

Effects of Yoga on Quality of Life and Pain in Geriatric Women with Low-Back Pain: A Pilot Study

Özlem Ülger^{1*} and Naciye Vardar Yağlı²

¹Faculty of Medical Sciences, Department of Physiotherapy and Rehabilitation, Hacettepe University, Ankara, Turkey

²Faculty of Medical Sciences, Department of Physiotherapy and Rehabilitation, Hacettepe University, Ankara, Turkey

Abstract

Objectives: The purpose of the present study is to investigate the effects of yoga on quality of life and pain in geriatric women with low-back pain.

Design: Fifteen women (65-69 years old) with low-back pain were included in the present study. 12 sessions yoga program consisted of asanas, stretching exercises, breathing and relaxation techniques were given to geriatric women suffering from low-back pain twice a week for 6 weeks.

Main outcome measures: The quality of life was assessed with Nottingham Health Profile and pain was determined before and after the study using Visual Analogue Scale.

Results: After-sessions, the patients' quality of life values were found to be statistically higher than the before-session values ($p < 0.05$). It was determined that the severity of pain decreased after yoga session ($p < 0.05$).

Discussion: The results showed that yoga has a positive effect on quality of life and pain severity of geriatric women with low-back pain. Therefore it is possible to use yoga programs as an alternative approach to solve problems such as poor quality of life and pain caused by low-back pain.

Keywords: Yoga; Low-back pain; Quality of life

Introduction

Hypertension, diabetes mellitus, musculoskeletal disease such as osteoarthritis, low-back pain (LBP), and fibromyalgia in geriatric population are related to inactivity and lifestyle [1,2]. The concept of pushing morbidity towards the years of older age is becoming increasingly popular and producing good results with promotion of healthy lifestyles and preventive programmes. In literature mentioned that many program such as exercise groups, yoga, Tai Chi that contribute to decrements of aging and the burden of illness are potentially responsive to preventive interventions for the geriatric population to ensure better quality of life (QoL) [3,2].

Yoga comprises physical postures, regulated breathing, meditation and relaxation techniques, which have been used in different combinations to manage major age related health problems. The beneficial effects of yoga, based on the available evidence in a geriatric population include an improvement in the muscle power, cognitive functioning and cardio-respiratory endurance. Studies suggest that increased physical activity through postures interspersed with relaxation techniques can reduce inactivity complications, pain related to musculoskeletal disorders and improve the QoL [4,5].

Therefore, the purposes of this study were to evaluate the appropriateness of the yoga for the elderly with LBP and to determine the effect of yoga on QoL of this population.

Materials and Methods

15 women were the participants of the study whose ages were between 65-69 years old. The women were suffering from LBP and diagnosed by a specialist Medical Doctor. Patients who had not received yoga treatment before; having at least 5 severity of pain according to the Visual Analog Scale [(VAS); 0-10 cm] and who were not given any physiotherapy program included in the study. Signed informed

consent was obtained from the participants who were volunteers. Ethic committee of Hacettepe University approval was also received. The patients who had severe systemic diseases were excluded.

Upon the general physiotherapy evaluation of the patients' musculoskeletal system, patients with no disqualifying complications were evaluated in terms of LBP and QoL.

The QoL of participants was determined before and after the treatment using the Turkish version of the Nottingham Health Profile (NHP). The measurement is composed of six different subcategories that tested physical activity (PA), energy level (EL), pain (P), social isolation (SI), sleep (S) and emotional reactions (ER). It is necessary to answer all questions saying "yes" or "no". For evaluation quality of life using the NHP, the scores of each subcategory and total scores of them were calculated. Each subcategory had different statement-scores and these statements are randomized in the measurement. The scores are between 0 and 100 for each subcategory. Since there was no threshold for the measurement, each subcategory was assessed within its own limits. Therefore, low scores meant low effect of the complaint /case whereas high scores meant high influence of the complaint /case [6,7].

Severity of pain was measured using the visual analog scale (VAS)

***Corresponding author:** Özlem Ülger, Faculty of Medical Sciences, Department of Physical, Hacettepe University, 06100 Samanpazarı-Ankara, Turkey, Tel : +90 312 3051577/128 ; Fax : +90 312 3052012; E-mail: ozlemulger@yahoo.com

Received February 07, 2012; **Accepted** March 15, 2012; **Published** March 17, 2012

Citation: Ülger Ö, Yağlı NV (2012) Effects of Yoga on Quality of Life and Pain in Geriatric Women with Low-Back Pain: A Pilot Study. J Yoga Phys Therapy S2:002. doi:10.4172/2157-7595.S2-002

Copyright: © 2012 Ülger Ö, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Demographic features	n=15 X±SD
Age (year)	66.70 ± 5.03
Height (cm)	1.59±2.37
Weight (kg)	68.11±9.82

Table 1: Demographic features of the participants.

(0 cm –10 cm). VAS was administered after the first session and also at the end of the sessions.

A physiotherapist yoga teacher taught and applied yoga program to the patients and another physiotherapist yoga teacher performed the assessments.

Pain and QoL were determined before the commencement of yoga sessions. After the initial measurements, the patients received 12 sessions of yoga treatment. The program included warm-up and breathing exercises (15 min), easy-to-do asanas that were selected based on the patients' problems (15 min), and relaxation (30 min). These 1-h sessions were applied twice a week.

After the completion of the 12-session treatment period, the same parameters were measured again.

Statistical Analysis

Statistical analyses of the data were carried out using SPSS 16.0 for Windows. The data are presented as mean ± standard deviation (X ± SD). In the comparison of the values obtained before and after treatments, paired parametric t test was used. In all statistics, any p value equals to 0.05 was accepted as statistically significant unless otherwise noted.

Results

The mean age of the 15 women diagnosed with LBP were 66.70 ± 5.03 years. Physical parameters of the subjects are presented in table 1.

NHP total and sub parameters after-session were statistically higher than the before-sessions parameters (p<0.05) (Table 2).

Similarly, an improvement was observed in the severity of pain when the values before-sessions were compared with the after-session values (p < 0.05) (Table 3).

Discussion

After the application of the yoga program to the 15 women diagnosed with LBP and suffering pain in relation with this disorder, better QoL values and diminished pain were observed.

LBP is known to affect the daily life and cause physical and psychological disorders [1, 8,9]. In the treatment of such problems and to improve the QoL of such patients, alternative approaches can be beneficial today and they are discussed in the literature widely. A review of literature reveals that LBP mostly involve older patients as well as their physical activities, emotional status and QoL [1-10]. The present study also involves a group of women with an age range of 65-69 and investigates how their LBP and QoL are affected by the yoga program and also reports the outcomes of the treatment.

Majority of the studies in the literature reported positive effects of yoga on elderly population on fatigue, sleep quality and in overall physical wellness were reported [11-15]. The current study involved a geriatric population with LBP receiving similar yoga program that was used in previous studies and positive results were obtained in pain and QoL.

Patients had limitations in their activities of daily living and may experience inappropriate neuromuscular adaptations to maintain and/or preserve functions such as walking, running or other activities [10,16]. In the literature, it was mentioned that yoga might reduce LBP, but the mechanisms by which this is affected remain hypothetical. They include an increase in tissue flexibility and oxidation combined with a relaxation effect within the lower back and the release of enkefalins or endorphins [10,17]. In the present study, pain severity was investigated and an improvement was observed in all subjects. In the selection of the asanas that were applied as part of the yoga program, especially flexibility of the body as well as lower and upper extremity was chosen. Therefore, increasing flexibility and oxidation, especially in body and extremities, was thought to improve pain severity as reported elsewhere [10,16,17].

During the yoga sessions, especially during breathing practices and asana applications, the participants were encouraged to relax. Furthermore, as they progress with different movement patterns,

NHP parameters	Pre-sessions			Post-sessions			z	p
	X	±	SD	X	±	SD		
Level of energy	19.76	±	8.41	8.72	±	4.62	-1.21	0.02*
Pain	14.24	±	4.90	5.07	±	3.00	-1.99	0.04*
Emotional level	10.17	±	5.63	8.21	±	3.64	-0.40	0.03*
Sleep isolation	10.55	±	5.63	0.00	±	0.00	-1.60	0.01*
Social adaptation	18.38	±	8.43	7.82	±	6.64	-0.10	0.01*
Physical activity	17.92	±	6.08	12.05	±	6.02	-0.89	0.03*
Total score	91.05	±	28.61	51.88	±	12.49	-2.66	0.00*

*p<0.05

Table 2: Comparison of the quality of life scores.

Pain Severity	Pre-sessions n=15			Post-sessions n=15			z	p
	X	±	SD	X	±	SD		
VAS (0-10cm)	7.80	±	0.16	3.06	±	0.45	-3.95	0.00*

*p<0.05

Table 3: Comparison of pre- and post-treatment pain severity.

they maintained their posture for a long period of time. Because the selected asanas were the ones requiring flexibility, considering the previous reports in the literature, it is safe to state that balance, which was developed towards compensation mechanisms caused by pain, muscular weakness, and loss of flexibility, reduced [13-18].

Researchers on geriatric population performing yoga found decrease in anxiety, improvement in sleep, diminish of medications for sleep and stress, improvement in flexibility and balance [12,14,19,20]. The authors thought that yoga was the reason for the improvement of quality of life, diminish of pain severity, regulation in sleep and emotional well-being. Furthermore, as pain is often a key symptom in patients with LBP, this study represents a positive step in improving the quality of people suffering from LBP.

The geriatric patients stepped out of the house to participate in the yoga program for two days a week. This condition improved their social participation. This effect may be effective on NHP subparameters especially social isolation, emotional reaction and suggests that yoga may provide a buffering effect on QoL.

Conclusion

It can be concluded that appropriate yoga programs may be an important component of QoL in geriatrics with LBP. The positive effects of yoga on pain and sleep disturbances indicated that besides conventional treatment in musculoskeletal disorders, yoga can be used safely to improve the patients' quality of life of patients.

Yoga might be also considered to be a facilitator for physical activity, emotional well-being by reducing pain in geriatric population with LBP when applied by professionals and tailored to the needs of individuals. We believe that such studies will contribute much to QoL in LBP especially in elderly.

References

1. Lamoth CJ, Stins JF, Pont M, Kerckhoff F, Beek PJ (2008) Effects of attention on the control of locomotion in individuals with chronic low back pain. *J Neuroeng Rehabil* 5: 13.
2. Lee HJ, Park HJ, Chae Y, Kim SY, Kim SN, et al. (2009) Tai Chi Qigong for the quality of life of patients with knee osteoarthritis: a pilot, randomized, waiting list controlled trial. *Clin Rehabil* 23: 504-511.
3. Cox H, Tilbrook H, Aplin J, Semlyen A, Torgerson D, et al. (2010) A randomised controlled trial of yoga for the treatment of chronic low back pain: Results of a pilot study. *Complement Ther Med* 16: 187-193.
4. Luskin FM, Newell KA, Griffith M, Holmes M, Telles S, et al. (2000) A review of mind/body therapies in the treatment of musculoskeletal disorders with implications for the elderly. *A Altern Ther Health Med* 6: 46-56.
5. Tekur P, Singphow C, Nagendra HR, Raghuram N (2008) Effect of short-term intensive yoga program on pain, functional disability and spinal flexibility in chronic low back pain: a randomized control study. *J Altern Complement Med* 14: 637-644.
6. European Group for Quality of Life Assessment and Health Measurement (1993) *European Guide to the Nottingham Health Profile*. Brookwood, Surrey: Brookwood Medical Publications.
7. Kücükdeveci AA, McKenna SP, Kutlay S, Gürsel Y, Whalley D, et al. (2000) The development and psychometric assessment of the Turkish version of the Nottingham Health Profile. *Int J Rehabil Res* 23: 31-38.
8. Lamoth CJ, Meijer OG, Daffertshofer A, Wuisman PI, Beek PJ (2006) Effects of chronic low back pain on trunk coordination and back muscle activity during walking: changes in motor control. *Eur Spine J* 15: 23-40.
9. Posadzki P, Ernst E (2011) Yoga for low back pain: a systematic review of randomized clinical trials. *Clin Rheumatol* 30: 1257-1262.
10. Hughes CM, Quinn F, Baxter GD (2011) Complementary and alternative medicine: Perception and use by physiotherapists in the management of low back pain. *Complement Ther Med* 19: 149-154.
11. Posadzki P, Ernst E (2011) Yoga for low back pain: a systematic review of randomized clinical trials. *Clin Rheumatol* 30: 1257-1262.
12. Moliver N, Mika EM, Chartrand MS, Burrus SWM, Haussmann RE, et al. (2011) Increased Hatha yoga experience predicts lower body mass index and reduced medication use in women over 45 years. *Int J Yoga* 4: 77-86.
13. Chen KM, Chen MH, Chao HC, Hung HM, Lin HS, et al. (2009) Sleep quality, depression state, and health status of older adults after silver yoga exercises: Cluster randomized trial. *Int J Nurs Stud* 46: 154-163.
14. DiBenedetto M, Innes KE, Taylor AG, Rodeheaver PF, Boxer JA, et al. (2005) Effect of a gentle Iyengar yoga program on gait in the elderly: An exploratory study. *Arch Phys Med Rehabil* 86: 1830-1837.
15. Manjunath NK, Telles S (2005) Influence of yoga and Ayurveda on self-rated sleep in a geriatric population. *Indian J Med Res* 121: 683-690.
16. Oken BS, Zajdel D, Kishiyama S, Flegal K, Dehen C, et al. (2006) Randomized, controlled, six-month trial of yoga in healthy seniors: Effects on cognition and quality of life. *Altern Ther Health Med* 12: 40-47.
17. Hammill RR, Beazell JR, Hart JM (2008) Neuromuscular consequences of low back pain and core dysfunction. *Clin Sports Med* 27: 449-462.
18. Saper RB, Sherman KJ, Cullum-Dugan D, Davis RB, Phillips RS, et al. (2009) Yoga for chronic low back pain in a predominantly minority population: a pilot randomized controlled trial. *Altern Ther Health Med* 15: 18-27.
19. Hill K, Smith R, Fearn M, Rydberg M, Oliphant R (2007) Physical and psychological outcomes of a supported physical activity program for older carers. *J Aging Phys Act* 15: 257-271.
20. Chen KM, Tseng WS (2008) Pilot-Testing the Effects of a Newly-Developed Silver Yoga Exercise Program for Female Seniors. *J Nurs Res* 16: 37-46.
21. Chen KM, Chen MH, Hong SM, Chao HC, Lin HS, et al. (2008) Physical fitness of older adults in senior activity centres after 24-week silver yoga exercises. *J Clin Nurs* 17: 2634-2646.

This article was originally published in a special issue, **Yoga on geriatric rehabilitation** handled by Editor(s), Dr. Ozlem Ulger, Hacettepe University, Turkey