

Effect of MSRT (Mind Sound Resonance Technique) on Quality of Sleep in Geriatric Population

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Abstract

Background: According to Charaka Samhita “when the mind gets tired, the senses get dulled and incapable, the man goes to sleep.” In old age disturbed sleep pattern is commonly seen, which affects day time functions and have a significant negative effect on the QOL. Elderly people report high occurrence of insomnia, snoring, disturbed night sleep, restlessness and periodic leg movements. This sleep disturbances are strongly associated with respiratory symptoms, physical disability, use of over the counter drug, depression and anxiety symptoms, cognitive dysfunction and poor self-perceived health.

The aim is to study the effect of MSRT on Quality of Sleep in elderly population.

Methods: Within the chosen old age homes, people aged above 60 were surveyed using questionnaire. Low, medium, and high level of sleep disturbances were graded using Pittsburgh Sleep Quality Index (PSQI). Following which 30 people attended yoga classes for 15 days. MSRT – Mind Sound Resonance Technique (a meditation technique developed by SVYASA, Bengaluru). The PSQI questionnaire for assessment were filled by the participants a day prior and a day post intervention as well as on the 15th day post intervention.

Results: PSQI score showed reduction ($p=0.0104$) from 11.1 ± 4.63 to 8.3 ± 13.29 showing improvement in sleep quality.

Conclusion: Findings show that the 15 days yoga intervention improved Quality of Sleep in elderly population. MSRT has shown reduction in the time taken to fall asleep and also shown an increase in total sleep time by reducing physiological arousal, and manifestations of anxiety.

Keywords: Yoga, Geriatrics, Sleep, Meditation Technique

Abbreviations

PSQI- Pittsburgh sleep quality Index, QOL-Quality of Life, MSRT- Mind Sound Resonance Technique, SVYASA- Swami Vivekananda Yoga Anusandhana Samsthana.

Introduction

Thomas Dekkar, a great English dramatist of London has said, “Sleep is the golden chain that ties health and our body together.” There are many physiological changes during old age that affects sleep. During old age, more time is spent awake in bed than actual sleep. Sleep plays a vital role in every individual’s wellbeing,

which has a strong effect on intellectual health. [1] Diminished, subjective sleep quality is one of the most frequent health complaints in older adults, with more than 80% experiencing some sleep disturbance and 50% reporting frequent occurrence of sleep disturbance. Undiagnosed and untreated insomnia in geriatric population may cause exceptional daily dysfunction

and reduced quality of life (QoL). Insomnia is associated with hazardous side effects such as, states of confusion, day time dysfunction, night time falls, undesirable tempers and reduced logical functioning. One of the reasons for sleep disturbances is associated with an increased likelihood of engaging and attendance or a nurse or moving them to an old age.

Manjunath and Telles reported in a randomized trial that 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. [1] 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. [2] Yoga is a practical science, which is a unique way of life, that empowers us to realise our actual personalities. It connects us to our real “essence”. Yogic science helps us to enhance infinite human potentials to the fullest. Yoga deals with all aspects like, philosophy, psychology and practicality of conscious evolution. Yoga doesn't provide only concepts but also the tools and scientific methods needed to find and realize the “real essence of our being”. [3] With its positive impacts on physiological and mental health, yoga also works effectively on all age groups with different physical stages. [4] Yoga balances the sympathetic and parasympathetic tone and also helps to reduce the anxiety symptoms evidently. [21] MSRT is one of the advanced mindful relaxation yoga techniques developed by SVYASA, Bengaluru. This technique uses mantras/chanting to generate resonance, which mainly works on the Manomaya Kosha to induce deeper relaxation for both mind and body. [22] In one of the findings, there was a convincing increase in gamma brain wave. In a different study a

significant reduction was seen in anxiety scores in healthy volunteers in 32 subjects as compared with controls. [23] MSRT intervention also led to better reduction in pain, tenderness, disability and state of anxiety in patients suffering from chronic neck pain. [24] Viewing the positive effect of yoga in reducing anxiety and physiological changes the researcher planned to use MSRT technique to improve quality of sleep in geriatric population.

Benefits of the geriatric yoga:

- Yoga augments physical fitness, provides good balance to mind and body.
- It helps in recovering the normal brain functions, relaxation, memory loss.
- It increases blood circulation and enhances tissue life.
- Helps increase core stability and flexibility.
- It decreases fatigue.

The practice of yoga helps the individual to create body and breath awareness creating a connection between mind, body and the spirit. They develop effective control over body movements, control over emotions and generates the will to cope with aging. Relaxing techniques of yoga helps in increasing the parasympathetic tone and improves memory. [5]

Methodology

A sample of 30 elderly residents of Krishna Dham Old Age Home were subjected to a 15 days yoga intervention for one hour a day. The intervention was implemented from 9th December to 23rd December 2017 which included MSRT - Mind Sound Resonance Technique. The sleep quality measures were taken a day prior to intervention and on the 16th day-post intervention.

The intervention was designed keeping in view the population by the researcher in

consultation with the guide. A protocol was adopted that included MSRT - Mind Sound Resonance Technique which is a guided meditation technique that involves chanting. This practice can be easily carried out by elderly people that may be relatively weaker and cannot carry out strenuous practices.

As a part of *Dhyāna* (meditation), the subjects were given the practice of Mind Sound Resonance Technique (MSRT) – an advanced Yoga technique developed by SVYASA, Bengaluru which includes *āhat* and *anāhat* chanting of A-U-M. This meditation technique takes 40 minutes.

Intervention

Mind sound resonance technique (MSRT) is one of the advanced guided yoga relaxation techniques that can be practiced in supine or sitting posture for achieving the goal of positive health, will power, concentration and deep relaxation [10] This tool [Table 2] was developed using the concepts from traditional texts that talk about the power of Om (*Mandukya Upanishad*) and *Nadanusandhana* (*Hatha Yoga Pradipika*) for achieving internal mastery over the modifications of the mind (Patanjali's definition of yoga). MSRT opens up the secret of traditional chants called Mantras.

OUTCOME MEASURES

Pittsburgh Sleep Quality Index

Sleep quality of participants was measured using the Pittsburgh Sleep Quality Index (PSQI), which is an 18-item self-report questionnaire that assesses quality of sleep and sleep disturbances over a 1-month period (Buysse et al., 1989). Sleep quality was defined to include quantitative aspects of sleep (sleep duration, sleep latency, and number of arousals) and more purely subjective aspects (depth or restfulness of sleep).

On the basis of this definition, the PSQI was composed of seven subscales:

- (a) subjective sleep quality (1 item): overall sleep quality of the respondent;
- (b) sleep latency (2 items): time spent trying to fall asleep each night;
- (c) sleep duration (1 item): hours of actual sleep each night;
- (d) habitual sleep efficiency (2 items): number of hours slept divided by number of hours spent in bed multiplied by 100;
- (e) sleep disturbances (9 items): frequency of trouble sleeping caused by certain events, such as coughing or snoring loudly, feeling chilly, or having bad dreams;
- (f) use of sleeping medications (1 item): frequency of taking medicine to help sleeping; and
- (g) daytime dysfunction (2 items): difficulties to stay awake while doing daily activities.

Total possible scores range from 0 to 21, with higher scores indicating more severe complaints and worse sleep quality. A score of 5 and above on the PSQI total scale, computed as a sum of the seven subscales, was associated with clinically significant sleep disruptions, including insomnia and major mood disorders (Buysse et al., 1989).

The tests were taken on the 1st day before the intervention started.

On the 15th day, the tests were again employed after the completion of intervention.

DATA ANALYSIS

The data was analysed using SPSS Technique. To check normality of data Shapiro Wilk Test was used. As the data was normally distributed, paired sample T-test was used for analysis.

Results

A total of 30 participants completed the study. The mean age of the sample was 71.56 with maximum age 85 and minimum 60. The majority were women. All the participants lived a healthy lifestyle

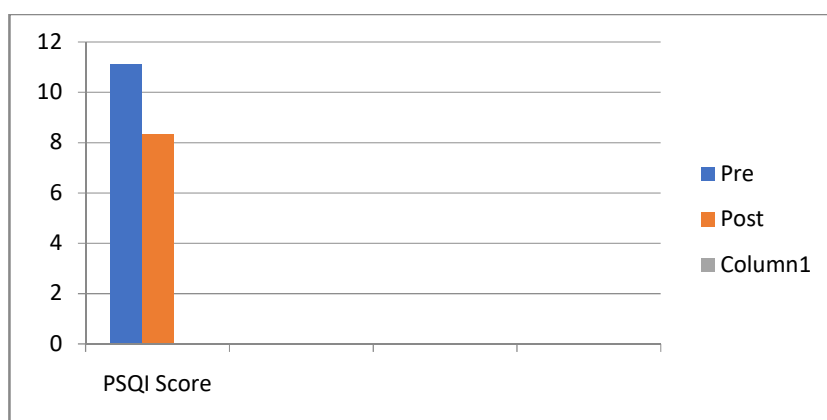
without any smoking or drinking habits. 90% of the participants were regular exercisers while others were mildly dependant on someone else for their daily

routine (bathing eating or toileting). From the total, 28 participants were mentally sound while other two were suffering from depression.

Variable		Mean	SD	%change	p-value
PSQI Score	Pre	11.1	8.37	58.3	0.0104
	Post	4.63	3.25		

The table shows mean values and standard deviation for pre and post data, along with %change and p-value.

The PSQI score showed reduction ($p \leq 0.05$) from 11.1 ± 4.63 to 8.37 ± 3.25 showing improvement in sleep quality.



The graph shows Pre and Post values for PSQI.

The p-value is 0.0104 which is lower than the significance level $\alpha = 0.05$; thus, the null hypothesis is rejected. The alternate hypothesis holds significance; that there is effect of yoga on quality of sleep in geriatric population.

Table 2 : Steps of MSRT

Practice	Duration
Prayer – salutation to the divine (Maha Mrityunjaya Mantra)	1 minute
Quick relaxation technique – observe the abdominal breathing internally with closed eyes	3 minutes
Loud chanting (Ahata) of A, U, M and AUM (three rounds)	16 minutes
Alternate loud (Ahata) and mental (Anahata) chanting of A, U, M and AUM (three rounds)	
Ahata of a long chant invoking fearlessness – Maha Mrityunjaya Mantra (three rounds)	
Alternate Ahata–anahata of Mahamrityunjaya mantra (three rounds)	
Anahata of AUM (three rounds)	
Silence	
Resolve	
Closing prayer for peace	

DISCUSSION

Changes in sleep are inevitable as age advances. These changes include trouble in getting sound sleep, reduced deeper stages of sleep, early morning awakening, and reduced total sleep time [1]. A variety of factors may influence the sleep in older persons, such as acute and chronic illnesses, medication effects, psychological factors associated with assorted life changes, inactivity and others.

Results indicate that, after 15 days of yoga intervention, the participants' overall sleep quality was enhanced, and sleep disturbances decreased. This improved sleep quality was congruent with previous studies [23, 24]

Yoga, a meditative discipline, is a way of gaining insight into the nature of the mind and reality [22]. The practice of yoga heals and strengthens the body, sharpens the mind, and calms the spirit. As stated previously, sleep disturbance in elders is also credited to idleness that deprives the elders of physical exercise [25]. The MSRT guided meditation further facilitated a state of relaxation [21]. The participant's bodies and minds were challenged and comforted at the same time, which led to more efficient sleep.

A normal person who practices yoga on regular basis shows reduced signs of physiological arousal based on measurements of autonomic and respiratory variables and oxygen consumption, as well as a decrease in plasma catecholamine levels. The persons who showed higher arousal followed the practice and showed significant reduction in physiological arousals, related to their social circumstances or to physical

impediments. In addition, the practice of yoga helps in adapting to unusual environmental demands. Hence the results show reduction in the time taken to fall asleep and increased the total sleep time by reducing physiological stimulation, and manifestations of anxiety and improving the ability to physiologically adapt to changes with respect to aging.

The overall result though significant, there were few participants who reported no or little benefit. It may be due to the short duration of the intervention, which may not have been long enough to have a significant effect on the sleep quality of some participants. The significant results found in the studies with longer duration support this. In addition, in subjective evaluations, participants expressed that they enjoyed the program very much.

Conclusion

The PSQI score showed reduction ($p=0.0104$) from 11.1 ± 4.63 to 8.37 ± 3.25 showing improvement in sleep quality. Participants expressed that they enjoyed the program very much. Hence, yoga may have reduced the time taken to fall asleep and the total sleep time increased by reducing physiological arousal, and manifestations of anxiety. The overall result though significant, there were few participants who reported no or little benefit. It may be due to the short duration of the intervention, which may not have been long enough to have a significant effect on the sleep quality of some participants.

Thus, findings show that a 15 days yoga intervention had effect on quality of sleep in geriatric population.

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