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EFFECT OF AUM CHANTING AND DIAPHRAGMATIC BREATHING EXERCISE IN YOUNG ADULTS WITH ANXIETY

Physiotherapy

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ABSTRACT

AUM mantra creates vibrations that encourage serenity and peace.Diaphragmatic breathing exercise is type of deep breathing technique, diaphragm plays a major role in respiration. This study was conducted on 30 anxiety individuals with an age group between 18-25 years were included. All the individuals were performed AUM chanting and Diaphragmatic breathing exercise for 6weeks . The self-anxiety scale and H.R was measured baseline and after 6weeks. In total 30 anxiety subjects pre and post values were compared and showed clinically statistically significant $P<0.05$. The findings of this study concluded that AUM chanting and Diaphragmatic breathing exercise is significantly more reducing in anxiety .

KEYWORDS

Anxiety, Diaphragmatic breathing exercise, AUM chanting, Self-Anxiety scale and Heart rate

INTRODUCTION

Yoga, meditation, relaxation techniques, music therapy and psychological treatments, including behavioral and cognitive therapies are widely used for mental well-being. AUM chanting, rooted in ancient traditions, is a powerful practice known for its physiological and psychological benefits[1]. The Upanishads, Bhagavad-Gita and Patanjali Yoga Sutras describe AUM as symbolizes consciousness and promotes inner peace[2].

According to the Mandukya Upanishad, AUM represents beginning (A), growth (U) and distribution (M). Recognized by the World Health Organization, mental health is crucial for overall well-being, yet stress and anxiety are rising globally[3]. Chanting AUM at 432 Hz activates the vagus nerve, reducing stress, lowering cortisol levels and promoting relaxation. It also enhances focus, emotional stability and autonomic balance[4].

Diaphragmatic breathing enhances blood flow, reduces blood pressure, and increases vagal activity, which helps balance the sympathetic and parasympathetic nervous systems. It also aids in regulating vital functions like postural stability[5].

Monitoring heart rate (HR) and oxygen saturation (SpO2) is crucial for health management, helping track stress, physical fitness and early disease signs[6]. Wearable devices that track HR and SpO2 enable real-time health monitoring, allowing for proactive care and reducing hospital visits[7].

Pulse oximetry, used for assessing blood oxygen levels, has proven effective in various medical settings [8,9,10] while AUM chanting has shown to lower blood pressure and pulse rate in hypertensive individuals[11,12].

There is a growing incidence of anxiety among young adults, largely attributed to factors like sedentary lifestyles, reduced physical activity, increased screen time and diminished social interaction. While isolated studies have explored the effects of AUM chanting and diaphragmatic breathing exercises on anxiety, there remains a gap in understanding whether the combination of these practices can effectively alleviate anxiety in young individuals.

Aims and Objectives

- ✓ To study the effect of AUM chanting and Diaphragmatic breathing exercise on anxiety using anxiety-self rating scale in young adults with anxiety.
- ✓ To determine the effect of AUM chanting and Diaphragmatic breathing exercise on heart rate using pulse-oximeter in young adults with anxiety.

MATERIALS AND METHODOLOGY

Materials

1. Pulse oximeter
2. Pen and Paper

Methodology:

Study Setup : SVIMS College of Physiotherapy, Tirupati
Study Design : Pre and Post experimental design
Sampling Method : Purposive sampling
Sample Size : 30 samples
Study Duration : 6 weeks

Inclusion Criteria:

- ✓ Age group: 18-25 years
- ✓ Gender: male and female
- ✓ Anxiety self rating scale< 25

Exclusion Criteria:

- ✓ Any related medical conditions which have effect on autonomic nervous system.
- ✓ Anxiety medications.
- ✓ Psychological related problems
- ✓ Subjects not willing to participate with in the study

Outcome Measures:

1. Anxiety self-rating scale is used to record anxiety
2. Pulse Oximeter is used to record Heart rate

Ethical Consideration:

Ethical approval was obtained from the Institutional Ethical Committee (IEC No: 1705), and informed consent was taken from all eligible participants.

Study Procedure and Data Collection:

Baseline measurements, including anxiety levels recorded using the Anxiety Self-Rating Scale and resting heart rate measured using a pulse oximeter, were collected before the intervention. Participants then underwent a structured intervention program for six weeks, consisting of AUM chanting and diaphragmatic breathing exercises. Each session involved deep inhalation followed by chanting AUM, along with diaphragmatic breathing exercises performed nine times per session, six sessions per week.

AUM Chanting: The frequency of chanting will progressively increase each week as follows:

- ✓ Week 1: 5 chants per session, 2 repetitions
- ✓ Week 2: 9 chants per session, 2 repetitions
- ✓ Week 3: 11 chants per session, 2 repetitions
- ✓ Week 4: 13 chants per session, 2 repetitions
- ✓ Week 5: 15 chants per session, 1 repetition
- ✓ Week 6: 15 chants per session, 1 repetition

Statistical Analysis

The data collected will be entered in Microsoft Excel and will be imported in IBM SPSS 23.0. software. The data was analysed by appropriate statistical techniques such as mean ± standard deviation or using a paired t-test. Statistical Significance was set at $P < 0.05$.

RESULTS

The collected data were analyzed using SPSS 23. A total of 30 participants (5 males and 25 females) who met the inclusion criteria were included in the study. The outcome measures were assessed anxiety levels, measured using the Anxiety Self-Rating Scale and heart rate (H.R), recorded using a pulse oximeter. Measurements were taken at baseline (pre-intervention) and after six weeks of the intervention (post-intervention) and the values were tabulated using Microsoft Excel. Demographic data were represented in Fig 1.

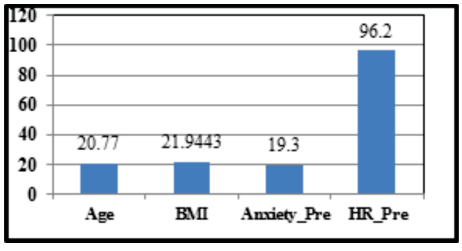

Fig.1 Represents The Base Line Measures Of Age, BMI, Pre - Anxiety and Pre- H.R

Table :1

		Mean	Standard Deviation	Standard Error Mean
Pair 1	Anxiety Pre	19.30	5.49	1.004
	Anxiety Post	12.20	5.67	1.037
Pair 2	Heart Rate Pre	96.20	7.44	1.360
	Heart Rate Post	85.83	6.70	1.223

This study examined the effects of AUM chanting and diaphragmatic breathing exercises on anxiety levels and heart rate over six weeks. The results demonstrated a significant reduction in both parameters, highlighting the effectiveness of the intervention in promoting relaxation and autonomic regulation.

Anxiety Levels: Before the intervention, participants had a mean anxiety score of 19.30 ± 5.49, which significantly decreased to 12.20 ± 5.67 post-intervention(Table 1). A paired t-test confirmed this reduction was statistically significant ($t = 13.07$, $P < 0.001$), indicating that the intervention effectively alleviated anxiety.

Heart Rate: Resting heart rate also showed a significant decline, from 96.20 ± 7.44 bpm at baseline to 85.83 ± 6.70 bpm after the intervention. The paired t-test analysis ($t = 10.03$, $P < 0.001$) confirmed a meaningful improvement in cardiovascular relaxation, suggesting enhanced autonomic balance (Fig 2).

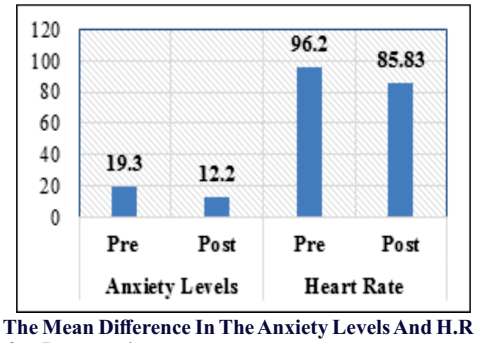

Fig. 2 The Mean Difference In The Anxiety Levels And H.R Before And After Intervention.

Table :2

		Paired Differences					T	De-grees of free dom	P Value (2-tailed)
		Mean	Stan-dard Dev-iation	Stan-dard Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Anxiety-pre Anxiety-Post	7.10	2.97	1.543	5.98	8.211	13.071	29	0.00
Pair 2	H.R-Pre H.R-Post	10.36	5.66	1.033	8.25	12.480	10.032	29	0.00

*The mean is significant at the 0 .05 level
** The mean is significant at the 0 .001 level

This study examined the effect of AUM chanting and diaphragmatic breathing exercises on anxiety levels. A paired sample t-test was conducted to assess the significance of the intervention. The results showed a significant reduction in anxiety, with a mean decrease of 7.10 ± 2.97. The t-value of 13.07 (95% CI: 5.98, 8.21) and a p-value of 0.00 indicated that the reduction in anxiety was statistically significant (Table 2). This suggests that the intervention, involving AUM chanting and diaphragmatic breathing, effectively alleviated anxiety, highlighting the potential of these techniques in stress management and promoting mental well-being.

This study also assessed the impact of the same intervention on heart rate (H.R). A paired sample t-test revealed a significant reduction in heart rate, with a mean decrease of 10.37 ± 5.66. The t-value of 10.03 (95% CI: 8.25, 12.5) and a p-value of 0.00 indicated that this decrease was statistically significant. This suggests that the intervention not only helped reduce anxiety but also had a positive effect on autonomic function by lowering heart rate, which can be associated with improved cardiovascular health and relaxation. These findings support the effectiveness of AUM chanting and diaphragmatic breathing in promoting both psychological and physiological relaxation.

DISCUSSION

AUM chanting, rooted in ancient traditions, has demonstrated significant physiological and psychological benefits. Research shows it effectively reduces blood pressure and pulse rate in hypertensive individuals by activating the parasympathetic nervous system, promoting relaxation and stabilizing cardiovascular function. The rhythmic vibrations improve respiratory efficiency and enhance heart rate variability, a marker of stress resilience and autonomic health. Psychologically, Om chanting alleviates stress, anxiety and depressive symptoms by lowering cortisol levels and fostering emotional stability. The Present study aligns with Om chanting was found to have a positive significant relationship with anxiety reduction in adolescents. Rajesh Kumar et al.,2020 [13] conducted a study in which it consists of 40 boys of graduate & postgraduate from Department of Physical Education Jiwaji University Gwalior. All the samples belonged to the age range of 18-25 years. Om Chanting practice was given to all samples in a group for a period of 25 days regularly with a definite pattern in the morning. SCAT (Sinha's Comprehensive Anxiety Test) was used as data collection device. In this study t-test was used for analysis.

Kavin Adlakha, Mohit K. Mathur et al., [14] studied the Short-Term Effect of Spiritual Music on Heart Rate Variability in Medical Students with 50 participants. After a 20-minute relaxation period, ECG, blood pressure and heart rate were recorded before and after a 20-minute AUM chanting session. The results showed a significant decrease in blood pressure and heart rate ($p < 0.001$).

Shubi Taneja's systematic review on AUM Chanting as a Therapeutic Intervention analyzed 19 studies following PRISMA guidelines. Using the Methodological Quality Rating Scale, the review highlighted AUM chanting's benefits on cardiovascular, psychological and cognitive functions, as well as EEG patterns. Findings showed that enhanced parasympathetic activity, reduced blood pressure, pulse rate, anxiety, stress and depression, along with improvements in mood, memory, altruism and social cohesion[15].

An another study by Kumar S, Sharma H and colleagues [16] studied the Effect of AUM Chanting on Heart Rate Variability in Healthy Adults with 30 participants practicing AUM chanting for 10 minutes daily

over four weeks. The results showed a decreased heart rate due to sympathetic and parasympathetic modulation.

Kitty Consolo, Sharon Staib et al.,[17] examined the Effects of Diaphragmatic Breathing on Stress Levels of Nursing Students. Involving 21 participants, the study found that diaphragmatic breathing exercises significantly reduced stress levels and pulse rates, assessed through the Stress Vulnerability Questionnaire and cognitive skills tests.

Ching-Hui Chein et al., evaluated Diaphragmatic Breathing Relaxation Training for Reducing Anxiety using the Beck Anxiety Inventory and biofeedback tests. An 8-week training program led to a significant reduction in heart rate ($p = 0.005$)[18].

John S. Lee et al.,[19] studied Diaphragmatic Breathing on Ambulatory Blood Pressure and Heart Rate, showing that exercises performed at 2-hour intervals effectively lowered blood pressure and heart rate.

These findings align with Arora et al.,(2018), which demonstrated the immediate benefits of AUM chanting on blood pressure and pulse rate in moderate hypertensive subjects. AUM chanting may serve as a supportive therapy for stress reduction and hypertension management alongside conventional treatments[20].

CONCLUSION

This study was conducted on 30 subjects who were diagnosed with anxiety. They were trained to do AUM chanting and Diaphragmatic breathing exercises. The findings of this study conclude that AUM chanting combined with diaphragmatic breathing exercises is significantly more effective in reducing anxiety, as evidenced by improvements in the Anxiety Self-Rating Scale and heart rate outcomes among the studied individuals. These practices promote relaxation by enhancing parasympathetic activity and reducing stress responses. Therefore, it is recommended to incorporate AUM chanting and diaphragmatic breathing exercises as a therapeutic intervention for individuals experiencing anxiety.

Limitations

- ✓ The study may have included a limited number of participants, which could affect the generalizability of the findings.
- ✓ The duration of the intervention might have been insufficient to observe long-term effects of AUM chanting and diaphragmatic breathing exercises.

Future Recommendations:

- ✓ Conduct studies with larger and more diverse populations to improve generalizability.
- ✓ Assess the long-term benefits and sustainability of these practices over an extended period.
- ✓ Compare the effectiveness of AUM chanting and diaphragmatic breathing exercises with other anxiety-reduction interventions.
- ✓ Use physiological markers like cortisol levels, brain imaging or heart rate variability to complement self-reported data.

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