



Effect of different pranayama practices on stress, anxiety and depression levels among middle aged women

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Abstract

This study examined the effects of different pranayama practices on stress, anxiety, and depression levels among middle-aged women. Thirty women aged 35-45 from Wevolve Counselling Centre, Malappuram, Kerala, were purposively selected and divided into two groups: Experimental Group I (pranayama practicing group, n=15) and Group II (control, n=15). The experimental group participated in an eight-week pranayama program, practicing techniques like Nadi Shodhana, Ujjayi, Bhramari, and Anuloma Viloma for 60 minutes, three times a week. Stress, anxiety, and depression were measured using the Perceived Stress Scale, Beck Anxiety Inventory, and Beck Depression Inventory-II. Statistical analysis (paired t-test, ANCOVA) revealed significant reductions in stress, anxiety, and depression in the pranayama group compared to the control group. These findings suggest that regular pranayama practice is an effective, non-invasive approach to enhancing mental well-being in middle-aged women, supporting its inclusion in wellness programs targeting stress and emotional resilience.

Keywords: Different Pranayama Practice, Stress, Anxiety dan Depression Level

Introduction

The modern world presents numerous challenges that significantly impact mental health, particularly among middle-aged women. This demographic often faces unique stressors, including career pressures, family responsibilities, and health concerns, contributing to increased levels of stress, anxiety, and depression. Given the growing prevalence of mental health issues, exploring holistic approaches to enhance well-being has become essential. One such approach is pranayama, a traditional practice rooted in ancient Indian yoga that emphasizes breath control as a means to promote physical and mental health.

Pranayama involves various breathing techniques that aim to harmonize the mind and body, improve respiratory function, and alleviate stress. Numerous studies have demonstrated the efficacy of pranayama in reducing stress and anxiety, enhancing emotional regulation, and improving overall mental health. For instance, research has shown that regular practice of pranayama techniques can lead to significant reductions in anxiety levels and depressive symptoms. These findings underscore the potential of pranayama as a viable intervention for mental health issues, particularly among populations that may experience high stress and anxiety.

This study focuses on the effects of different pranayama practices on stress, anxiety, and depression levels among middle-aged women. A total of thirty women, aged 35 to 45 years, were purposively selected from the Wevolve Counselling Centre in Malappuram, Kerala. Participants expressed their willingness to engage in the study, which is vital for ensuring commitment and compliance with the training program. The participants were divided into two groups: the experimental group, which engaged in pranayama practices, and the control group, which did not receive any specific interventions.

The inclusion of variables such as stress, anxiety, and depression is crucial, as these elements are interrelated and can significantly affect women's quality of life. The Perceived Stress Scale (PSS) will be used to measure stress levels, while the Beck Anxiety Inventory (BAI) and Beck Depression Inventory-II (BDI-II) will assess anxiety and depression, respectively. These well-established measurement tools provide reliable data, facilitating a comprehensive understanding of the impact of pranayama on participants' mental health.

Despite the growing body of literature on pranayama and its benefits, there remains a significant research gap regarding its specific effects on middle-aged women. Most existing studies either focus on younger populations or do not differentiate between various pranayama techniques. This study aims to fill that gap by examining how different pranayama practices—such as Nadi Shodhana (Alternate Nostril Breathing), Ujjayi (Victorious Breath), Bhramari (Bee Breath), and Anuloma Viloma—affect stress, anxiety, and depression levels among middle-aged women.

By focusing on this under-researched demographic, the study seeks to provide valuable insights that could inform mental health interventions tailored for women in this age group. Understanding how pranayama influences mental well-being can offer alternative strategies for managing stress and anxiety, contributing to improved quality of life. The findings from this research may not only benefit participants but also serve as a foundation for further studies exploring the role of holistic practices in mental health, particularly in the context of the unique challenges faced by middle-aged women today.

Statement of the Problem

The purpose of the study was to find out the “effect of different pranayama practices on stress, anxiety and depression levels among middle aged women.

Objectives of the Study

1. To evaluate the effect of different pranayama practices on stress, anxiety and depression levels of middle aged women.
2. To determine differences in on stress, anxiety and depression levels between experimental and control groups after training programme.

Materials and methods

1. Selection of Subjects

To achieve the purpose, thirty (N=30) middle aged women were purposively selected from wevolve counselling centre malappuram, district, Kerala, India. The ages of these subjects ranged from 35 to 45 years, and all selected participants expressed willingness to participate in this study. They were equally divided into two groups: Experimental Group I (Pranayama practicing group, n=15) and Group II (Control, n=15).

Inclusion Criteria

- Women aged 35-45 years.
- Participants from Malappuram district, Kerala, India.
- Women who have expressed a willingness to participate and commit to the study duration.
- Women with no diagnosed severe mental health disorders (such as clinical depression, anxiety disorders requiring medical intervention).
- Participants with mild to moderate levels of stress, anxiety, or depression, as assessed by initial screening tools (e.g., BDI-II for depression, BAI for anxiety, and PSS for stress).
- Ability and commitment to attend all scheduled pranayama sessions, if assigned to the Experimental Group.

Exclusion Criteria

- Exclusion of women with diagnosed severe mental health conditions (such as major depressive disorder, bipolar disorder, or schizophrenia) to avoid risk and confounding variables.
- Participants currently undergoing psychiatric or psychological therapy for stress, anxiety, or depression, including medication that could impact study results.
- Women with respiratory issues (e.g., asthma, chronic obstructive pulmonary disease), cardiovascular issues, or other medical conditions that may limit participation in pranayama.
- Pregnant women, as hormonal changes and pregnancy-related stress could impact mental health variables.
- Women who have been regularly practicing pranayama within the last six months to avoid prior experience affecting results.

- Participants who may have scheduling conflicts or other commitments that could interfere with consistent participation in the pranayama sessions.

Selection of Variables and Questionnaires

The criterion variables selected were stress, anxiety, and depression levels. Stress was measured using the Perceived Stress Scale (PSS), anxiety was measured with the Beck Anxiety Inventory (BAI), and depression was measured with the Beck Depression Inventory-II (BDI-II).

Training Intervention

The training period for the study on the effect of different pranayama practices on stress, anxiety, and depression levels among middle-aged women lasted eight weeks. Participants in the experimental group attended sessions three times a week on Mondays, Wednesdays, and Fridays. Each training session lasted approximately 60 minutes, allowing ample time for instruction, practice, and discussion of the techniques.

The pranayama practices included in the training were Nadi Shodhana (Alternate Nostril Breathing), Ujjayi (Victorious Breath), Bhramari (Bee Breath), and Anuloma Viloma. Each session began with a brief introduction to the day's technique, followed by guided practice. Nadi Shodhana was practiced for 10 minutes, emphasizing balance and calming the nervous system. Ujjayi was introduced to promote mindfulness and focus, practiced for 15 minutes. Bhramari was incorporated for its calming effects on the mind, practiced for 10 minutes. Anuloma Viloma served as a foundational technique to support breathing regulation and relaxation, practiced for 15 minutes.

The final 10 minutes of each session were dedicated to cool-down activities and participant feedback, fostering a supportive environment and encouraging commitment to the practice. This structured approach aimed to enhance the participants' understanding and proficiency in pranayama, ultimately assessing its impact on their mental well-being.

Statistical Techniques

In order to find out the effect of different pranayama practices on stress, anxiety and depression level among middle aged women, the descriptive statistics, paired sample 't' test and ANCOVA was used to find out the significant differences if any. In all the cases, the level of significance was fixed at 0.05 level.

Results of the study

Table 1: Descriptive Statistics and Paired 't' Test Value on Stress, Anxiety and Stress Level of Different Pranayama Training Group and Control Group

Variables	Group	Pre Test	Post Test	T value	P value
Stress	EXP	55.60	50.20	5.28*	0.00
	CG	54.40	54.21	1.11	0.32
Anxiety	EXP	56.23	50.12	6.14*	0.00
	CG	55.11	55.07	0.64	0.18
Depression Level	EXP	53.12	46.31	4.14*	0.00
	CG	54.11	54.00	1.32	0.22

*Significant at 0.05 level

The table presents the stress, anxiety and depression level results of a study comparing the effects of different pranayama training group and a control group. Pre-test values for stress, anxiety and depression level of the different pranayama training group were 55.60, 56.23 and 53.12 respectively, while in the control group they were 54.40, 55.11 and 54.12 respectively.

Post-test values for the different pranayama training group showed an decrease in stress, anxiety and depression level of middle aged women (50.20, 50.12 and 46.31 respectively). In contrast, the control group showed minimal changes post-test with values of 54.21, 55.07 and 54.00 for stress, anxiety and depression level respectively.

Significant differences were observed in the different pranayama training group for stress (T = 5.28, p = 0.00), stress (T = 6.14, p = 0.00) and depression level (T = 4.14, p = 0.00) while no significant differences were found in the Control Group (1.11, 0.64 and 1.32 respectively). These findings suggest that different pranayama training group lead to significant decrease in stress, anxiety and depression level of middle aged women.

Table 2: Analysis of Covariance on Stress, Anxiety and Stress Level of Different Pranayama Training Group and Control Group

Variables	SSCG	CG	F-Ratio	P-Value
Stress	49.71	54.95	19.93*	0.00
Anxiety	51.10	53.12	6.21*	0.01
Depression Level	48.13	54.10	11.31*	0.00

The table presents findings from a study comparing selected stress level, anxiety and depression level between different pranayama practicing group and control group (CG). In the different pranayama training group, the adjusted post test mean levels of stress, anxiety and depression level were 49.71, 51.10 and 48.13 respectively, while in the CG, they were 54.95, 53.12 and 54.10 respectively. The F-ratio measures the ratio of the variability between groups to the variability within groups. Statistically significant differences were found in stress (F = 19.93, p = 0.00), anxiety (F = 6.21, p = 0.01), and depression level (F = 11.31, p = 0.00), levels, that the different pranayama practicing group experienced significant changes compared to the control group.

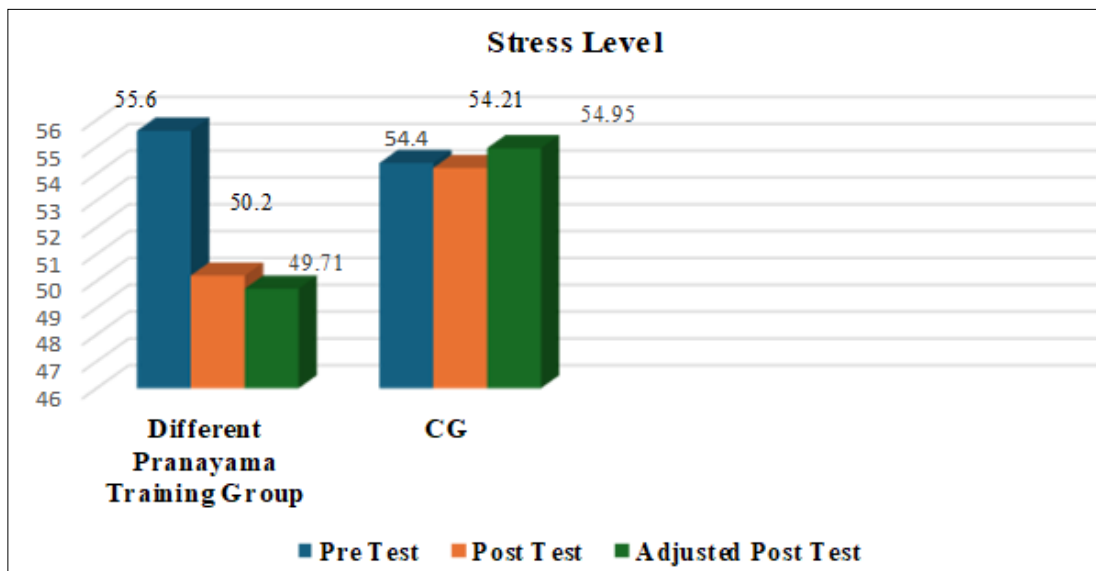


Fig 1: Graphical Representation of Stress Level of Different Pranayama Training Group and Control Group

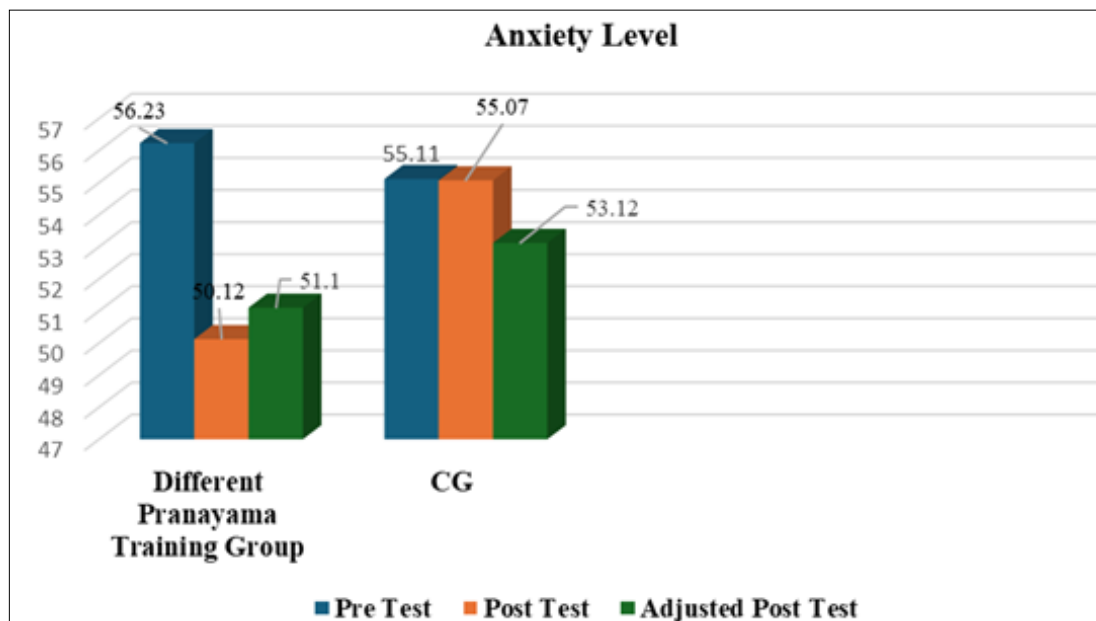


Fig 2: Graphical Representation of Anxiety Level of Different Pranayama Training Group and Control Group

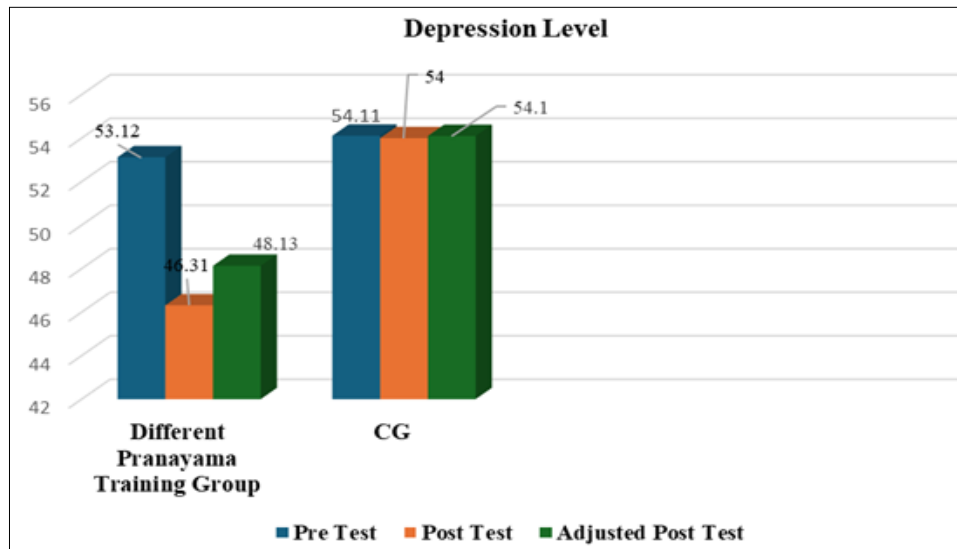


Fig 3: Graphical Representation of Depression Level Level of Different Pranayama Training Group and Control Group

Discussion on Findings

The findings highlight the significant impact of different pranayama practices on reducing stress, anxiety, and depression levels among middle-aged women, suggesting pranayama as a valuable tool for enhancing mental well-being in this demographic. The pranayama group experienced notable improvements in stress, anxiety, and depression compared to the control group, indicating that structured breathing exercises may play a key role in managing psychological health.

Pranayama, which involves controlled breathing techniques, is known to regulate the autonomic nervous system, thereby reducing the body's stress response. Research shows that specific pranayama practices like Nadi Shodhana (alternate nostril breathing) and Bhramari (humming bee breath) stimulate the parasympathetic nervous system, promoting relaxation and decreasing sympathetic activation, which is often associated with stress (Sengupta, 2012) [2]. The reduction in stress levels in the pranayama group aligns with findings from Brown and Gerbarg (2005) [1], who noted that pranayama effectively modulates stress by slowing the heart rate and improving oxygen flow, contributing to a calm state of mind.

The anxiety reduction observed in the pranayama group may also be attributed to the role of deep, rhythmic breathing in stabilizing mood. Studies have indicated that pranayama enhances GABA (gamma-aminobutyric acid) levels, a neurotransmitter linked to reducing anxiety. In middle-aged women, who may be more prone to anxiety due to life transitions and hormonal changes, pranayama provides a natural, accessible means of calming the mind and alleviating anxiety symptoms (Streeter *et al.*, 2010) [4]. Regarding depression, pranayama has been shown to improve mood by increasing oxygen saturation and promoting a sense of well-being. Practices like Kapalabhati and Ujjayi breathing stimulate the vagus nerve, which has been associated with improved emotional stability and reduced depressive symptoms. Research by Sharma *et al.* (2013) [3] highlights that regular pranayama practice leads to an increase in endorphin levels and decreased cortisol, a hormone linked to stress and depression, supporting the observed reduction in depression levels in the pranayama group.

The control group's minimal changes underscore the unique benefits of pranayama in managing psychological health, as

participants who did not practice pranayama did not experience significant improvements. The statistical analyses indicate that pranayama training led to significant differences in mental health outcomes, with the pranayama group showing greater reductions in stress, anxiety, and depression levels.

Conclusions

In conclusion, the study demonstrates that regular pranayama practice significantly reduces stress, anxiety, and depression levels among middle-aged women, highlighting its potential as a valuable, non-invasive mental health intervention. Pranayama's impact on the autonomic nervous system and neurotransmitter balance promotes relaxation and emotional stability, making it an effective tool for managing psychological well-being. The observed improvements underscore pranayama's suitability as an accessible and low-cost approach to mental health enhancement. These findings advocate for the inclusion of pranayama in wellness programs tailored to middle-aged populations, providing them with a natural method for achieving mental and emotional resilience.

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