

Effect of *Pranayama* on Quality of Life Among Geriatric People

Vinal Damor¹, Dr Rajesh Kumar Kanoji², Dr Yagna Shukla³, Dr Ajeet Sharan⁴,
Dr Mukesh Kumar Vora⁵

¹Lecturer, Government Physiotherapy College, Ahmedabad, Gujarat

²Professor, Orthopedics Dept, NIMS University, Jaipur

³Chairman, National Commission for Allied and Healthcare Profession (NCAHP), Delhi

⁴Principal, Government Physiotherapy College, Ahmedabad, Gujarat

⁵HOD, Pharmacology Department, GMERS Medical College, Sola Civil Hospital, Ahmedabad.

Corresponding Author: Vinal Damor

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ABSTRACT

Background: As the world's population ages and people live longer, it is increasingly important to ensure that older individuals have a good quality of life. Yoga, including techniques like *Pranayama*, can be a valuable way to reduce psychological issues such as stress, particularly in the elderly. Reports suggest that *Pranayama* can improve the quality of life for the elderly and help change their attitudes towards age-related changes.

Aim: To study the effect of *pranayama* on Geriatric people's quality of life.

Objective: To find out the effect of *pranayama* on quality of life by using the WHOQOL-BREF Questionnaire among Geriatric people.

Methodology: This study was conducted in the Physiotherapy department of a Civil Hospital in Ahmadabad, Gujarat. A total of 48 subjects were selected using a convenient sampling method. The research instrument consisted of a demographic data profile and the WHOQOL-BREF scale to evaluate the quality of life experienced during the ageing phase. The intervention of *pranayama* was provided to selected participants for a continuous period of 4 weeks, 6 days per week. The *pranayama* session included Anulom-Viom *Pranayama*.

Result: According to the study, there was no significant difference in the pretest mean (SD) between the experimental group (71.38 ± 12.04) and the control group (71.27 ± 10.15). However, the intervention posttest showed a statistically significant difference in the mean (SD) of the experimental group (73.38 ± 10.62) and the control group (70.27 ± 7.83). This indicates a significant difference in the post-test mean score of the experimental group compared to the control group.

Conclusion: The study concluded that *Pranayama* showed statistically significant improvement in the quality of life for Geriatric people after prolonged implementation.

Keywords: Quality Of Life, *Pranayama*, Geriatric people

INTRODUCTION

Ageing is linked to the progressive decline in overall health, the loss of respiratory muscle mass, reduced thoracic mobility and compliance, and diminished efficiency of

daily activities¹. The 2022 India report highlights that there will be 14.9 crore individuals aged 60 years and above in 2022, comprising around 10.5% of the country's population. An increase in the older

population will lead to an urgent need for elder care and support, particularly in India, where traditional family-based care is becoming less common than in the past (Arokiasamy et al., 2012)². Ageing is also associated with significant changes in cardiovascular neural control, manifested by decreased heart rate variability and increased sympathetic drive⁴. These changes may contribute to poor adaptive control of cardiovascular diseases, characteristic of the natural ageing process, and reduced quality of life⁵. Yoga is a holistic practice rooted in ancient Indian philosophy, aimed at balancing life's physical, mental, emotional, psychic, and spiritual aspects. The practice of yogic breathing helps to harmonize the body, mind, and emotions³.

As per World Health Organisation (WHO), pain and stress are a common mental health disorders, characterized by poor concentration, feelings of tiredness and difficulties in daily activities. An aged person suffers from symptoms that interfere with his or her ability to function normally for a prolonged period. Remember to learn how to relax on their own, without becoming dependent. Research suggests that pranayama breathing exercises have many positive effects on physical and mental health. These simple and inexpensive exercises can be easily added to a daily routine and may improve the quality of life for older individuals. Pranayama can significantly reduce stress, improve the emotional well-being of the elderly, and change their attitude towards ageing. Therefore, this study aims to investigate whether four weeks of specific pranayama breathing exercises can effectively improve the overall health and quality of life of the Geriatric population.

NEED OF THE STUDY

The elderly often face overlooked health challenges, leading to lower quality of life and increased stress levels. This study suggests that using selected Pranayama can greatly help geriatric people become physically and mentally capable of dealing

with daily activities. Therefore, Geriatric people need to reduce stress through relaxation. These selected yogic breathing exercises are easy to understand and perform at no cost, allowing old-age individuals to do them independently, anywhere.

METHODOLOGY:

Study Design: An Experimental Study

Study duration: 4 weeks

Study size: 48 Subjects

Study setting: OPD in the Physiotherapy Department, Civil Hospital. Ahmedabad

Study method: Convenient sampling method

Inclusion criteria:

- Age between 60 years and above
- Both males and females are included
- Willingness to participate

Exclusion criteria:

- Chronically ill person
- Neurological conditions
- Recent major surgery
- Non-cooperative

WHOQOL-BREF Questionnaire^{10,11}:

It has good internal consistency, with a Cronbach's alpha coefficient ranging from 0.88 to 0.92 for the overall score. Internal reliability for all domains is above 0.70. The convergent validity results indicated that the correlation coefficient values for all scale domains are significantly correlated at $\alpha < 0.01$. This questionnaire covers four domains that encompass all aspects of quality of life. It includes 26 questions about individuals' perceptions of their health and quality of life over the past 2 weeks. Each item on the scale is rated from 1 to 5, and the score is computed and transformed on a scale ranging from 0 to 100. A higher score is indicative of a better quality of life.

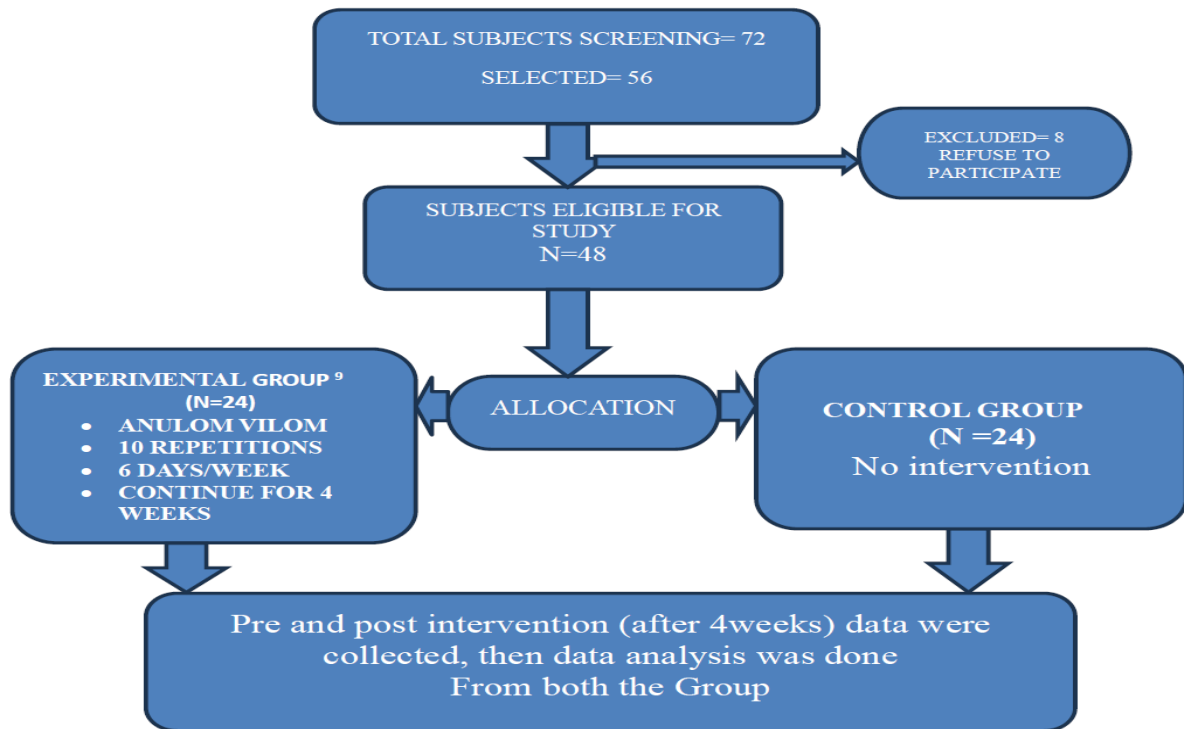
PROCEDURE

Ethical approval was obtained from the Institutional Ethics Committee of GMERS Medical College and Civil Hospital, Sola, Ahmedabad, Gujarat (Registration No: GMERSMCS/IEC/64/2024).

Informed written consent was obtained from each participant after explaining the nature

and purpose of the study in the vernacular (Gujarati) language.

Flow chart



Exercise protocol¹²:

- Type of exercise: Anulom- Vilom Pranayama
 - Frequency: 10 repetitions
 - Duration: 15 minutes per session
6 days/week for 4 weeks
- The pranayama exercises, such as Anulom-Vilom were implemented in the experimental

group, while no form of pranayama was given in the control group. These interventions are derived from a classical training methodology of yoga pranayama suggested in the ancient text of yoga.

PHOTOS



Figure 1: Patient is doing Anulom Vilom pranayama.

DATA ANALYSIS PLAN AND PRESENTATION

The collected data were analyzed using Microsoft Excel. The values were expressed as mean ± SD. P< 0.001 was statistically significant.

Descriptive and inferential statistics such as mean, percentage, standard deviation and paired t-test were used.

RESULT

Data was collected on 48 subjects before and after 4 weeks of yogic breathing exercises. The aim was to analyze the quality of life among senior citizens by comparing the means of pre and post-tests of both the experimental and control groups.

Table 1: Demographic data of all participants n=48

Variables	Mean	SD
Age (years)	65.33	(4.49)
Height(cm)	157.6	(8.17)
Weight (kg)	63.60	(9.23)
BMI	25.05	(3.74)

Table 2: Quality of life of the senior citizens during the Pretest of the control group and experimental group

Group	N	Mean	SD
Experimental	24	71.38	12.04
Control	24	71.27	10.15

Mean and SD of Quality of Life of senior citizens

Table 4: Pre –Post-test score comparison quality of life between experimental and control group n=48

Group	Mean (SD) pretest	Mean (SD) posttest	t value	P value
Experimental	71.38(12.03)	73.82(10.62)	4.389	< 0.001
Control	71.27(9.94)	70.67(7.83)	0.293	0.772

Tabulated – t value required to be significant at 0.001 level of confidence.

Based on Table 4, there is a noteworthy difference in the average post-test scores between the experimental group (73.38) and the control group (70.67). After conducting a paired t-test, it became apparent that the t-

Based on Table 2, there was no notable difference between the pre-tests of the experimental and control groups. To further analyze this difference, we performed a paired t-test. The results showed that there was no significant difference between the pre-test scores of the experimental and control groups.

Table 3: Quality of life of the senior citizens during the POST test of the control group and the experimental group

Group	N	Mean	SD
Experimental	24	73.82	10.62
Control	24	70.67	7.83

Mean and SD of Quality of Life of senior citizens

Based on the data presented in Table 3, it can be concluded that there is a significant improvement in the post-test scores of the experimental group compared to the control group. To confirm this difference, a paired t-test was used to analyze the data.

The results were analyzed and the mean post-test score of the experimental group was higher than the mean pre-test score. In contrast, the mean pre-test score and mean post-test score of the control group were almost the same. Additionally, it was observed that the mean post-test score of the experimental group was higher than that of the control group.

value of the experimental group (4.389) is statistically significant at a 0.001 confidence level. In contrast, the t-value of the control group (0.293) is not statistically significant at a 0.001 confidence level.

Graphical Presentation:

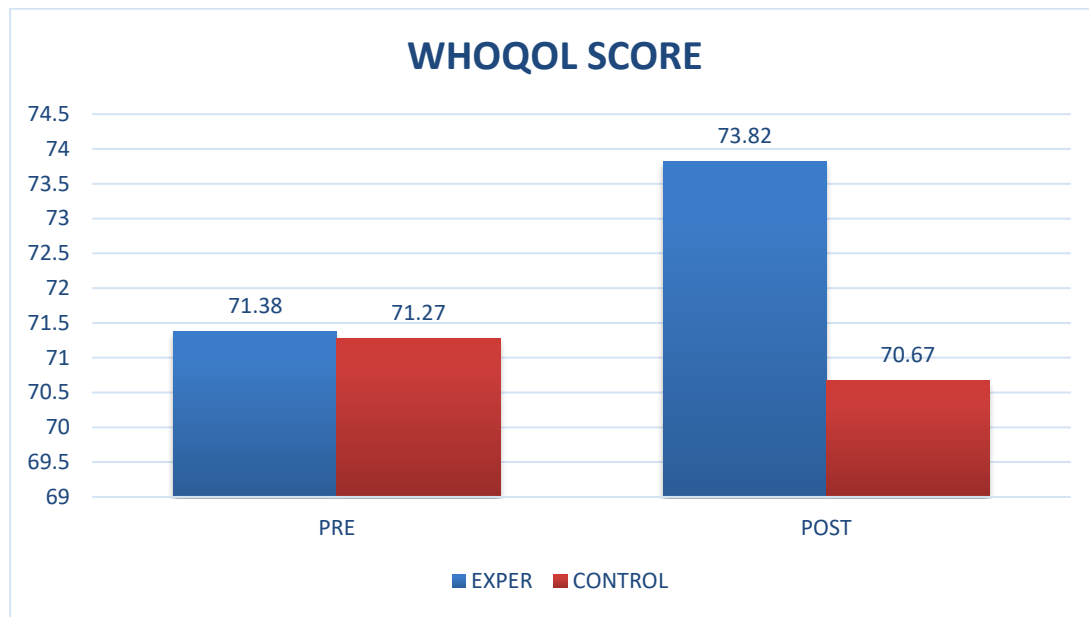


Figure 2: Pre and Post-WHOQOL scores between Experimental and Control groups.

DISCUSSION

Our analysis revealed that specific pranayama breathing exercises have a positive impact on the quality of life, particularly in the elderly population, compared to those who did not engage in any particular exercise. Gurjeet¹³ et al. (2017) found that Different yoga practices like meditation, movement, and breathing are linked to General Mental Health and General Physical Health. Meditation and breathing are positively correlated with General Mental Health, while only breathing is positively correlated with General Physical Health.

Jariwala Vishal¹⁴ et al. found that depression is moderately high among the elderly in Surat City, with several social-demographic variables significantly associated with depression in this population. They also discovered that around 67% of mental health cases requiring institutional treatment occur per 1,000 population.

Pain and disability have a strong influence on the poor quality of life in the geriatric population suffering from different regional pains (Shah D et al,2016)¹⁷.

Currently, medical treatment for stress, anxiety, and depression especially in old age, involves mostly pharmacology and psychological intervention, However, yogic

practices and pranayama are becoming increasingly popular as a means to reduce stress in individuals. Pranayama is an effective method for managing and reducing stress, as shown by studies on yoga and pranayama's impact on physical and mental health. They can be considered complementary or alternative methods for medical therapy, as they have been shown to improve well-being, relaxation, self-confidence, body image, efficiency, attentiveness, and optimism.

Similarly, Ranil Jayawardena had a systematic review exploring the therapeutic benefits of pranayama and concluded that pranayama indicates both physiological and psychological benefits and improves overall quality of life¹⁶.

We did not examine the effects of pranayama breathing exercises on medically ill elderly people. Our study population was limited to healthy elderly individuals who practised pranayama. Future studies could be designed to understand the effects of pranayama on elderly people with various health-related diseases in different locations and clinical settings.

Significance And Clinical Implications Of The Study:

Pranayama techniques can improve awareness, stamina, and concentration, reducing physical and psychological issues while enhancing the quality of life, especially for senior citizens. It's important to implement these techniques in the rehabilitation protocol for the Geriatric population.

CONCLUSION

The study shows statistically significant improvement in the experimental group compared to the control group. Practising Pranayama breathing exercises for four weeks can significantly improve the quality of life for Geriatric people. Regular practice can have beneficial effects and guide physiotherapeutic interventions for age-related health issues.

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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