



Research Article

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EFFECT OF CHANTING AND STOTRAM ON PERCEIVED STRESS AND COGNITIVE FUNCTIONS IN UNDERWEIGHT FEMALES

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ABSTRACT

The present study aimed to observe impact of listening to OM chanting and Mahishasura Mardini Stotram (Stotra on Devi Durga) on perceived stress, and cognition in underweight females. 15 under weight females and 15 age matched controls were included in the study after obtaining voluntary, informed consent by convenience sampling. Stress levels were assessed by perceived stress scale. Cognitive functions were assessed by MMSE, spatial and verbal memory test and auditory and visual reaction time. Our study provides preliminary evidence for beneficial effects of listening to OM chanting and Mahishasura Mardini Stotram on stress and cognitive functions. We recommend further detailed studies, with higher sample size and including both genders and more parameters for proving further strong evidences to support incorporation of listening to OM chanting and Mahishasura Mardini Stotram in daily life for better quality and quantity of life.

Keywords: chanting, vocal Music, under weight

INTRODUCTION

According to World Health Organization, individuals with Body Mass Index (BMI) less than 18.50 were categorized as underweight.¹ Earlier studies reported that underweight is more hazardous than overweight and obesity.² Approximately 15.2% of Indian population were undernourished.³ Further, prevalence of underweight is more in females than males.⁴ Most of the female students have strong desire for thinness, which makes them to follow unhealthy eating habits, which results in underweight. The common problems in underweight females are menstrual disorders, cognitive disorders, and endocrine disorders.⁵ Music was reported to modulate stress response as earlier studies reported that music helps for faster recovery after exposure to stressful condition and also minimizes endocrine and psychological changes in stress.⁶ Stimulating auditory system was found to have positive impact on autonomic functions, sleep quality and quality of life.⁷ OM is a symbol which represents god.⁸ Though studies on beneficial effects OM chanting are numerous,^{9,10} studies on OM listening is sparse. In Hinduism, Maa Durga (The Daughter of the Mountain and Joy of the World) is considered as Aadiparashakthi, who is essence of Omkara.¹¹ Mahishasura Mardini stotra is stotra of Maa Durga, who killed mahishasur.¹² Hindus believe that, reciting the stotram will improve spirituality and removes all sorrows in life. The present study aimed to observe impact of listening to OM chanting and Mahishasura Mardini Stotram on perceived stress, and cognition in underweight females.

MATERIALS AND METHODS

Participants: 15 underweight females and 15 age matched controls were included in the study after obtaining voluntary, informed consent by convenience sampling. The following criteria were followed while selecting the underweight females.

1. Willing participants
2. Age between 18-25
3. Not suffering with any other disease or complication
4. Not practicing any other stress management techniques
5. Not using any kind of medication including oral contraceptives

All the participants were subjected to general and physical examination by qualified female medical officer.

Study setting: The present experimental study was conducted at department of physiology, little flower institute of medical sciences and research, Angamaly.

OM chanting and Mahishasura Mardini Stotram: OM chanting and Mahishasura Mardini Stotram was played from iPod (MEDION) through headphones, once in a day, daily, for 8 weeks.

Outcome measures

Assessment of stress:

Perceived stress scale: Stress levels were measured by using perceived stress scale.¹³

Assessment of cognition

Auditory and visual reaction time: Reaction time for right and left responses was recorded by using Research RT apparatus manufactured by Anand Agencies, Pune.¹⁴

Spatial and verbal memory test: This test was used to assess spatial and verbal memory.¹⁵

Mini mental state examination (MMSE): MMSE was used to grade the cognitive status of the participants.¹⁶

Data analysis: Data was analyzed by using SPSS 20.0. Statistical test used are unpaired t test and two-way ANOVA followed by bonferroni post hoc test. P value < 0.05 was considered as significant.

Ethical consideration: The study was approved by institutional human ethical committee no. EC/2015, 1/6/2.15, 2.15/06 735.

RESULTS

Age and height are not significantly different between the groups. However, body weight and BMI was significantly (P<0.001) lower in underweight females (Figure 1). Baseline values of perceived stress were significantly higher in underweight females (p< 0.001). Followed by auditory stimulation, perceived stress was significantly reduced in underweight females. Baseline values of Mini mental status examination scores (MMSE) (p<0.001) spatial memory (p<0.05) and verbal memory (P<0.01) significantly lower in underweight females. Followed by intervention, MMSE scores spatial and verbal memory scores are significantly increased (Figure 2). Baseline values of visual reaction time (VRT) of green and red light (right and left response) is significantly higher in underweight (p<0.001). Followed by intervention, VRT of green and red light (right and left response) significantly increased (Figure 3). Auditory reaction time (right and left responses) of high pitch is significantly higher in underweight females (p<0.01). Auditory reaction time low pitch sound (right and left) significantly higher (p<0.001). Followed by intervention, auditory reaction time significantly improved in underweight females (Figure 4).

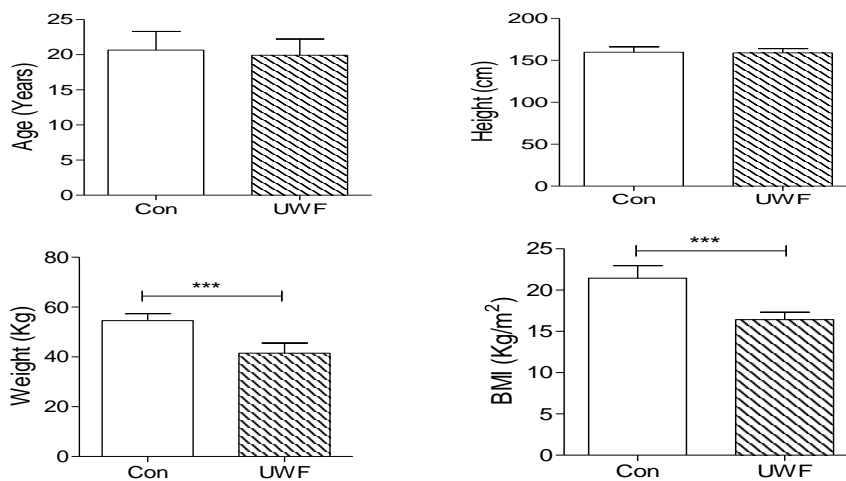


Figure 1: Demographic data of the participants (data was expressed as Mean± SD). Con- controls group, UWF-underweight group. (*P<0.05, **P<0.01, *P<0.001)**

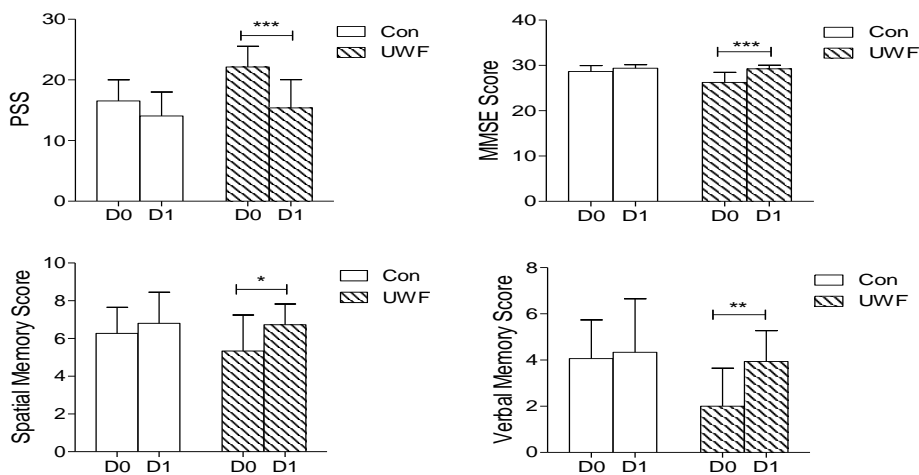


Figure 2: Perceived stress score (PSS), Mini mental state examination (MMSE), spatial and verbal memory scores of participants before and after intervention. Con- Controls group, UWF-Underweight group. D0- pre intervention scores, D1- Post intervention scores. (*P<0.05, **P<0.01, *P<0.001).**

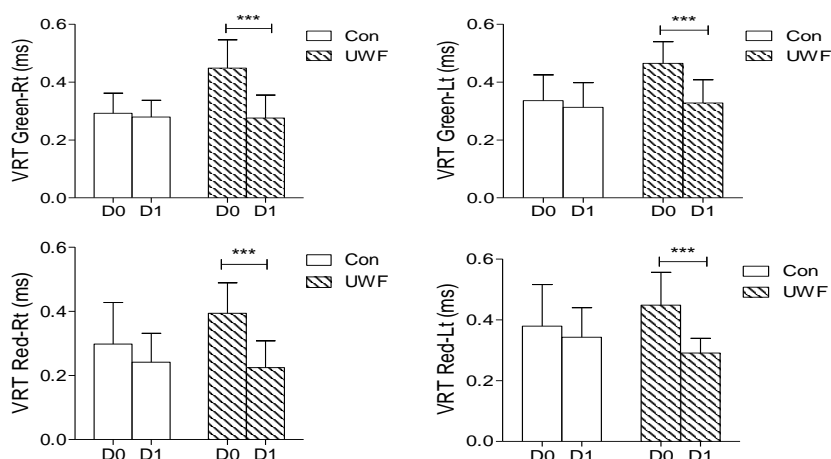


Figure 3: Visual reaction time (VRT) of green and red light right (Rt) and left (Lt) responses of participants before and after intervention. Con- Controls group, UWF-Underweight group. D0- pre intervention scores, D1- Post intervention scores. (*P<0.05, **P<0.01, ***P<0.001).

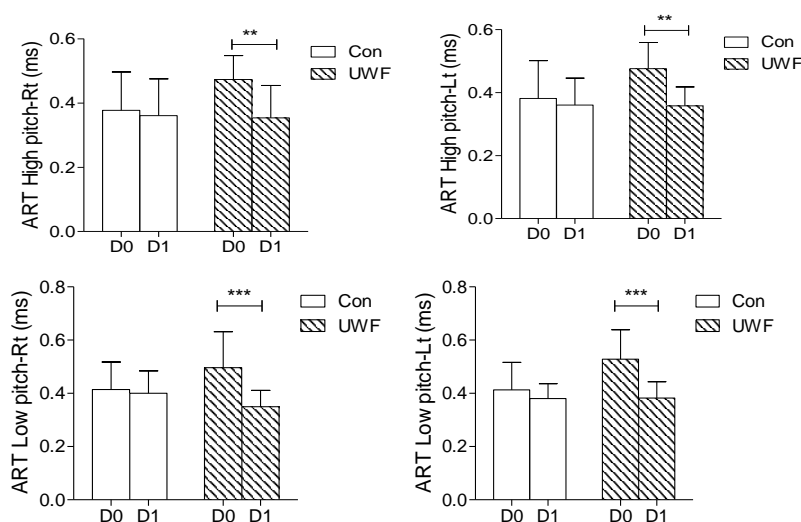


Figure 4: Auditory reaction time (ART) of high and low pitch sounds, right (Rt) and left (Lt) responses of participants before and after intervention. Con- Controls group, UWF-Underweight group. D0- pre intervention scores, D1- Post intervention scores. (*P<0.05, **P<0.01, ***P<0.001).

DISCUSSION

Weight of the body has a major role in both physical and mental wellbeing.¹⁷ High depression scores has been reported in underweight females when compared with healthy controls.⁵ Underweight females are more prone to develop menstrual disorders, decreased immunity and osteoporosis.^{18,19,20} It was reported that under weight females have incorrect perceptions about the weight status^{21,22} as about half of the underweight females perceived themselves as normal.¹⁷ Our demographic data has explored that the weight and BMI of underweight females is significantly lower than healthy controls. Our results are in accordance with earlier studies as we have observed significantly higher levels of perceived stress, auditory and visual reaction times. Spatial, verbal memory scores and MMSE scores were significantly lower in underweight females.

Music is beneficial in stress relief and the effect is frequency based.²³ Through passive listening to music, the psychological and physiological relaxation state is improved and also the patient's mental and physical well being. Music can reduce

stress thereby it helps to improve the depression, mobility and cognitive functions.^{24,25} Music was reported to influence brain development, neuronal processing and enhance cognitive functions.²⁶ OM is a universal mantra and any one can practice it, irrespective of religion. Performing OM chanting was reported to provide beneficial effects on pulmonary functions²⁷, cognitive functions.⁸ OM chanting also provides mindfulness and decreases anxiety levels.²⁸ The present study observed the impact of listening to OM chanting and Mahishasura Mardini Stotram on perceived stress and cognition levels of the participants. We have observed significant decrease in stress levels, and significant improvement in cognition scores followed by the intervention.

LIMITATIONS

Major limitation of the study was lower sample size. Study results may not be generalized as we have not assessed socioeconomic status of females, which affects the nutritional status.

CONCLUSION

Our study provides preliminary evidence for beneficial effects of listening to OM chanting and Mahishasura Mardini Stotram on stress and cognitive functions. We recommend further detailed studies, with higher sample size including both genders with more parameters for proving further strong evidences to support incorporation of listening to OM chanting and Mahishasura Mardini Stotram in daily life for better quality and quantity of life.

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