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Immediate Effect Of Listening To 'Om' On Spatial And Verbal Memory In Young Females.

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ABSTRACT

'OM' is universal and far from any religion. In yogic practices 'OM' chanting is performed commonly. Listening or chanting 'OM' provides mental peace and calmness. 'OM' activates the brain areas like frontal lobe, supra marginal gyrus. Listening 'OM' is easy for the student population than chanting as the chanting requires practice and particular pronunciation. Hence, promoting listening to 'OM' in students may be beneficial to improve memory and academic performance and also for stress management. The present study was undertaken to observe immediate effect of listening to OM on spatial and verbal memory in young females. A total of thirty apparently healthy young females with in the age group of 18-24 were included in the study after obtaining the written informed consent. They were randomly grouped into control and intervention groups by simple random sampling using the software (<https://www.random.org/lists/>). Listening to 'OM' was given to the intervention group participants for five minutes in the morning at 6 am. No intervention was given to the control group but data was recorded in the corresponding points of time. Spatial and verbal memory test was used to assess the memory. There was no significant difference in the age, height and weight of the participants in the control and intervention groups. Spatial memory and verbal memory scores are not significantly different between the control and intervention groups. Spatial and verbal memory was improved significantly improved ($P < 0.01$) followed by listening to 'OM'. The results of the study further support adoption of 'OM' listening in the student population for improvement in memory. The study also recommends need of further detailed long term studies in this area including both genders.

Keywords: 'OM', Spatial memory, Verbal memory, Young females.

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INTRODUCTION

OM is the sacred mantra which is beyond to any religion. OM can be chanted individually or in combination with mantras. In yoga the sessions will begin and ends with OM chanting¹. Chanting of 'OM' creates a vibration around the ears and these vibrations are reported to be transmitted through vagus nerve². FMRI studies reported that there was significant deactivation in the amygdala, parahippocampal, hippocampal areas of brain followed by the 'OM' chanting^{2,3}. According to Swami Jnaneshvara Bharti the frequency of chanting depends on the comfortable of the individual. 'OM' chanting also activates the brain areas that are responsible for relaxation such as cingulate cortex, dorsolateral, prefrontal and parietal cortices, hippocampus and temporal lobes⁵. Earlier study reported that chanting 'OM' daily for five minutes reduces pulse rate effectively⁶. As OM chanting causes calm mental state, it increases the thinking processes and improves memory. Listening or chanting 'OM' provides mental peace and calmness. 'OM' activates the brain areas like frontal lobe, supra marginal gyrus⁷. Listening 'OM' is easy for the student population than chanting as the chanting requires practice and particular pronunciation. Hence, promoting listening to 'OM' in students may be beneficial to improve memory and academic performance and also for stress management.

MATERIALS AND METHODS

Study design: Experimental study

Study setting: The current study was conducted at Department of Physiology, Vishnu Dental College, Bhimavaram.

Study population: A total of thirty apparently healthy young females with in the age group of 18-24 were included in the study after obtaining the written informed consent. Apparently healthy and willing participants were included in the study. Participants with any serious diseases and unwilling participants were excluded from the study. They were randomly grouped into control and intervention groups by simple random sampling using the software (<https://www.random.org/lists/>).

Listening to 'OM' chanting

The subject rested on a comfortable chair for 5 min. The spatial and verbal memory test was assessed before listening to 'OM'. The subjects were instructed to close the eyes and listen to 'OM' chanting for 5 min through headphones with full focusing. The subjects were asked to remain in same position after listening to 'OM' chanting for five minutes. Then the post assessment of spatial and verbal memory test was performed. Listening to the 'OM' and data collection was performed between 6:30 AM to 7:00 AM.

Assessment of memory:

Verbal memory: Immediate word recall test was used to assess verbal memory. 20 four letter words like tape, call, lead etc. were displayed to the participants at a constant rate of one word for two seconds. Then the participants were asked to recall the words and write the same on a white paper within 60 seconds. Correct word was given a score of '1' and wrong word was given a score of '0'. Total score was tabulated for applying statistics^{8,9}.

Spatial memory: Immediate object recall was used to assess spatial memory. 20 familiar objects like watch, mobile etc. were arranged on a table. 15 seconds time was given to the participants to observe those objects. Then the participants were asked to recall the names of the objects and write the same on a white paper within 60 seconds. Correct word was given a score of '1' and wrong word was given a score of '0'. The total score was tabulated to apply statistics^{8,9}.

Ethical Consideration: The study protocol was approved by institutional research committee of Vishnu Dental College, Bhimavaram.

Data analysis: Data was analyzed by using SPSS 20.0. Unpaired t test was applied to observe the significance of difference between the groups. P value less than 0.05 was considered as significant.

RESULTS

Results were presented in table no 1 and 2. Table no 1 presents the demographic data of the participants. There was no significant difference in the age, height and weight of the participants in the control and intervention groups. Spatial memory and verbal memory scores are not significantly different between the control and intervention groups (table no 2). Spatial and verbal memory was improved significantly improved followed by listening to OM (table no 3).

Table 1: Demographic data of the participants (Data presented was Mean and SEM) (*P<0.05 is significant, **P<0.01 is significant, *P<0.001 is significant).**

Parameter	Control group (n=15)	Intervention group (n=15)	P value
Age (years)	20.2±0.14	19.73±0.21	0.0746
Height (cm)	159.1±0.55	162.5±1.63	0.0670
Weight (kg)	53.80±2.31	56.67±1.98	0.3539
BMI(kg/m ²)	21.26±0.89	21.54±0.84	0.8216

Table 2: Spatial and verbal memory scores of the participants before intervention (Data presented was Mean and SEM) (*P<0.05 is significant, **P<0.01 is significant, *P<0.001 is significant).**

Parameter	Control group (n=15)	Intervention group (n=15)	P value
Spatial memory	14.53±0.77	15.73±0.65	0.2431
Verbal memory	15.87±0.92	16.13±0.73	0.8220

Table 3: Spatial and verbal memory scores of the participants immediately after the intervention (Data presented was Mean and SEM) (*P<0.05 is significant, **P<0.01 is significant, *P<0.001 is significant).**

Parameter	Control group (n=15)	Intervention group (n=15)	P value
Spatial memory	14.53±0.77	18.33±0.36	0.0001**
Verbal memory	15.87±0.92	19±0.53	0.0062**

DISCUSSION

Spatial and verbal memories are important cognitive functions. Verbal memory is still important as it is required to the students to write their examinations. Mantras chanting were ancient method of improving the well-being. However, in current years people are living in western life styles and slowly forgetting the traditional values and customs of the country. Many foreign countries are following the mantras and practicing recitation of even toughest mantra like Rudram. Unfortunately most of people in our own country especially the current generation may not know what the Rudram is. Hence, it is need of time to increase our indigenous ways to improve mental and physical well-being. Mental well-being an important topic of discussion especially for student population, The college students are in a transition state and experience higher levels of stress. Further, they does not know whom to approach and take help. Educational institutions should definitely consider this as a major issue as there is raise in the number of student suicides in the country. Students must be trained with simple coping methods to overcome the stress. One such method is ‘OM’ meditation. For students listening may be more convenient than chanting. Hence, the present study was aimed to observe immediate effect of listening to ‘OM’ on spatial and verbal memory in young females. There was significant improvement in both spatial and verbal memory scores followed by vestibular stimulation. Chanting or listening to mantras is a simple way to reduce stress. ‘OM’ mantra increases the positive forces in the body and transforms it to the brain and activates the five chakras. Reduction in the blood pressure was reported followed by the ‘OM’ chanting¹⁰. It also offers relaxation effect if practiced regularly¹¹. The word ‘OM’ was a combination of three letters called A, U, M¹³. The Upanishads described ‘OM’ as a syllable of past, present and future¹⁴ In Bhagavad Gita; Lord Krishna described ‘OM’ as supreme consciousness¹⁵. It was reported that chanting ‘OM’ has improved memory¹⁶. Listing to “OM” activates brain areas related to the memory. It was reported that there is alteration in the brain evoked potentials followed by ‘OM’ chanting¹⁷. There will be mental alertness during ‘OM’ meditation and physical rest^{18,19}. It also helps in reducing stress and increasing the attention, which leads to increase in the memory. The present study results support the earlier studies as

there was a significant improvement in the spatial and verbal memory in the participants followed by the intervention. This was immediate effect, so practicing the listening to 'OM' which is more convenient to student population may be implemented as one of the possible stress management methods to help the students to cope up with the stress levels and also to improve their quality of life.

CONCLUSION

The results of the study further support adoption of 'OM' listening in the student population for improvement in memory. The study also recommends need of further detailed long term studies in this area including both genders.

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