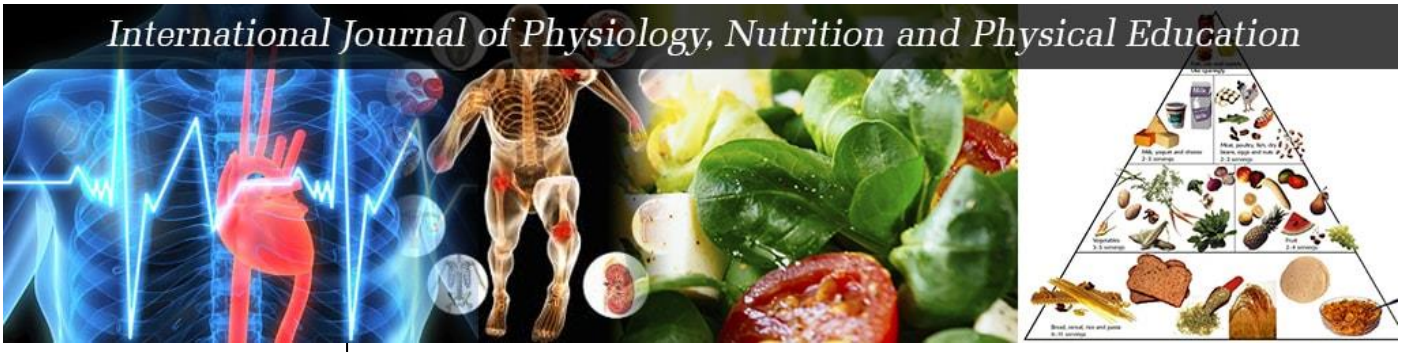

ISSN: 2456-0057
IJPNPE 2018; 3(2): 781-783

www.journalofsports.com
Received: 15-05-2018
Accepted: 18-06-2018

Varsha SV
Assistant Professor,
Department of Physiology,
Sri Siddartha Institute of Medical Science and Research Centre, T. Begur, Nelamangala Taluk, Bengaluru, Karnataka, India

Correspondence
Varsha SV
Assistant Professor,
Department of Physiology,
Sri Siddartha Institute of Medical Science and Research Centre, T. Begur, Nelamangala Taluk, Bengaluru, Karnataka, India

Yoga: A way to lead good quality of life among elderly

Varsha SV

Abstract
Sleep disturbances are increasing with aging and it is estimated that nearly 67% of the elderly people have at least one sleep-related complaint. Sleep disturbances can affect daytime function in elderly and have a significant negative effect on the Quality Of Life. An increasing body of studies have suggested that lifestyle factors have a significant impact on how well people age. Yoga is one such mind body intervention which is increasingly being explored for therapeutic potentials in elderly. Hence current study was undertaken to assess the effect of long term Yoga exercises on sleep quality. Study was done on comparable group of elderly aged more than 60 years. Sleep quality was assessed with Pittsburgh sleep quality index (PSQI) among two groups. Comparison of scores was done using paired t test between Yoga group, which had subjects who were practicing yoga regularly since 2years or more and non-Yoga group. Yoga group had significantly better (P<0.05) sleep quality, less sleep latency, less episodes of disturbed sleep, less use of sleep medications and less day time dysfunction. And overall, elderly subjects practicing yoga regularly had better sleep quality with less sleep disturbances.

Keywords: Elderly, yoga, sleep, quality of life, old age home

Introduction
The elderly population in India is expected to grow from 7.6 million in 2001 to 137 million by 2021. Even within the elderly population, people over 80 years of age are increasing rapidly, posing great demands on the health-care services in the coming years [1].
Chronological aging, or senescence, is associated with an increased risk of chronic conditions and diseases such as cognitive impairment, cardiovascular disease, and metabolic syndrome. Due to prolonged life expectancy, age-related diseases have increased in alarming proportions in recent decades [2].
Sleep disturbances are increasing with aging and it is estimated that nearly 67% of the elderly people have at least one sleep-related complaint [3]. Sleep disturbances is another commonly reported problem in elderly. Sleep disturbances can affect daytime function in elderly and have a significant negative effect on the Quality Of Life (QOL). High prevalence of excessive day-time sleepiness, insomnia, night time awakenings, snoring, restlessness and periodic leg movements during sleep are reported in elderly. These sleep disturbances were strongly associated with respiratory symptoms, physical disabilities, use of non-prescription medications, depressive and anxiety symptoms, cognitive dysfunction and poorer self-perceived health [4, 5]. Researchers have observed direct correlation between poor sleep quality and increased physical and psychiatric morbidity, decline in cognitive function, and impaired QOL [6, 7].
An increasing body of studies have suggested that lifestyle factors have a significant impact on how well people age. Three lifestyle factors can play a significant role in slowing the rate of cognitive decline and preventing dementia: a socially integrated network, cognitive leisure activity, and regular physical activity. [2] Interestingly recent reports show increasing trends of complementary and alternative medicine usage among elderly especially for insomnia [8].
Yoga, with its roots in ancient Indian philosophy, is used for physical, mental and spiritual well-being. Some studies of yoga-based interventions have shown benefits in sleep and QOL in elderly [9, 10, 11].
However, there is limited data available whether these benefits of Yoga are retained over long term Yoga practice. Accordingly, current study was planned to assess the effect of long term Yoga exercises on sleep quality.

Materials and Methods

Design

This is a cross sectional study. Prior to survey, participants were given complete information about the study procedure and all doubts regarding this study were clarified. Written informed consent was obtained from each participant.

Sample and Settings

Survey samples consisted of two groups: Yoga and non-Yoga group. In Yoga group, 41 volunteers were included whereas non-Yoga group consisted of 40 Participants. Subjects with dementia or other neurodegenerative disorder, psychosis, anxiety disorder, major depressive disorder, severe hearing and visual impairment, stroke were excluded from the study. And participants who were bed-ridden or requiring assistance for their daily living activities, with severe cardiovascular, neurological, musculoskeletal, pulmonary disorders, or suffering from chronic infectious disorders like tuberculosis were also not included in this study.

Participants in both these groups were elders with age 60 years or more from Bengaluru city. Control group participants were of both gender and those who were not doing any kind of Yoga exercises. In Yoga group, participants doing daily Yoga exercises for 2 years or more were included. All these participants were regularly attending Art of living yoga centre of Bengaluru, doing regular Yoga exercises for at least one hour, with a certified Yoga instructor daily, from 6 a.m. to 7 a.m. Different Yoga exercises performed by these participants were Sūkṣmavyāyāma, (loosening exercises), Yogāsana (physical postures), Prāṇāyāma (breathing exercises) and meditation in the form of Nādānusandhāna (OM Meditation).

Data collection

Data collection was done by visiting each participant at their residence. After doing general physical examination and systemic examination, Electrocardiogram was done. Then after asking the subject to rest for 5 minutes, Pittsburgh sleep quality index (PSQI) questionnaire was administered. For better understanding of the questionnaires by participants, questionnaire was translated into Kannada (regional language).

PSQI is an effective instrument useful for measuring subjective sleep quality and sleep disturbances in older people. It is a self-rated questionnaire which assesses sleep quality and disturbances over a 1-month time interval. PSQI contains 19 self-rated questions. Nineteen questions were designed to measure seven aspects of sleep having scoring range of 0-3 each where a score of zero indicated no sleep disturbance, whereas a score of three indicated significant sleep disturbance. The sum of scores for these seven components yields one global score, which had a scoring range of 0-21, where a score of zero meant no disturbance in sleep or good sleep quality whereas higher scores indicated poor or worse sleep quality. A score of five and above indicated clinically significant sleep disturbances. Seven components measured are: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction [12].

Statistical analysis

The Descriptive statistics was used, i.e. mean and standard deviation (SD) for describing the parameters. The data was analyzed using paired t-test to compare between the groups. SPSS V.16.0 was used for analysis of data. $P<0.05$ was considered statistically significant.

Results

Socio-demographic profiles of yoga and non-Yoga group were comparable. Age of participants in Yoga group was 62.72±1.57 years whereas that of non-Yoga group participants was 63.4±2.1 years. Yoga group participants were doing Yoga regularly for a period of 5.72±1.2 years. Yoga group comprised 41 participants out of which men and women were 23 and 18 respectively, whereas in case of non-Yoga group, men and women were 21 and 20 respectively.

Table 1: Comparison of Scores of various domains of PSQI between yoga and non-yoga group

Domains of PSQI	Yoga group (n=41)	Non-yoga group (n=40)	P-value
	Mean±SD	Mean±SD	
Subjective sleep quality	0.4±0.516	1.5±0.849	0.003***
Sleep latency	0.7±0.48	1.6±0.516	<0.001***
Sleep duration	1.2±0.91	1.8±0.918	0.217
Habitual sleep efficiency	0.4±0.516	1.7±0.823	0.007*
Sleep disturbances	0.9±0.56	2±0.66	0.003***
Use of sleeping medication	0.7±0.67	2±0.816	0.002***
Daytime dysfunction	0.5±0.52	1.6±0.84	0.003***
PSQI total score	3.2±0.918	7.9±0.99	0.002***

PSQI - Pittsburgh sleep quality index

*$P<0.05$ significant, ***$P<0.005$ highly significant difference

Comparison of various sub-scales of PSQI between Yoga and non-Yoga group is represented in Table 1. The average sleep duration score was less in Yoga group participants (1.2±0.91) than non-Yoga group (1.8±0.918), but the difference was not statistically significant (P 0.217). There was a significant difference ($P<0.05$) for Habitual sleep efficiency score between the two groups with lower score among Yoga group participants (0.4±0.516) than non-Yoga group participants (1.7±0.823). And Yoga group participants had highly significantly less score compared to non-Yoga group ($P<0.005$) for subjective sleep quality, sleep latency, sleep disturbances, use of sleeping medication, and daytime dysfunction.

Participants in the Yoga group had PSQI total score of 3.2±0.918. Participants in the non-Yoga group had PSQI total score of 7.9±0.99. The total PSQI score in Yoga group was below the cut off level of 5 and differed significantly (P 0.002) from the total PSQI score of non-Yoga group participants.

Discussion

Results of our study indicate that elderly subjects practicing Yoga regularly had better sleep quality, less sleep latency, less episodes of disturbed sleep, less use of sleep medications and less day time dysfunction. And overall, elderly subjects practicing yoga regularly had better sleep quality with less sleep disturbances, though there was no difference in sleep duration compared to elderly who were not practicing yoga.

In a similar study which was done on elderly to look for the effect of long term yoga on sleep, it was found that, Yoga exercises were associated with less sleep disturbances (low PSQI score), which in turn were associated with improved physical function and cognitive function, thereby improving the QOL of elderly [13]. Similar findings were reported in a study by Chen and Tseng, where improvement in different aspects of sleep and decrease in depressive symptoms was observed after Yoga intervention [14]. In one more study by Manjunath and Telles, after regular Yoga exercises for 6 months in a geriatric sample, there was significant reduction

in time to fall asleep, decreased sleep disturbance during night time, better sleep quality, decreased use of medications for sleep when compared with control group [9].

In a study on health volunteers it was shown that after short term Yoga exercises; there was significant increase in the vagal tone [15]. Also numerous studies have shown yoga to have an immediate down-regulating effect on both the sympathetic nervous system (SNS) and hypothalamic-pituitary-adrenal (HPA) axis response to stress [16]. Yoga in a relatively short time with a measurable effect, the associated change in GABA levels may increase. The effect of the yoga intervention on GABA levels may be due to the ability of yoga practices to increase parasympathetic nervous system (PNS) activity [17].

Researchers believe that physical activities improve sleep quality through elongating the sleep stage and shortening the latent period (the time between the onset and the first stage of sleep) [18, 19]. Another possible explanation can be the fact that yoga exercise causes a person to experience a good sleep during the night, have lower levels of stress during the day, be more energetic and happy culminating in reduced disruptions in daily activities [20].

As average duration of Yoga practice of participants in Yoga group of our study was 5.72 years, we can say that benefits of Yoga were retained even after long-term Yoga practice. However, exact relationship between Yoga and better sleep quality still remains to be elucidated.

Limitations

This study was just a cross-sectional survey with small sample size, so findings in this study reflect only preliminary data regarding the impact of long-term practice of Yoga on sleep quality. Further studies are required to substantiate the findings in this study.

Conclusion

Long-term practice of Yoga exercises by elderly people is associated with less sleep disturbances and good sleep, in turn better quality of life.

Replication of positive benefits with yoga in the improvement of sleep in elderly will further strengthen the basis for including yoga as a life-style practice in younger population.

References

1. Dhar HL. Emerging geriatric challenge. J Assoc Physicians India. 2005; 53:867-72.
2. Louis Bherer, Kierk I. Erickson, Teresa Liu-Ambrose. A Review of the Effects of Physical Activity and Exercise on Cognitive and Brain Functions in Older Adults. Journal of aging research. 2013; 2013:657508
3. Foley D, Ancoli-Israel S, Britz P, Walsh J. Sleep disturbances and chronic disease in older adults: Results of the 2003 National Sleep Foundation Sleep in America Survey. J Psychosom Res. 2004; 56:497-502.
4. Ancoli-Israel S. Sleep and aging: Prevalence of disturbed sleep and treatment considerations in older adults. J Clin Psychiatry. 2005; 66(9):24-30.
5. Neikrug AB, Ancoli-Israel S. Sleep disorders in the older adult-A mini-review. Gerontology. 2010; 56:181-9.
6. Gooneratne NS. Complementary and alternative medicine for sleep disturbances in older adults. Clin Geriatr Med. 2008; 24:121-38
7. Lo CM, Lee PH. Prevalence and impacts of poor sleep on quality of life and associated factors of good sleepers in a sample of older Chinese adults. Health Qual Life Outcomes. 2012; 10:72.
8. Harrington JJ, Lee-Chiong T Jr. Sleep and older patients. Clin Chest Med. 2007; 28:673-84.
9. Manjunath NK, Telles S. Influence of Yoga and Ayurveda on self-rated sleep in a geriatric population. Indian J Med Res. 2005; 121:683-90.
10. Chen KM, Chen MH, Chao HC, Hung HM, Lin HS, Li CH. Sleep quality, depression state, and health status of older adults after silver yoga exercises: Cluster randomized trial. Int J Nurs Stud. 2009; 46:154-63.
11. Chen KM, Chen MH, Lin MH, Fan JT, Lin HS, Li CH. Effects of yoga on sleep quality and depression in elders in assisted living facilities. J Nurs Res. 2010; 18:53-61
12. Buysse DJ, Reynolds CF, 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. Psychiatry Res. 1989; 28:193-21.
13. Bankar MA, Chaudhari SK, Chaudhari KD. Impact of long term Yoga practice on sleep quality and quality of life in the elderly. J Ayurveda Integr Med. 2013; 4:28-32.
14. Chen KM, Tseng WS. Pilot-testing the effects of a newly-developed silver yoga exercise program for female seniors. J Nurs Res. 2008; 16:37-46.
15. Veerabhadrappa SG, Baljoshi VS, Khanapure S, Herur A, Patil S, Ankad RB *et al*. Effect of yogic bellows on cardiovascular autonomic reactivity. J Cardiovasc Dis Res. 2011; 2:223-7.
16. Ross A, Thomas S. The health benefits of yoga and exercise: a review of comparison studies. J Altern Complement Med. 2010; 16(1):3-12.
17. Streeter CC, Whitfield TH, Owen L, Rein T, Karri SK, Yakhkind A, *et al*. Effects of yoga versus walking on mood, anxiety, and brain GABA levels: a randomized controlled MRS study. J Altern Complement Med. 2010; 16(11):1145-52.
18. Purnell HM. Some physiological changes in female athletes during and after exercise [Thesis]. Palmerston North: Massey University, 2006.
19. Quan SF, O'Connor GT, Quan JS, Redline S, Resnick HE, Shahar E, *et al*. Association of physical activity with sleep-disordered breathing. Sleep Breath. 2007; 11(3):149-57.
20. Tsai SY. Effect of Yoga Exercise on Premenstrual Symptoms among Female Employees in Taiwan. Int J Environ Res Public Health. 2016; 13(7):721.