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RESEARCH ARTICLE

Effectiveness of structured "Om" chanting and listening program on psychological parameters in pre-hypertensive women

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ABSTRACT

Background: Om chanting was reported to lower blood pressure acting through parasympathetic system. It was hypothesized that listening to Om along with chanting may have additional benefits. **Aims and Objectives:** The study was designed to observe the effectiveness of Om chanting and listening on depression, anxiety, and stress in pre-hypertensive women. **Materials and Methods:** The present study is an experimental study. Eighty cases of newly diagnosed pre-hypertensive women between the age of 25 and 40 years were included in the study after obtaining written informed consent. They were randomly assigned to waitlist and Om chanting groups with 40 participants in each group. After recording the baseline values, corresponding intervention will be given to the participants of intervention groups for a period of 3 months. **Results:** There was a significant decrease in the depression, anxiety, and stress scores in the intervention group when compared with the waitlist group. **Conclusion:** There was a significant decrease in the depression, anxiety, and stress scores followed by the practice of Om chanting. The study recommends further detailed studies in this area to recommend the potential role of Om chanting in clinical practice.

KEY WORDS: Psychological Parameters; Depression; Om Chanting; Stress

INTRODUCTION

The Seventh Report of the Joint National Committee (JNC-7) on prevention, detection, evaluation, and treatment of high blood pressure (BP) JNC-7 defines prehypertension when the systolic BP of 120–139 mmHg or diastolic BP of 80–89 mmHg.[1,2] As the individuals with prehypertension are at risk of developing hypertension, it was suggested to diagnose at the earliest and offer the effective management strategies.[3] The prevalence of prehypertension was reported as 32% in urban population of India.[4,5] Significant decrease in sleep quality and cognition and significant increase in the stress levels were observed in pre-hypertensive women in our earlier studies.[6] Studies recommended implementing the alternative therapy and lifestyle modifications in the management of prehypertension.[7]

Om is the central element in Krishna's exposition of spiritual life and practice, speaking from his perspective as the infinite being, enumerating his major manifestations and embodiments. The meaning is that Om is nothing less than the supreme consciousness.[5] The use of "Om" chanting for meditation is well known.[8] Functional magnetic resonance imaging (MRI) studies reported significant inhibition of amygdala, parahippocampal, and hippocampal brain regions. This leads to relaxation and eventually sleeps.[9] According to Patanjali yoga sutras, chanting or listening to Om causes calm and peaceful mind.[8] Om chanting was reported as a

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beneficial exhalation exercise according to Upanishads Chanting mantras have been used for the management of stress, depression, and addictions.[10] Deep breathing during chanting and tapping of the tongue to certain points in the roof of the mouth causes release of the endorphins which causes relaxation and increase positive energy.[11] Practicing Om chanting in daily life summates the positive energies which activate the five chakras inside us.[12] Functional neuroimaging studies reported that Om listening was reported to activate the cortical areas related to cognition and cerebellum.[13] Om chanting was reported to lower BP acting through parasympathetic system. It was hypothesized that listening to Om along with chanting may have additional benefits. Hence, the study was designed to observe the effectiveness of Om chanting and listening on depression, anxiety, and stress in pre-hypertensive women.

MATERIALS AND METHODS

Study Design

The present study is an experimental study. After recording the baseline values, corresponding intervention will be given to the participants of intervention groups for a period of 3 months.

Study Setting

The study was conducted at the Department of Physiology, Little Flower Hospital and Research Centre, Angamaly, Kerala, in collaboration with division of Yoga and Physical Sciences, Swami Vivekananda Yoga Anusandhana Samsthana, Bengaluru, Karnataka, India.

Power Analysis and Sample Size Estimation

The study was powered at 0.90, considering the intragroup variation of 20–25%. The required sample size in each group is 40. Sigmaplot 13.0 (Systat Software, USA) was used to calculate the sample size.

Participants

Eighty cases of newly diagnosed pre-hypertensive women between the age of 25 and 40 years were included in the study after obtaining written informed consent. The participants recruited from the outpatient department of General Medicine of Little Flower Hospital and Research Centre, Angamaly. All the participants were right handed. All the participants were advised to continue their routine habits and diet throughout the study. The following criteria were followed while selecting the cases.

Inclusion Criteria

Female participants who were newly diagnosed with a systolic BP of 120–139 mmHg or a diastolic BP of 80–89 mmHg, not suffering from any other disease, under no medication, and not practicing any stress management techniques were included in the study.

Exclusion Criteria

Pregnancy or postpartum <3 months and body mass index >40 kg/m², smokers and alcoholics, and unwilling participants were excluded from the study.

All the participants were selected from the same locality to minimize the effects of cultural status such as lifestyle and eating habits. The selected participants were randomly assigned to two groups using randomizer.org software.

Group I

Waitlist group (n = 40): Pre-hypertensive women those neither trained nor practiced structured Om chanting and listening during the study period.

Group II

Om chanting group (n = 40): Pre-hypertensive women those trained and practiced structured Om chanting and listening for 3 months

Structured Om Chanting and Listening

The participants were trained by yoga teacher from Swami Vivekananda Yoga Anusandhana Samsthana for a week days. After 1 week, they practiced. The duration of one session of structured Om chanting and listening is for 17 min. The total duration of intervention was 3 months, once a day for 5 days in a week. The practice of Om listening and chanting was specifically done at the meditation room. All the participants were instructed to assemble in the meditation room at 6:30 am every day. The Om chanting and listening was practiced using Om chanting box designed by Vivekananda Yoga University, Bengaluru. The box is manually operated for the specific time as mentioned below. The structured Om chanting and listening program was also designed by Vivekananda Yoga University, Bengaluru [Table 1].

Assessment of Depression, Anxiety, and Stress

Stress levels were assessed using depression, anxiety, and stress scale 21.[14]

Ethical Approval

The study protocol was approved by the institutional human ethics committee. The study followed all the guidelines issued by ICMR. Informed consent was obtained from all the participants before the study.

Statistical Analysis

Data were analyzed using software SPSS 20.0. Student's *t*-test was applied to observe the significance of difference. $P < 0.05$ is considered as significant.

RESULTS

The depression scores are not significantly different between the waitlist group and Om chanting group before the intervention ($P = 0.3263$). The anxiety scores are not significantly different between the waitlist group and Om chanting group before the intervention ($P = 0.1613$). The stress scores are not significantly different between the waitlist group and Om chanting group before the intervention ($P = 0.4205$) [Table 2]. There was a significant decrease in the depression scores in the intervention group when compared with the waitlist group ($P = 0.0001$*). There was a significant decrease in the anxiety scores in the intervention group when compared with the waitlist group ($P = 0.0001$*). There was a significant decrease in the stress scores in the intervention group when compared with the waitlist group ($P = 0.0001$*) [Table 3].

DISCUSSION

India has rich traditional things that help to keep protecting people from various diseases provided followed or practiced in long-term basis. Chanting mantras has been found to be very effective. Lord Shiva was well known to his meditation and chanting and he is called as "Aadi yogi." Om is considered as sacred in Hinduism and chanting Om is proved to activate brain areas scientifically.[8] Chanting Om balances the autonomic nervous system and regulates the vital parameters and brings the individual to relaxed mental state.[15] There is significant evidence reported a reduction in the heart rate followed by regular practice of Om chanting.[16] Meditation and chanting regulates autonomic activities and balances the sympathetic and parasympathetic systems.[17] Om chanting causes psychophysiological reactions and causes relaxation effect.[18] MRI studies reported that there was decrease in the activity of the brain areas such as limbic brain regions, amygdala, hippocampus, parahippocampal gyrus, insula, orbitofrontal and anterior cingulate cortices, and thalamus followed by the Om chanting. Further, the impulses are transmitted through the vagus nerve which causes neurohemodynamic changes.[19] Interestingly, Om chanting was reported to activate the brain areas related with relaxation.[20]

Table 1: Protocol of structured Om chanting and listening program

Steps	Duration	Activity
Step-1	5 min	Deep breathing in Sukhasana or Padmasana
Step-2	1 min	Listening to Om
Step-3	10 min	Listening to Om and chanting Om simultaneously
Step-4	1 min	Deep breathing in Sukhasana or Padmasana

Table 2: Depression, anxiety, and stress scores before intervention

Parameter	Waitlist group (*n*=40)	Om chanting group (*n*=40)	*P*-value
Depression	16±0.63	15±0.79	0.3263
Anxiety	10±0.32	11±0.63	0.1613
Stress	17±0.79	16±0.95	0.4205

Data were presented as mean and SEM. *P<0.05 was statistically significant

Table 3: Depression, anxiety, and stress scores before intervention

Parameter	Waitlist group (*n*=40)	OM chanting group (*n*=40)	*P*-value
Depression	15±0.47	10±0.32	0.0001*
Anxiety	11±0.32	7±0.16	0.0001*
Stress	15±0.47	9±0.63	0.0001*

Data were presented as mean and SEM. *P<0.05 was statistically significant

CONCLUSION

There was a significant decrease in the depression, anxiety, and stress scores followed by the practice of Om chanting. The study recommends further detailed studies in this area to recommend the potential role of Om chanting in clinical practice.

REFERENCES

1. National Heart Lung and Blood Institute. The JNC 7 Criteria for Diagnosis and Classification of Hyper-tension; 2004. Available from: http://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.htm. [Last accessed on 2015 Aug 20].
2. Zheng L, Sun Z, Zhang X, Xu C, Li J, Hu D, *et al*. Predictors of progression from prehypertension to hypertension among rural Chinese adults: Results from Liaoning Province. Eur J Cardiovasc Prev Rehabil 2010;17:217-22.
3. Yadav S, Boddula R, Genitta G, Bhatia V, Bansal B, Kongara S, *et al*. Prevalence and risk factors of pre-hypertension and hypertension in an affluent north Indian population. Indian J Med Res 2008;128:712-20.
4. Pradeepa R, Mohan V. Hypertension and pre-hypertension in developing countries. Indian J Med Res 2008;128:688-90.
5. Saraswati M, Swami G. Bhagavad Gita. Himalaya: Advaita Ashrama; 1998.
6. Archana R, Sai SK, Srilatha B, Minu J, Mukkadan JK. Stress, cognition and sleep quality in pre hypertensive women. Int J Physiol 2018;6:36-8.
7. Collier SR, Landram MJ. Treatment of prehypertension: Lifestyle and/or medication. Vasc Health Risk Manag 2012;8:613-9.
8. Kumar S, Nagendra H, Manjunath N, Naveen K, Telles S. Meditation on OM: Relevance from ancient texts and contemporary science. Int J Yoga 2010;3:2-5.

9. Kalyani BG, Venkatasubramanian G, Arasappa R, Rao NP, Kalmady SV, Behere RV, *et al*. Neurohemodynamic correlates of 'OM' chanting: A pilot functional magnetic resonance imaging study. Int J Yoga 2011;4:3-6.
10. Wolf DB. Effects of the Hare Krsna Maha Mantra on Stress, Depression, and the Three Gunas. USA: Florida State University; 1999. p. 558.
11. Deekshitulu PV. Stress management for mantra techniques. MOJ Yoga Phys Ther 2017;2:42-3.
12. Chinmayananda S. Mandukya Upanishad. Mumbai: Sachi Publishers; 1984.
13. Kumar U, Guleria A, Khetrapal CL. Neuro-cognitive aspects of "OM" sound/syllable perception: A functional neuroimaging study. Cogn Emot 2015;29:432-41.
14. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety Stress Scales. 2nd ed. Sydney: Psychology Foundation; 1995.
15. Telles S, Nagarathna R, Nagendra HR. Autonomic changes during "OM" meditation. Indian J Physiol Pharmacol 1995;39:418-20.
16. Saxena T, Saxena M. The effect of various breathing exercises (pranayama) in patients with bronchial asthma of mild to moderate severity. Int J Yoga 2009;2:22-5.
17. Telles S, Desiraju T. Recording of auditory middle latency evoked potentials during the practice of meditation with the syllable 'OM'. Indian J Med Res 1993;98:237-9.
18. Bhavna P Harne. Higuchi fractal dimension analysis of EEG signal before and after OM chanting to observe overall effect on brain. Int J Electr Comput Eng 2014;4:585-92.
19. Kraus T, Hösl K, Kiess O, Schanze A, Kornhuber J, Forster C. BOLD fMRI deactivation of limbic and temporal brain structures and mood enhancing effect by transcutaneous vagus nerve stimulation. J Neural Transm (Vienna) 2007;114:1485-93.
20. Lazar SW, Bush G, Gollub RL, Fricchione GL, Khalsa G, Benson H. Functional brain mapping of the relaxation response and meditation. Neuroreport 2000;11:1581-5.

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