TRADITIONAL AND INTEGRATIVE MEDICINE

Trad Integr Med, Volume 10, Issue 4, Autumn 2025

Original Research

Evaluation of a Persian Medicine Based Manipulation on Chronic Radicular Low Back Pain

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Received: 19 Jan 2025 **Revised:** 17 Feb 2025 **Accepted:** 19 Feb 2025

Abstract

A manual therapy rooted in Persian Medicine known as "*ghamz* therapy" involves applying pressure to specific soft tissues within the musculoskeletal system to alleviate myofascial spasms. This study aimed to evaluate its effectiveness in reducing pain and disability in patients with lower back pain radiating to their lower limbs. This study is a quasi-experimental pilot investigation that explores the effects of *ghamz* therapy on patients with chronic radicular low back pain. Participants underwent treatment across three sessions on days 0 (Visit 1), 7 (Visit 2), and 30 (Visit 3). Pain intensity was assessed using the Visual Analog Scale (VAS), along with the Roland-Morris Disability Questionnaire and the fingertip-to-floor test, at each session. Additionally, follow-up assessments of VAS and disability scores were conducted over two months post-intervention. The study involved 12 participants with low back pain, who reported an average pain level of 5.83 on the VAS initially, which decreased to 1.24 by the third visit. Lower limb pain also significantly diminished from 6.08 to 1.58. The average disability score improved from 10.42 to 3.33, and all outcomes remained stable during follow-up, with no significant increases in pain or disability. The fingertip-to-floor test showed significant improvement, with measurements going from 5.63 cm to 0.08 cm. In conclusion, *Ghamz* therapy has the potential to alleviate pain and disability in patients with low back pain radiating to the lower limbs. However, controlled clinical trials with larger sample sizes are necessary to evaluate the efficacy of this manual technique.

Keywords: *Ghamz* therapy; Persian medicine; Iranian traditional medicine; Low back pain; Sciatica

http://doi.org/10.18502/tim.v10i4.20726

Citation: Rokhafrooz B, Mokaberinejad R, Hasanzadeh A, Emami Meibodi MK, Sadeghi S. **Evaluation of a Persian Medicine Based Manipulation on Chronic Radicular Low Back Pain**. 2025;10(4):392-398. http://doi.org/10.18502/tim.v10i4.20726

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Introduction

Low back pain (LBP) is a prevalent condition with multiple underlying causes. When the pain radiates to the lower limbs, often due to involvement of the sciatic nerve roots, the implications can be more severe than with isolated back pain. This escalation heightens the likelihood of requiring surgery, which is an invasive and expensive option [1]. Low back pain and sciatica can result in significant pain and disability, leading to patients missing work, changing jobs, and experiencing psychological and emotional issues. Beyond the individual consequences, sciatica also incurs economic and social costs for society as a whole [2].

Common non-surgical treatments for this condition include the use of painkillers, rest, exercise, physical therapy, manipulations and spinal injections [3]. Currently, the reliance on painkillers, such as non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, benzodiazepines and gabapentinoids, has risen in an effort to alleviate pain. However, these medications can lead to complications and may result in patients developing dependency, prompting the need for increasing dosages [4]. Consequently, there is growing interest in researching non-pharmacological approaches to support patient treatment [5].

Manual therapy, which includes techniques such as massage, manual maneuvers, and chiropractic care, is a type of non-pharmacological intervention used to treat sciatica. Researches have demonstrated the effectiveness of these manual interventions in reducing pain and improving disability in patients experiencing low back pain that radiates to the lower limbs [6,7].

Recent studies have demonstrated the effectiveness of manual therapy rooted in Persian Medicine (PM) for reducing pain intensity and improving conditions such as shoulder pain, knee pain, and lumbar radiculopathy [8-11]. One notable manual intervention is "*ghamz* therapy", which involves applying finger pressure to specific areas of the body to treat various ailments. This technique bears a close resemblance to acupressure and reflexology [12].

The *ghamz* therapy, based on the *Hassanzadeh* method, has its origins in Iranian folk medicine from the Khorasan region. Developed experimentally and familially by Mr. Ali Akbar *Hassanzadeh*, this therapy aims to alleviate pain and disability associated with musculoskeletal issues. Under the careful supervision of medical professionals, it has been administered with a strong emphasis on safety and medical considerations at the Faculty of Persian Medicine, Shahid Beheshti University of Medical Sciences in Tehran, Iran, for the past four years.

One therapeutic application of this type of *ghamz* therapy is its potential to alleviate sciatica and back pain. Researchers' observations, drawn from reviewing patient files and conducting interviews with treated individuals, suggest that this method is effective in reducing pain and disability among patients. However, as of now, no scientific reports have been published to validate the effectiveness of this treatment.

Additionally, evidence from studies indicates that manual therapy, particularly through the release of myofascial spasms and trigger points, can effectively reduce sciatica pain and enhance patient performance [13,14]. Therefore, the therapeutic benefits of *ghamz* therapy appear promising for treating musculoskeletal disorders.

Consequently, given the observed therapeutic effects of *ghamz* therapy in alleviating back and lower limb pain, as reported by patients visiting PM clinics, and considering the scarcity of research evaluating the effectiveness of this treatment, this pilot quasi-experimental study aimed to evaluate the impact of *ghamz* therapy using the *Hassanzadeh* method on chronic back pain that radiates to the lower limbs.

Methods

Study design and participants

This study is a quasi-experimental pilot investigation that examines changes in patients with chronic back pain radiating to the lower limb. The study compared data collected before and after an intervention in 2024 at the Persian Medicine Clinic of Shahid Beheshti University of Medical Sciences in Tehran, Iran.

The inclusion criteria for this study are as follows:

- Patients aged 18 to 60 years experiencing unilateral lower limb pain radiating from the lower back
- Informed consent must be obtained prior to participation in the study
- Onset of pain must have occurred at least 8 weeks prior (either permanently or intermittently)
- Body Mass Index (BMI) between 18.5 and 35
- Pain intensity rating of 3 or higher on the Visual Analog Scale (VAS)

The exclusion criteria are as follows:

- A history of previous discectomy or other spinal surgeries
- Presence of specific spinal pathologies, including spondylolysis, spondylolisthesis, or vertebral fractures
- Any form of myopathy, and muscle wasting
- Recent onset of fever, sweating, or unexplained weight loss within the last few months
- Long-term corticosteroid therapy
- Malignancy
- Indications for emergency surgery, such as acute motor impairment, perineal numbness, or bowel and bladder dysfunction associated with cauda equina syndrome
- Vascular issues in the lower limbs
- A history of hip fractures or dislocations
- Known psychological disorders, based on the patient's history, including major depression, severe anxiety, psychosis, schizophrenia, bipolar disorder, and personality disorders
- Previous surgeries, muscle tears, or fascia tears

in the lower limbs
- Use of anticoagulants, such as warfarin and heparin
- History of narcotic drug injection
- History of rheumatic diseases
- History of deep vein thrombosis (DVT)
- Pregnancy and breastfeeding

Additionally, patients who did not complete all three sessions of *ghamz* therapy or utilized any interventions known to be effective for pain management, such as physiotherapy, acupuncture, or cupping, were excluded from the study.

Sample size

Given the pilot nature of this study, a sample size of 18 participants was determined using a convenience sampling method. These individuals were selected from patients with complaints of back pain radiating to the lower limbs who attended the traditional medicine clinic at Shahid Beheshti University of Medical Sciences in 2024, based on the established inclusion criteria.

Intervention

Ghamz therapy involves identifying cramped areas along the paths and specific regions in the lower limbs and lower back, followed by their release using apecialized wooden tool (Figure 1). The targeted areas for *ghamz* therapy correspond to the tissues of muscles, tendons, and fascia. Cramps are characterized by a sensation of stiffness upon touch and tenderness when gentle pressure is applied. By using a blunt tool to apply pressure, relief can be achieved, alleviating the cramping sensation and restoring normal function to the affected areas. After treatment, the stiffness typically subsides. Interestingly, these cramping areas appear to align with regions associated with myofascial spasms and trigger points.

In this study, the intervention consisted of three sessions of *ghamz* therapy administered by Mr. *Hassanzadeh*. The sessions were scheduled at three key points: upon the participants' entry into the study (Day 0, Visit 1), 7 days after the referral (Visit 2), and 30 days after the study commenced (Visit 3), in accordance with the protocol outlined below. Each session involved the examination of various pathways in the back and lower limbs of the patients, as well as the release of any areas of cramping. In the initial session, all detected cramps in the *ghamz* pathways were addressed. In the second and third sessions, any remaining areas of cramping along the same pathways were treated accordingly.

Figure 1. Wooden tool for *ghamz* therapy. The pressure on soft tissues is applied using the tip of this tool.

It is important to note that each therapeutic session lasted approximately 10 to 15 minutes, depending on the severity of cramps and muscle spasms. Additionally, the evaluations of participants during Visits 2 and 3 were conducted before performing the *ghamz*.

The paths of *ghamz* therapy encompass the following areas, numbered 1 to 8 in sequence from the lower limb to the upper body, with accompanying schematic illustrations (Figure 2,3). It is important to note that the primary paths of *ghamz* therapy are areas 3, 4, 5, and 8; these should be assessed in all patients presenting with low back pain accompanied by lower limb radiculopathy. The secondary paths consist of areas 1, 2, 6, and 7. If a patient reports pain in these areas prior to the administration of *ghamz* therapy, treatment will be applied; otherwise, it will be omitted. Figure 4 shows two images illustrating *ghamz* therapy for alleviating lower limb pain.

Outcome Measures

The evaluation of patients in this study occurred at four key stages: prior to the intervention (Visit 1), one week post-intervention (Visit 2), one month post-intervention (Visit 3), and two months post-intervention (three months after participant enrollment) to assess short-term recurrence rates. The following assessment tools were utilized: Visual Analogue Scale (VAS): This tool consists of a 10 cm graduated line with values ranging from 0 (indicating no pain) to 10 (representing the most severe pain imaginable). The VAS is widely employed in research related to musculoskeletal issues [15]. On this scale, a score of 0 indicates pain-free status, scores of 1-3 indicate mild pain, scores of 4-6 represent moderate pain, scores of 7-9

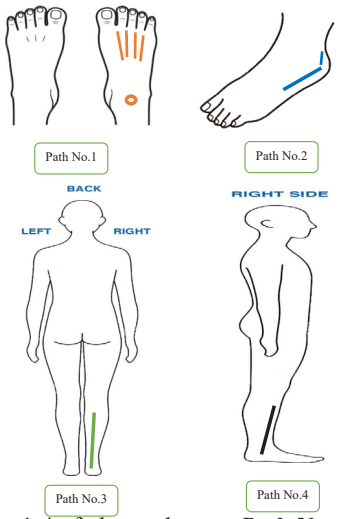

Figure 2. Paths 1-4 of ghamz therapy. **Path No. 1**: Dorsum of the foot, located between the metatarsal bones (1-5) and the central region of the flexor retinaculum. **Path No. 2**: The lateral side of the dorsum of the foot, situated below and to the outside of the outer ankle. **Path No. 3**: The posterior middle section of the calf. **Path No. 4**: The anterior lateral area of the lower leg, encompassing the muscles surrounding the fibula.

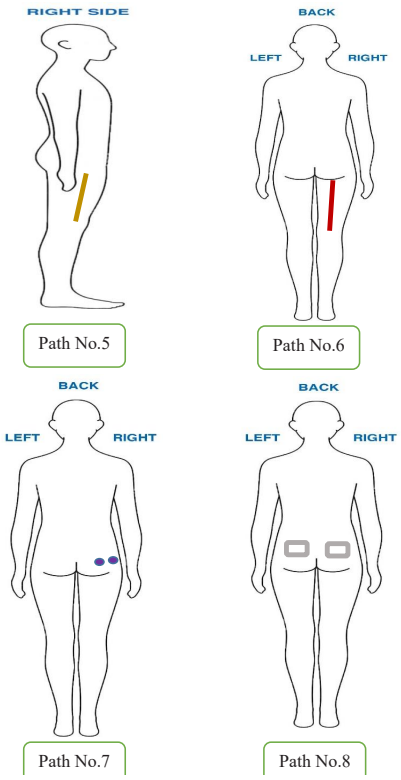

Figure 3. Paths 5-8 of *ghamz* therapy. Path No. 5: Corresponds to the iliotibial band. Path No. 6: Refers to the central area of the back of the thigh, extending from above the popliteal region to just below the gluteal fold. Path No. 7: Involves the midsection of the piriformis muscle and the upper lateral region of the buttock, corresponding to the gluteus maximus muscle. Path No. 8: Corresponds to a portion of the thoracolumbar fascia, covering a square area of 3 cm, aligned with the L2-S2 vertebrae, and located approximately 3 cm from the spine on both sides.

denote severe pain, and a score of 10 signifies the utmost intensity of pain experienced by the patient. The VAS was administered at all four evaluation stages.

Roland-Morris Disability Questionnaire: This questionnaire consists of 24 items scored from 0 to 24, where 0 represents no disability and 24 indicates maximum disability. The Persian version of this questionnaire is commonly used in studies on back pain [16]. It was assessed during Visit 1, Visit 3, and at the follow-up evaluation.

Fingertip-to-floor Test: This test measures the distance (in millimeters) from the tip of the middle finger to the floor while the patient bends forward. It is a straightforward and reliable method for assessing the range of motion and flexibility of the back and trunk in individuals experiencing low back pain [17]. This assessment was conducted at Visit 1, Visit 3, and at the follow-up evaluation.

Additionally, if patients were taking pain relief medications, the average weekly consumption of these medications was recorded and compared pre- and post-intervention through patient questionnaires.

Lastly, patient satisfaction with treatment was evaluated using a five-point Likert scale (ranging from completely satisfied to completely dissatisfied) at the conclusion of the study (three months post-intervention).

Figure 4. Two images of *ghamz* therapy for the lower limb: Image No. 1 corresponds to Path 5, while Image No. 2 corresponds to Path 1.

Safety assessment

All patients were monitored for complications from the start of the intervention until the conclusion of the study. Participants were provided with the researcher's phone number for any inquiries or concerns. A registration form for recording complications, developed by the researcher, was created to include the most common and likely issues. This form documented complications such as local pain, localized bruising, and exacerbation of sciatica pain for patients who experienced any adverse effects.

Statistical Analysis

To evaluate the significance of changes in study outcomes over time, we employed repeated measures ANOVA using SPSS version 22 (SPSS Inc., Chicago, IL, USA), which facilitates the comparison of means across multiple time points. A significance level of less than 0.05 was established for this analysis.

Ethical consideration

This study received approval from the local ethics committee at Shahid Beheshti University of Medical Sciences in Tehran, Iran (approval code: IR.SBMU.RETECH.REC.1403.265) and adhered to the principles outlined in the Declaration of Helsinki. Written informed con-

sent was obtained from all participants involved in the study. Additionally, the clinical trial was registered with the Iranian Registry of Clinical Trials (registration code: IRCT20190112042333N2).

Results

In this study, we initially identified 18 individuals who met the inclusion criteria. However, several participants were excluded for various reasons: one individual was excluded due to having undergone wet cupping therapy; while two others were removed from the study for not attending the required treatment sessions, each having participated in only one session. Additionally, one participant attended two sessions but opted out of further visits, citing a 90% improvement in pain during a telephone follow-up. Another individual did not proceed with treatment after the second visit due to a lack of improvement. Lastly, one participant also did not continue past the second session despite reporting partial recovery, leading to their exclusion from the study, as well.

In total, 12 participants completed the study, comprising 9 women and 3 men. The average age of the participants was 53.17 years (±7.75). Most participants (8 individuals) held a diploma; while 2 had a bachelor's degree and another 2 possessed a master's degree. In addition, their average body mass index was 26.77 ± 5.12.

Pain intensity

The average low back pain reported by patients before the study was 5.83 ± 1.53 on the VAS, which decreased to 1.83 ± 2.67 during the second visit (p value = 0.0003, Mean difference: 3.17) and further decreased to 1.24 ± 1.58 by the third visit (Mean difference: 1.08, p value = 0.0134). In the follow-up period, the lower back pain among patients was measured at 1.96 ± 1.75 on VAS, showing no significant change compared to the previous two months (p value = 0.7843, Mean difference: -0.17), suggesting that the pain levels have not increased significantly.

The initial average lower limb pain reported by patients was 6.08 ± 2.19 on the VAS, which decreased to 2.58 ± 2.27 during the second visit (p value = 0.0004, Mean difference: 3.50), and further decreased to 1.58 ± 1.08 by the third visit (Mean difference: 1.00, p value = 0.0485). During the follow-up period, patients' lower limb pain was recorded at 1.75 ± 1.86, showing no significant change compared to the previous two months (p value = 0.7843, Mean difference: -0.17), indicating that pain levels have not increased significantly.

It is noteworthy that in this study, a follow-up conducted two months after the intervention revealed complete pain relief (VAS=0) in the lower back region for five patients and in the lower limb region for four patients. The detailed results of participants' pain levels are presented in table 1.

Disability

The average score on the Roland-Morris Disability Questionnaire reported by patients prior to the study was 10.42 ± 6.33. This score decreased to 6.17 ± 6.21 during the second visit (p value = 0.0126, mean difference = 4.25) and further declined to 3.33 ± 3.23 by the third visit (mean difference = 2.83, p value = 0.0419). During the follow-up period, the level of disability among patients was measured at 4.83 ± 6.21, indicating no significant deterioration compared to the previous two months (p value = 0.2843, mean difference = -1.50). The detailed results of the participants' disability levels can be found in table 2.

Flexibility

The results of the fingertip-to-floor test reported by patients prior to the study were 5.63 ± 9.47 cm. This measurement decreased to 2.17 ± 8.22 cm during the second visit (p value = 0.0046, mean difference = 3.46 cm) and further declined to 0.08 ± 7.07 cm by the third visit (mean difference = 2.08 cm, p value = 0.0299). These findings indicate statistically significant improvements in the flexibility of the participants' backs as a result of the intervention.

Satisfaction

In this study, the satisfaction with treatment was rated at 4.08 ± 0.64 out of a maximum of 5 Likert points.

Painkiller consumption

An evaluation of participants' painkiller consumption in the week leading up to the study revealed the following: eight participants reported no use of painkillers, two participants took two painkillers during this period, and two participants had a history of using local analgesics. Overall, painkiller consumption did not increase during the study, and participants discontinued the use of painkillers.

Adverse events

Slight bruising and mild to moderate pain in some areas of the body where *ghamz* therapy was administered for up to 48 hours were common side effects of the treatment. However, these effects did not lead to any participant's withdrawal from the study, as the pain and bruising were manageable and resolved over time. Only one patient reported severe lower limb pain following the first therapeutic session. During the one-month follow-up, this exacerbation of pain had been alleviated.

Discussion

In this preliminary study, the evaluation of a manual technique derived from PM, known as *ghamz* therapy by the *Hassanzadeh* method, demonstrated a significant reduction in pain intensity. Specifically, lower back pain decreased by 76%; while pain in the lower limbs reduced by 74%. More importantly, a follow-up assessment con-

Table 1. Participants' pain levels in the study assessed using the Visual Analog Scale (VAS)

Participants No.	Pain region	Visit 1 (Day 0)	Visit 2 (Day 7)	Visit 3 (Day 30)	Follow-up (Day 90)
1	Low back	6	0	0	0
	Lower limb	7	0	0	0
2	Low back	6	6	2	2
	Lower limb	6	8	1	6
3	Low back	3	1	1	1
	Lower limb	8	2	2	2
4	Low back	6	2	2	1
	Lower limb	6	3	2	1
5	Low back	6	2	1	1
	Lower limb	4	2	1	1
6	Low back	6	4	2	2
	Lower limb	3	2	2	2
7	Low back	7	3	0	0
	Lower limb	10	3	1	1
8	Low back	6	3	4	4
	Lower limb	6	3	4	4
9	Low back	6	3	3	4
	Lower limb	5	0	2	4
10	Low back	9	5	2	0
	Lower limb	9	5	2	0
11	Low back	3	0	0	0
	Lower limb	3	0	0	0
12	Low back	6	3	2	0
	Lower limb	6	3	2	0

Table 2. Participants' disability levels as assessed by the Roland-Morris Disability Questionnaire.

Participants No.	Visit 1 (Day 0)	Visit 2 (Day 7)	Visit 3 (Day 30)	Follow-up (Day 90)
1	4	1	0	0
2	19	21	2	19
3	10	8	8	8
4	13	11	10	10
5	11	5	4	4
6	7	3	2	2
7	10	2	0	0
8	3	0	3	3
9	17	7	4	12
10	20	11	2	0
11	0	0	0	0
12	11	5	5	0

pain alleviation [19]. Additionally, regarding the potential mechanisms behind the effectiveness of massage therapy in alleviating sciatica, it can be suggested that *ghamz* therapy may work by increasing blood flow and improving circulation in the affected areas, as well as promoting the release of endogenous analgesics and influencing the body's pain mechanisms [20,21]. Nonetheless, additional research is required to determine the precise mechanism underlying the effectiveness of this treatment method.

This study is notable for being the first to scientifically evaluate and introduce the *ghamz* technique using the *Hassanzadeh* method. Additionally, it included a two-month follow-up to assess the sustainability of its effectiveness. The main limitations of this research is the absence of a control group and the small sample size. While the findings of this preliminary study suggest potential effectiveness, it is essential to conduct clinical trials that include a control group in order to validate these results.

Conclusion

Based on the findings of this pilot study, it appears that *ghamz* therapy based on the *Hassanzadeh* method is

effective in alleviating pain intensity and enhancing mobility in patients with chronic low back pain that radiates to the lower limbs. However, further validation of these results is necessary through clinical trials that include a control group.

Funding Sources
This study was financially supported by Traditional Medicine and Materia Medica Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran [Grant No. 03- 43008755].

Conflict of Interests
The authors have no conflict of interest to declare. It should be clarified that, although the developer and modifier of the technique used in this research is acknowledged as a member of the research team and is listed among the authors of this paper to honor their intellectual contributions, he did not participate in the patient evaluation process. Furthermore, this research plan received approval from a university center following multiple stages of review. The proper implementation of the research was overseen by Faculty of Traditional Medicine, Shahid Beheshti University of Medical Sciences in Tehran, Iran, and the research proposal indicate that no financial gain or loss has been associated with the developer of the technique.

Acknowledgements
None.

References
[1] Konstantinou K, Dunn KM, Ogollah R, Lewis M, Van Der Windt D, et al. Prognosis of sciatica and back-related leg pain in primary care: the ATLAS cohort. Spine J 2018;18:1030-1040.

[2] Hartvigsen J, Hancock MJ, Kongsted A, Louw Q, Ferreira ML, et al. What low back pain is and why we need to pay attention. The Lancet 2018;391:2356-2367.

[3] Liu C, Ferreira GE, Shaheed CA, Chen Q, Harris IA, et al. Surgical versus non-surgical treatment for sciatica: systematic review and meta-analysis of randomised controlled trials. BMJ 2023;381e070730.

[4] National Guideline Centre. Evidence review for pharmacological management of sciatica. In: Low back pain and sciatica in over 16s: assessment and management. London: National Institute for Health and Care Excellence (NICE); 2020. (NICE Guideline NG59). Available from: https://www.ncbi.nlm.nih.gov/books/NBK562934/

[5] Kim D, Kim E-S, Lee YJ, Lee JY, Park KS, et al. A pilot study for effectiveness of non-pharmacological versus pharmacological treatment strategies for lumbar disc herniation: a pragmatic randomized controlled trial. J Pain Res 2023;16:3197-3216.

[6] Danazumi MS, Bello B, Yakasai AM, Kaka B. Two manual therapy techniques for management of lumbar radiculopathy: a randomized clinical trial. J Osteopath Med 2021; 121:391-400.

[7] Liang B, Wu T, Yang Y. Research on the effect of traction combined with acupuncture and massage function exercise on patients with lumbar disc herniation. Int J Biol Life Sci 2023; 3:25-28.

[8] Mohammadi-Kenari H, Khoramizadeh M, Forogh B, Hashem-Dabaghian F. The Effect of a Persian Medicine Massage (Dalk and Ghamz) on Neck Pain and Disability in Nonspecific Chronic Neck Pain. Complement Med Res 2021;28:160-163.

[9] Alinaghizadeh M, Hawkins J, Abbassian A, Ayati MH. Effect of Persian acupressure (Ghamz) on patients with knee osteoarthritis: A single-blinded parallel clinical trial. Pain Manag Nurs 2021;22:820-827.

[10] Sanei M, Roozafzai F, Abousaidi SR, Hamze M, Negarestani A-M, et al. Persian manual therapy method for chronic low-back pain with lumbar radiculopathy; a randomized controlled trial. J Bodyw Mov Ther 2020;24:123-130.

[11] Behdad F, Mansouri K, Mohammadi-Kenari H, Hashem-Dabaghian F. Efficacy of Persian Medicine Massage (Qamz) in Nonspecific Shoulder Pain: A Randomized Open-Label Controlled Trial. *Crescent J Med Biol Sci* 2025;12:85-92.

[12] Jaladat A, Atarzadeh F, Homayouni K. Ghamz therapy in Persian Medicine and its comparison with Reflexo Zone therapy. J Islam Iran Trad Med 2013;3:395-406.

[13] Mahbobeh S, Alireza M, Soheila Y, Leila A. Effects of myofascial release technique on pain and disability in patients with chronic lumbar disc herniation: a randomized trial. Phys Med Rehab Kuror 2017;27:218-225.

[14] Skorupska E, Rychlik M, Samborski W. Intensive vasodilatation in the sciatic pain area after dry needling. BMC Complement Alternat Med 2015;15:1-9.

[15] Shafshak TS, Elnemr R. The visual analogue scale versus numerical rating scale in measuring pain severity and predicting disability in low back pain. J Clin Rheumatol 2021;27:282-285.

[16] Mousavi SJ, Parnianpour M, Mehdian H, Montazeri A, Mobini B. The Oswestry disability index, the Roland-Morris disability questionnaire, and the Quebec back pain disability scale: translation and validation studies of the Iranian versions. Spine 2006;31:E454-E459.

[17] Perret C, Poiraudeau S, Fermanian J, Colau MML, Benhamou MAM, et al. Validity, reliability, and responsiveness of the fingertip-to-floor test. Arch Phys Med Rehabil 2001; 82:1566-1570.

[18] Siddiq MAB, Clegg D, Al Hasan S, Rasker JJ. Extra-spinal sciatica and sciatica mimics: a scoping review. Korean J Pain 2020;33:305-317.

[19] Wang X, Zhao W, Wang Y, Hu J, Chen Q, et al. A self-administered method of acute pressure block of sciatic nerves for short-term relief of dental pain: a randomized study. Pain Med 2014;15:1304-1311.

[20] Yan H, An Y, Zhang T, Zhao J, Yan J. Therapeutic effect and safety of Tuina on sciatica: A protocol for systematic review and meta-analysis. Medicine 2021;100:e28097.

[21] Wändell P, Ärnlöv J, Andreasson AN, Andersson K, Törnkvist L, et al. Effects of tactile massage on metabolic biomarkers in patients with type 2 diabetes. Diabet Metabol 2013; 39:411-417.