral neuropathy patients. Same results were seen with Functional Reach Test with p-value >0.05 showed no difference between the efficacy of plantar massage and reflexology foot massage on the functional reach of peripheral neuropathy patients.

Past studies showed that women were more prone to the peripheral neuropathy as compared to the men. One study showed that the crude incidence for the peripheral neuropathy was 11.9% per person-years with 9.6 times more prevalent in the females as compared to the males (21). Whereas in the current study there were 72.2% females and 27.78% males, which showed more females rather than males with peripheral neuropathy.

Past literature showed that the peripheral neuropathy was more common among people with age more than 55 years. The current study showed that the majority of the peripheral neuropathy patients were of 60 years of age, which indicated increment in the incidence of peripheral neuropathy with augmentation in age. Past study showed that the most common cause of the peripheral neuropathy was diabetes followed by idiopathic, chemotherapy induced and nutritional causes (22). In the current

study majority of the subjects with peripheral neuropathy were with the condition of diabetes and spondylosis with the percentage of 33.33% shared by both conditions.

Accurate spatial and temporal information on the contact forces and postural control of the foot can be obtained through the cutaneous afferent of plantar mechanoreceptors and the benefits of mechanoreceptor stimulation therapies on postural control are emphasized (23, 24, 25). A study conducted by Eylem Tütün Yümin and his colleagues stated that subjects with T2 DM showed improvements in body balance, forward reach and functional mobility values after receiving plantar massage. The improvement in TUG could be explained by an increase in functional mobility and body balance. Incorporating foot massage into DM patients' rehabilitation exercise regimens is crucial for enhancing their mobility and balance (8). In the current research although only T2 DM patients were not used but it showed similar results in improving balance and functional reach shown by the significance value of Wilcoxon Signed Rank test which was <0.05.

A systematic review was carried out by Paju and his co-workers which revealed that out of 8 research reports that involved potential benefits of foot massage on diabetic peripheral neuropathy only 1 research report suggested decrease in pain with the application of foot massage (26). The current study contradicts with this review. There is noteworthy reduction in neuropathic pain with plantar massage. Another study by Nur Izgu and his co-workers suggested that Classical massage significantly enhanced QOL, reduced chemotherapy-induced peripheral neuropathic pain, and had positive impacts on NCS results (27). Current study showed the similar results in reducing neuropathic pain among peripheral neuropathy patients.

A study conducted by Erik A Wikstrom and his co-workers suggested that static postural control improved with plantar massage but dynamic control was no improved and there was no significant difference (p-value >0.05) between plantar massage given by therapist manually, self-massage through a ball or massage done with sensory brush by a clinician. Which means they have similar effects regardless of the method used (15). In the current study plantar massage was done with sensory brush and showed significant results in reducing neuropathic pain and improving balance and functional reach. However, the previous study indicated that sensory brush is not necessary for the significant results, any type of plantar massage will give similar results. Also, in the current study static and dynamic control both improved as discussed in the results of Berg Balance Scale as BBS includes both static and dynamic control.

In past there is a variety of literature supporting the usage of reflexology foot massage for the improvement of the balance in different populations having difficulty with falls in daily life. Reflexology foot massage is said to improve balance by activating physical, mental and emotional body systems and ease the human body similar as acupuncture and cupping therapy (28). In this study reflexology significantly improved balance in the peripheral neuropathy patients.

Another study reported that reflexology was very efficient in receding pain and improving balance in subjects with diabetic neuropathy. The study stated high effects of reflexology obtained on decreasing pain and reducing fall risk in the DPN population (29). Current study also showed the similar results with significant reduction in pain and improvement in balance in the intra-group differentiation done with Wilcoxon Signed Rank test, that suggested p-value <0.05, meaning reflexology foot massage is advantageous for pain and balance in peripheral neuropathy patients.

In another study, blood glucose levels and glycaemic control were significantly improved with the comprehensive use of reflexology therapy in combination with pharmaceutical medications. It was stated that it could open the door to a treatment for neuropathic pain, as well as improvements in temperature, vibration, and conduction velocity sensitivity and overall quality of life. Though this study showed that reflexology treatment is highly effective in controlling diabetic neuropathy and associated complications when used in conjunction with conventional medications, it is important to keep in mind that the subjective characteristics of reflexology therapy greatly limits its use (30).

However, the current study evaluated reflexology massage as a solo and an objective treatment in reducing neuropathic pain peripheral neuropathy patients. As evaluated in the results, neuropathic pain score measured with S-LANSS scale showed significant decrease in the neuropathic pain before

and after the application of reflexology massage without any pharmacological medication. This study contradicts with the literature stated above that reflexology works as an assistance to the medications and plays subjective role.

In another study by Gokcek and his co-workers on the comparative efficiency of TENS and reflexology massage in receding pain, enhancing balance and eliminating sleep problems in geriatrics subjects, it was reported that no noteworthy difference was seen between the groups, although there was a slightly more improvement in the fall risk in reflexology group but results on pain and sleep problems were similar, which suggested that TENS gave similar results in contrast to the reflexology therapy (31). However, in the current study, reflexology foot massage group showed notable reduction in pain according to the readings taken after the 3 weeks protocol applied.

The amount of research on reflexology as a supportive therapy has expanded in the last several years. These studies have mostly focused on the fields of nursing and medicine. In particular, supportive care that tries to provide analgesic and psychological relaxation for the people with health problems have been investigated (16). In contrast with this study positive results were recorded after the application of reflexology massage as an individual treatment, i-e, not in conjunction with another intervention. So, the current study supports the idea of reflexology being used as an objective treatment for neuropathic pain, balance and functional reach.

To the best of our knowledge, there is not enough literature found, that focuses solely on neuropathic pain, balance, and functional reach among patients with grade-II peripheral neuropathy.

There is very limited evidence supporting reflexology's effects on functional reach. There are various studies on reflexology reducing fall risks but not specifically on functional reach. However, the current study showed significant improvement in functional reach in patients with grade-II peripheral neuropathy further educing fall risk for the patients in functional and daily activities.

CONCLUSION

The study findings suggests that plantar massage with sensory brush and reflexology foot both are effective in reducing pain and improving balance and functional reach among patients with grade-II peripheral neuropathy. However, it was observed that reflexology foot massage exhibited greater reduction in neuropathic pain in comparison to plantar massage. These findings were justified by significant statistical differences observed in the between group comparison of S-LANSS.

LIMITATION

1. Study was conducted on a district level, thus narrowing the target population.
2. Only few reflex points were targeted in reflexology massage, not stimulating the entire foot.
3. Control group was not added, so whether the improvement in balance and functional reach was due to balance exercises given as a baseline treatment could not be evaluated.

RECCOMMENDATION

1. Grade I, III and IV of peripheral neuropathy should also be studied to check whether they respond to these interventions similarly or not.
2. Study should be conducted on larger level such as on provisional or national level.
3. There are very limited researches to check the effects of reflexology massage on function reach, therefore more researches should be done to check its effect on functional reach.
4. More types of plantar massage should be used to check their effects on different grades of peripheral neuropathy, to evaluate which one is better and more cost effective and feasible to the patients.

DIFFICULTIES

1. It was difficult to find literature on plantar massage regarding neuropathic pain.
2. Data collection was done in Ramadan, so it was difficult to convince the patient to carry on the follow-up treatment.

Conflict of Interest: The authors declare no conflict of interest

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Compliance with Ethical Standards: Ethics approvals were obtained from The University of Faisalabad under the Ref. No. Tuf/IRB/358/24

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