

Original Article

EFFECTS OF MYOFASCIAL RELEASE THERAPY ON PAIN RELATED DISABILITY, QUALITY OF SLEEP AND DEPRESSION IN OLDER ADULTS WITH CHRONIC LOW BACK PAIN

B.Arun.

*Professor, K.G.College of Physiotherapy, K.G.Hospital, Coimbatore, Tamil Nadu, India.

ABSTRACT

Low back pain was experienced by 50% of older adults that has threatened to quality of life. The economic cost of low back pain is more in older adults. Various literatures found that there is strong relationships exist between the low back pain and the psychosocial factors like sleep disturbances, depression, mood sway and chronic illness. Studies has found that depression is one of the commonest psychological problem faced by older adults which relates to other factors like pain, sleep disturbances etc.. Physiotherapy has been shown very effective in the management of chronic low back pain. Various approaches in physiotherapy play a major role in rehabilitation of patients with chronic low back pain. This study estimates to find out the effect of myofascial release therapy on pain related disability, quality of sleep and depression in older adults with chronic low back pain. Study is a single group pre test and post test design. 37 Patients with chronic low back pain were selected from a community setup. Selected subjects were undergone 6 weeks of myofascial release therapy along with moist heat therapy. At the end the outcome measured are pain related disability using pain disability index, Quality of sleep using Insomnia severity index and depression using beck depression inventory. The paired 't' test was used to find out the differences between variables. The result showed that there was a significant improvement in the pre test and post test variables. The beck depression inventory was 21.3 ($p<0.05\%$), and the pain disability index was 24.9 ($p<0.05\%$). The study concludes that the myofascial release therapy is very effective in reducing the pain related disability, quality of sleep and depression on older adults with chronic low back pain.

KEYWORDS: Chronic Low back pain; Elders; Myofascial release therapy; Back depression inventory; Pain disability index.

Address for correspondence: Dr. B.Arun, Professor, K.G.College of Physiotherapy, KG Isl campus, Saravanmapatti, Coimbatore, 641035, Tamil Nadu. Phone No. +919994576111
Email: barunmpt@gmail.com

Access this Article online

Quick Response code



International Journal of Physiotherapy and Research

ISSN 2321- 1822

www.ijmhr.org/ijpr.html

Received: 10-11-2013

Accepted: 23-01-2014

Peer Review: 10-11-2013

Published: 11-02-2014

INTRODUCTION

Chronic Low back pain (CLBP) is the most disabling condition in older adults and it is a therapeutically challenging in these populations.¹ It is one of the commonest musculoskeletal disorders affecting the elderly population.² Older adults with long term duration of symptoms are more disabled and depressed. Back pain management was significantly reduced in older adults with the age group of 45 yrs— 64 yrs.³ It is estimated about 50% of community dwelling older adults with back pain

has the potential to threaten the functional independence and eventually results in rising health care costs.⁴

Studies found that the prevalence of pain declines as the age increases where as the pain related disability was increased as the age increases.⁵ CLBP in older adults has strong association with frequency and functional tasks, there is a strong relationship exists between the pain frequency and the task performances. Any progression in the pain may tend to decline the functions and loss of independence in older

adults.⁶ Any therapy should focus on reducing the dependency and make the patient more independent.

Poor sleep is known cause of variety of psychological and physiological disorders. Sleep disturbance has found to be the negative effect on mood, pain and quality of life. Depression is strongly associated with the sleep disturbances.^{7,8,9,10} Older adults with CLBP has frequent complains depression.¹¹ It has strong association with intensity of pain, increased economic cost and adverse life events.^{12,13} Emotional stress has long been recognized as a contributor of pain and its perception.^{14,15,16} Depression and Anxiety are the two most common forms of psychological disturbances seen in patients. Back symptoms are frequently accompanied by anxiety, depression and psychological distress.^{17,18}

Weiner et al., 1996,¹⁹ found that there was a modestly strong relation exists between pain (self reported) and disability and behavior of pain in some specific ADL tasks. Research suggest that low back pain in older women has reportedly has inability to perform basic and functional ADL tasks and some of the important functional tasks.^{20,21}

Management of low back pain focused on two factors, a) reduction of pain and b) improvement of functional status. Majority of the research focus on these two factors, but recent research shows that subjects feeling should be concerned in chronic low back pain.¹⁸ Physiotherapy has been shown to be effective in the management of acute^{23,24} and chronic LBP^{25,26} Physiotherapy is the first line of management for CLBP.

There are various therapeutic interventions used in the management of low back pain. Each one has its own effectiveness. One of the common techniques used in the management of low back pain is massage techniques. Various massage techniques and modified techniques were used in the management of CLBP. Myofascial release therapy is highly interactive stretching techniques that require response from subject's body to find the direction, power and duration of stretch and to assist maximum relaxation of tight or restricted tissues.²⁷ Most common effects of therapy include adjunct benefits like treatment of anxiety and depression.²⁸

Extensive research in CLBP was found in working or adult populations and focused on pain and disability, In contrast limited literatures found in older adults suffering with CLBP. The generalized treatment protocol used in current scenario was not suitable, since difference in body structures, there are no generalized or any protocols in the management of CLBP in older adults. The functional deficits or the psychological deficits are not studied comprehensively.²⁹ This study aims to find out the effect of myofascial release therapy on pain related disability, quality of sleep and depression in older adults with CLBP. The objective of the study was to find the significant outcome for the myofascial release therapy on pain related disability, quality of sleep and depression. The study hypothesized that there will be no significant effect in application of myofascial release therapy on pain related disability, quality of sleep and depression.

MATERIALS AND METHODS

Single group pre test and post test intervention study, a community awareness programme was conducted with the help of National Service scheme, approximately 100 older adults with the age group of 58—65 yrs were screened and 37 subjects were selected for the study following inclusion and exclusion criteria. The study includes only male subjects, with the pain of not more than 5-7 in VAS (i.e Moderate pain level), average of 10 months duration, not actively undergoing any therapies, and subjects willing to participate, able to walk, understand the commands, able to do a regular follow up for six months. The study excluded any fracture around the spine, subjects with sever osteoporosis, subject with any neurological involvement or disc problems, subject with sever cardiac problems, and debilitated disease subjects were not included. All the subjects were given a written instruction about the study, the consent form was obtained from every individual patient, and the study was approved by institutional ethical committee. No subject was harmed during the study, No beneficial services / payment was given to the subjects. The outcome measures used in this study were pain disability index, insomnia sleep index and the beck depression inventory. The subjects were given six forms of

myofascial release therapy for 30 mins, following that moist heat therapy was applied for low back for 10 mins. The myofascial release therapy was given in alternate days where as moist heat was applied daily. The forms of myofascial release therapy includes leg pull, arm pull, cross hand stretch, stretch to erector spinae, stretch to Quadratus lumborum and stretch to latissimus dorsi. The technique was formulated by 2 senior physiotherapists with 10 years of work experience in the field of physical therapy. A total of 18 sessions was given to each participant. The data collected were analyzed using the statistical analysis of student 't' test at 0.05% of p value.

RESULTS AND TABLES

S.No	Age group	No of subjects	Percentage of participants	Mean	S.D
1	58 – 59	13	35%	60.95	2.28
2	60 – 61	10	27%		
3	62 – 63	8	22%		
4	64 – 65	6	16%		

Table 1: Showing Demographic data.

S.No	Groups	Mean	Mean difference	S.D	Paired 't' value
1	Pre test	53	35.9	3.55	37.5 (P<0.05%)
2	Post test	17.1		3.73	

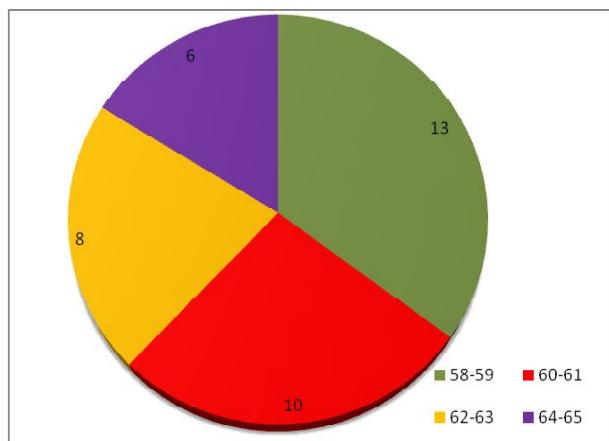
Table 2: Showing Pain disability Index.

S.No	Groups	Mean	Mean Difference	S.D	Paired t value
1	Pre test	13.2	8.01	1.89	19.8 (P<0.05%)
2	Post test	5.19		1.13	

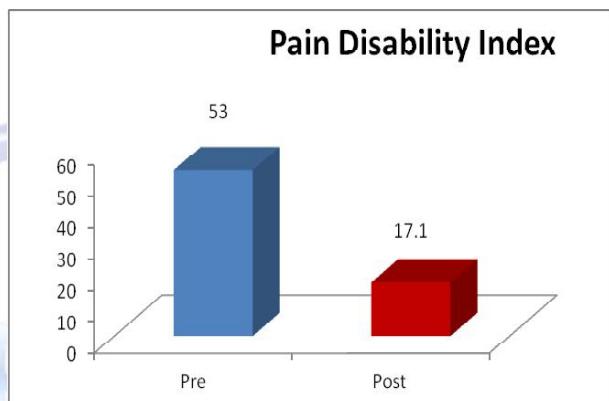
Table 3: Showing Insomnia severity index.

S.No	Groups	Mean	Mean Difference	S.D	Paired t value
1	Pre test	38.8	20.7	3.45	23.8 (P<0.05%)
2	Post test	18.1		3.29	

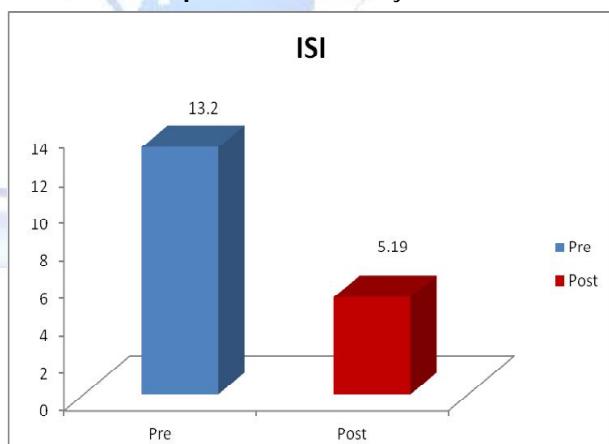
Table 4: Beck Depression Inventory.



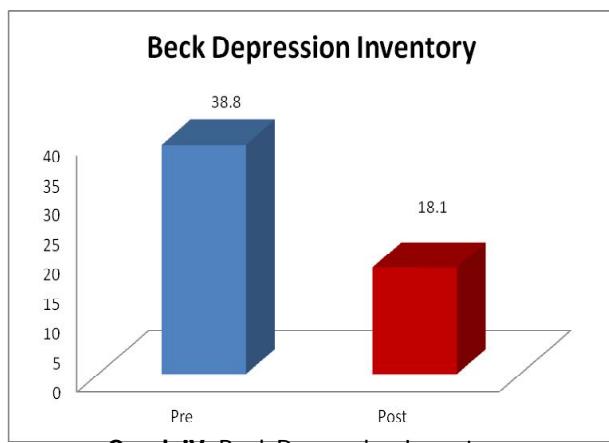
Graph I: Demographic Data.



Graph II: Pain Disability Index.



Graph III: Insomnia Severity Index.



Graph IV: Beck Depression Inventory.

DISCUSSION

The purpose of the study was to find out the effect of myofascial release therapy on pain related disability, quality of sleep and depression in older adults with chronic low back pain. Ultimate aim of the study is to create a unique treatment method for the older adults who will help them to overcome their pain and sufferings.

Various literatures suggest that there was a strong relationship exists between the pain and the depression and quality of life. When the acute pain persist and it becomes chronic which may lead to alteration in the hypothalamus-hypophyseal-adrenal axis which is the common pathogenic mechanism leads to depression.³⁰ Myofascial release therapy is effective in reducing pain and improving ADL activities, very few literatures support this concept. The result of this showed that following the application of various myofascial release therapy the pain related disability, quality of sleep and depression level was considerably reduced, pain related disability level was reduced at the level in the pain disability index was markedly reduced to 37.5 at p level 0.05 % ,the quality of sleep has improved by 19.8 (p<0.05%) and the depression reduced to 23.8 (P< 0.05%).

Demographic representation of the patient was shown in the table I. The mean age group was 60.95 with the S.D was 2.28, the graphical representation was given in Graph I. Paired 't' analyses for the pain related disability showed that in the table II and the graphical representation is noted in the Graph II. The pre test mean was 53 with the S.D of 3.55 and the post test mean was 17.1 with S.D of 3.73, the t value for the PDI was 37.5.

Paired 't' analyses for the Quality of sleep using the insomnia sleep index is showed in the table III and the graphical representation is noted in the Graph III. The pre test mean was 13 .2 with the S.D of 1.89 and the post test mean was 5.19 with S.D of 1.13, the t value is 19.8 Paired 't' test analysis for the depression using the beck depression inventory was shown in table IV and the graphical representation was shown in Graph IV. The pre test mean was 38.8 with the S.D of 3.45 and the post test mean was 18.1 with S.D of 3.29, the t value is 23.8.

Anxiety and Stress in low back pain patients had altered mechanism in proteoglycan synthesis and connective tissue metabolism. These changes with Immobility results in facial alteration and triggers the painful points and produces sever pain, which predisposes to depression.³¹

Myofascial release therapy loosens up restricted movements of spine, leading to reduction of pain in the lower back region. Pain reduction promotes changes in psychological factors in individuals with pain. The possible mechanism how myofascial release therapy reduces depression is by touch of therapist may help the nervous system, this reduce the restriction in the durameter which covers the brain and allow better circulation and perfusion. Myofascial release allows freedom of movements called unwinding; this can release trapped emotions, fears and holding patterns. It helps in emotional well being of the person.³²

The facial restriction release with the correction of dysfunction in the fascia at intestinal level facilitates sleep and aids in secretion of serotonin. Serotonin acts as calming mediator for the body, while the endorphins act as a happy stimulator for the brain. When these hormones releases, automatically the stress hormone (Cortisol) reduces. It also helps in reduce tension and promotes relaxation more than 40%.^{33,34} Hand on technique like myofascial release therapy is helpful in reducing the anxiety, pain and the mood improvements.⁷

Release of fascial restriction helps in reducing the anxiety levels, improves sleep quality, and reduces depression. It is considered to be the alternative and complementary therapies that can improve the symptoms in low back pain patients. Myofascial release technique improves pain and quality of life in patients with fibromyalgia.^{34,35}

CONCLUSION

The study concludes that myofascial release therapy helps in reducing pain whereby it helps in improvement of quality of sleep and depression. The study was done with a smaller group are the main limitations, the protocol was created by the therapist, no standard protocols were followed, the fascial release is used in the

patients no other interventions were given. The other factors like nutrition, food habits and sleep pattern are not under considered, though it was advice to take up a 6—8 hours sleep.

Conflicts of interest: None

REFERENCES

1. Hartvigsen J, Christensen K, Frederiksen H. Back pain remains a common symptom in old age. A population-based study of 4486 Danish twins aged 70–102. *Eur Spine J.* 2003;12:528–534.
2. Andersson GB. Epidemiological features of chronic low-back pain. *Lancet.* 1999;354(9178):581-5.
3. Knauer SR, Freburger JK, Carey TS. Chronic low back pain among older adults: a population-based perspective. *J Aging Health.* 2010 Dec;22(8):1213-34
4. Helme R D, Gibson S.J. Pain in older people. In: Crombie, IK., editor. *Epidemiology of Pain.* Seattle: IASP 1999, p. 103-112.
5. Thomas E, Peat G, Harris L, Wilkie R, Croft PR. The prevalence of pain and pain interference in a general population of older adults: cross-sectional findings from the North Staffordshire Osteoarthritis Project (NorStOP) Pain. *Pain.* 2004;110:361–368.
6. Weiner DK, Haggerty CL, Kritchovsky SB, et al. How does low back pain impact physical function in independent, well-functioning older adults? Evidence from the health ABC cohort and implications for the future. *Pain Med.* 2003;4:311–320.
7. Tiffany Fielda,b,, Maria Hernandez-Reifa , Miguel Diegoa , Monica Fraserc. Lower back pain and sleep disturbance are reduced following massage therapy. *Journal of Bodywork and Movement Therapies* (2007) 11, 141–145
8. Moldofsky H: Sleep and pain. *Sleep Med Rev* 2001, 5:385-396.
9. Smith MT, Haythornthwaite JA: How do sleep disturbance and chronic pain inter-relate? Insights from the longitudinal and cognitive behavioral clinical trials literature. *Sleep Med Rev* 2004, 8:119-132.
10. Morin CM, Gibson D, Wade J: Self-reported sleep and mood disturbance in chronic pain patients. *Clin J Pain* 1998, 14:311-314.
11. Pincus T, Newman S. Recall bias, pain, depression and cost in back pain patients. *Br J Clin Psychol.* 2001;40(Pt 2):143-56.
12. Haggman S, Maher CG, Refshauge KM. Screening for symptoms of depression by physical therapists managing low back pain. *Phys Ther.* 2004;84(12):1157-66.
13. Rush AJ, Polatin P, Gatchel RJ. Depression and chronic low back pain: establishing priorities in treatment. *Spine.* 2000;25(20):2566-71.
14. Macfarlane TV, Kincey J, Worthington HV. The association between psychological factors and orofacial pain: A Community-based study. *Eur J Pain* 2002; 6: 427-34.
15. Rotheram-Borus MJ. Variations in perceived pain associated with emotional distress and social identity in AIDS. *AIDS Patient Care STDS,* 2000; 14: 659-65.
16. Hafler AJ, Feuerstein M, Huang GD. Job stress, upper extremity pain and functional limitations in symptomatic computer users. *Am J Ind Med.* 2000; 38: 507-15.
17. Kinney RK, Gatchel RJ, Polatin BP, Fogarty WT, Mayer TG. Prevalence of psychopathology in acute and chronic low back pain patients. *J Occup Rehabil.* 1993; 3: 95-103.
18. Rush AJ, Polatin P, Gatchel RJ. Depression and chronic low back pain: establishing priorities in treatment. *Spine.* 2000; 25: 2566-2571.
19. Weiner D, Pieper C, McConnell E, Martinez S, Keefe F. Pain measurement in elders with chronic low back pain: Traditional and alternative approaches. *Pain.* 1996;67:461–467.
20. Weiner DK, Haggerty CL, Kritchovsky SB, et al. How does low back pain impact physical function in independent, well-functioning older adults? Evidence from the health ABC cohort and implications for the future. *Pain Med.* 2003;4:311–320.
21. Leveille SG, Guralnik JM, Hochberg M, et al. Low back pain and disability in older women: Independent association with difficulty but not inability to perform daily activities. *J Gerontol.* 1999;54A:M487– M493.
22. Tait RC, Chibnall JT, Krause S. The pain disability index: psychometric properties. *Pain.* 1990; 40: 171-182.
23. Hartvigsen, J., Christensen, K., Frederiksen, H. Back pain remains a common symptom in old age. A population-based study of 4486 Danish twins aged 70–102. *Eur Spine J.* 2003 ,12:528–534.
24. Wand BM, Bird C, McAuley JH, Doré CJ, MacDowell M, De Souza LH. Early intervention for the management of acute low back pain: a single-blind randomized controlled trial of biopsychosocial education, manual therapy, and exercise. *Spine.* 2004 Nov 1;29(21):2350-6.
25. Childs JD, Fritz JM, Flynn TW, Irrgang JJ, Johnson KK, Majkowski GR, Delitto A. A clinical prediction rule to identify patients with low back pain most likely to benefit from spinal manipulation: a validation study. *Ann Intern Med.* 2004 Dec 21;141(12):920-8.
26. Aure OF, Nilsen JH, Vasseljen O. Manual therapy and exercise therapy in patients with chronic low back pain: a randomized, controlled trial with 1-year follow-up. *Spine.* 2003 Mar 15;28(6):525-31.
27. Manheim, C. (1994). *The Myofascial Release Manual.* (2 ed). Thorafare,NJ:Slack.
28. Andreescu, C., Mulsant, B., Emanuel, J. (2008). Complementary and alternative medicine in the treatment of bipolar disorder—A review of the evidence. *J Affect Disord.* 110 (1-2): 16-26.

29. Thomas E. Rudy, Debra K. Weiner, Susan J. Lieber, Jill Slaboda, Robert Boston, The impact of chronic low back pain on older adults A comparative study of patients and controls. *Pain*. 2007 October; 131(3): 293–301.
30. Blackburn-Munro. G. Hypotalmo-pituitary-adrenal axis dysfunction as a contributory factor to chronic pain and depression, *Current Pain and Headache Reports*, vol. 8, no. 2, pp. 116–124, 2004.
31. Matarán-Peña-rocha GA, Castro-Sánchez A.M, García G.C. Moreno-Lorenzo C. Carreño T.P and Zafra M.D, Influence of craniosacral therapy on anxiety, depresión and quality of life in patients with fibromyalgia, *Evidence-Based Complementary and Alternative Medicine*. In press.
32. Raj K. Chandra T.S and Stanley, M.A. The enteric nervous system, *New England Journal of Medicine*, vol. 43, pp. 1106–1115, 1996.
33. Barnes V.A, Schneider R.H, Alexander C.N, Rainforth M, Staggers, F. Salerno J. Impact of transcendental meditation on mortality in older African Americans with hypertension—Eight year follow up. *Journal of social behavior and personality*, 2005, 17(1):201–21.
34. Castro-Sánchez, A.M, Matarán-Peña-rocha, G.A, Granero-Molina, J. Aguilera-Manrique, G, Quesada-Rubio, J.M, and Moreno-Lorenzo, C. Benefits of Massage-Myofascial Release Therapy on Pain, Anxiety, Quality of Sleep, Depression, and Quality of Life in Patients with Fibromyalgia. *Evid Based Complement Alternat Med*. 2011; 561753.
35. Menefee LA, Cohen MJ, Anderson WR, Doghramji K, Frank ED, Lee H: Sleep disturbance and nonmalignant chronic pain: a comprehensive review of the literature. *Pain Med* 2000, 1:156-172.

How to cite this article:

B. Arun. EFFECTS OF MYOFASCIAL RELEASE THERAPY ON PAIN RELATED DISABILITY, QUALITY OF SLEEP AND DEPRESSION IN OLDER ADULTS WITH CHRONIC LOW BACK PAIN. *Int J Physiother Res* 2014;2(1):318-23.