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**Original Research Article**

# Effect of pranayama on quality of life of sweepers: a pre-post experimental study

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## ABSTRACT

**Background:** Sweepers perform physically demanding work and remain exposed to dust, noise and environmental stressors, which may negatively influence their wellbeing. Pranayama, a yogic breathing practice, is known to support both physical and psychological health. To study the effect of pranayama on the quality of life of sweepers using the WHOQOL-BREF scale.
**Methods:** Sixty sweepers aged 25–40 years took part in this pre–post experimental study. Participants practiced Anulom Vilom and Bhramari pranayama for 20 minutes per session, five days a week, for four weeks. Quality of life scores were recorded before and after the intervention. Data were analyzed using the paired t-test.
**Results:** Significant improvements were observed in the physical health (p=0.001, t=12.648), psychological (p=0.001, t=6.9515) and social relationship (p=0.0042, t=2.97734) domains. No significant change occurred in the environment domain (p=0.3672, t=0.909)
**Conclusions:** Regular practice of pranayama improved physical, mental and social aspects of wellbeing among sweepers. It can be considered a simple, cost-effective
method for enhancing quality of life.

**Keywords:** Pranayama, Quality of life, Sweepers, WHOQOL-BREF

## INTRODUCTION

Sweeping work involves continuous physical effort, exposure to dust, outdoor weather changes and irregular work conditions. These factors may affect the quality of life of sweepers by influencing their "physical health, emotional balance and social interactions".[1,2] Quality of life includes a person's "overall perception of health, comfort and day-to-day functioning".[3] Pranayama is a traditional yogic method of controlled breathing. It involves slow and mindful inhalation and exhalation, which "help regulate the body's stress responses."[4] Among the several pranayama techniques, Anulom Vilom and Bhramari are simple, easy to learn and "known for their calming effects".[5] Breathing practices influence the autonomic nervous system by encouraging relaxation," reducing tension and improving emotional stability."[6]

Because sweepers often face physical strain and psychological stress, pranayama may serve as a useful tool to support their overall wellbeing.[7] This study aimed to evaluate the effect of a structured pranayama program on the quality of life of sweepers in Pune using the WHOQOL-BREF questionnaire.

## METHODS

### *Study design*

Pre–post experimental study.

***Sample size***

The sample size was 60 sweepers.

***Sampling method***

*Purposive sampling*

Sample size was calculated using statistical software and participants were recruited from societies and colleges using purposive sampling.

***Study place***

The study place was Pune, Maharashtra

***Study duration***

The study duration was from January 2026 to February 2026.

***Inclusion criteria***

It includes age 25–40 years. Minimum one year of work experience Both male and female sweepers

***Exclusion criteria***

Individuals who smoke or consume alcohol. Participants already familiar with Pranayama. Known cases of asthma.

***Ethical approval***

Ethical approval was obtained from the Institutional Ethical Committee of PES Modern College of Physiotherapy prior to commencement of the study.

***Intervention***

Eligible participants were informed about the study and provided written consent. Before beginning the intervention, participants completed the WHOQOL-BREF questionnaire. The pranayama program consisted of: Anulom Vilom – 10 minutes, Bhramari–10 minutes. Practiced five days per week for four weeks. After completing the four-week program, participants again filled out the WHOQOL-BREF questionnaire.

***Stastical analysis***

Pre- and post-intervention scores were compared using the paired t-test. A p value less than 0.05 was considered statistically significant.

## RESULTS

Following the pranayama intervention, participants showed significant improvement in multiple domains of the WHOQOL-BREF scale.

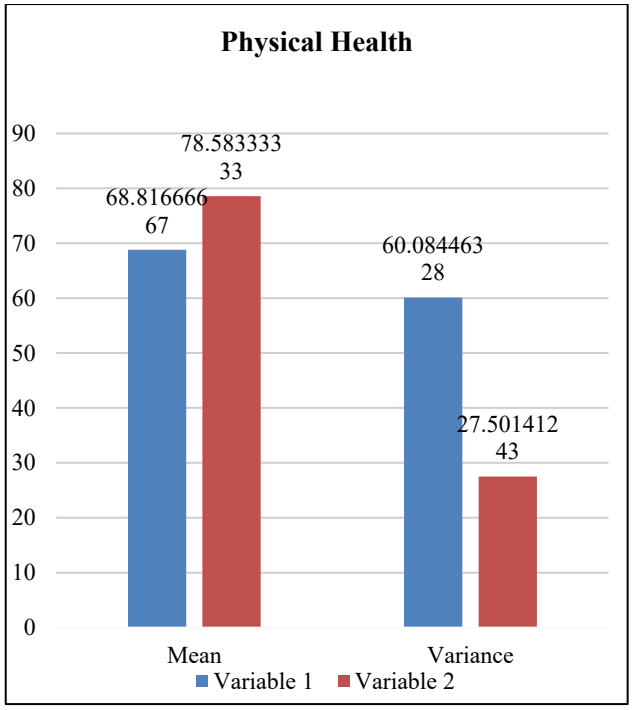


**Figure 1: Physical health pre post score.**

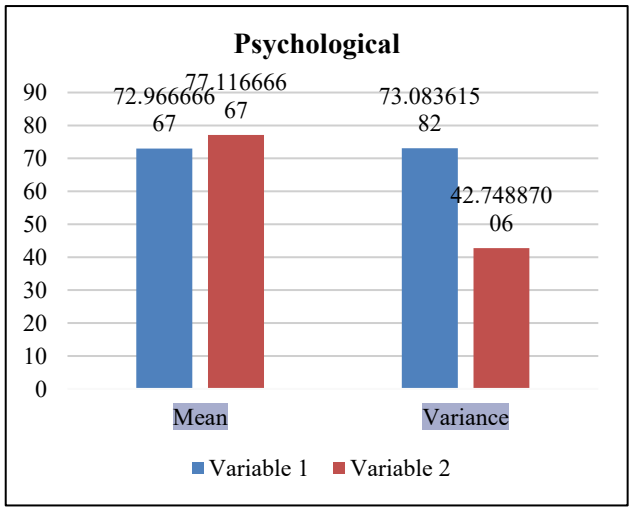


**Figure 2: Psychological pre post score.**

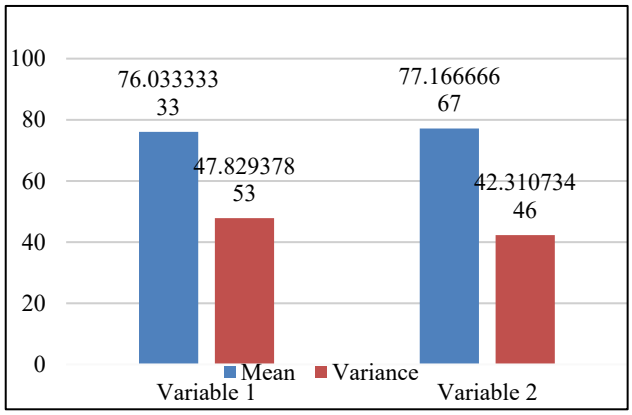


**Figure 3: Social relationship pre post score.**

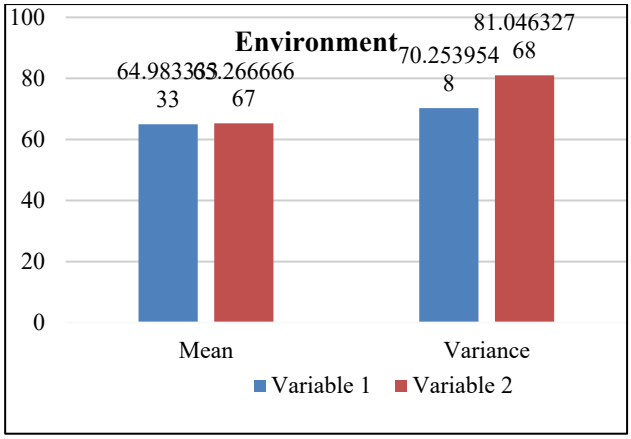


**Figure 4: Environment pre post score.**

**Table 1: Physical health.**

| | P value | t value |
|---|---|---|
| **Physical health** | <0.001 | -12.648 |

**Table 2: Psychological.**

| | P value | t value |
|---|---|---|
| **Psychological** | <0.001 | -6.9515 |

**Table 3: Social relationship.**

| | P value | t value |
|---|---|---|
| **Social relationship** | 0.0042 | -2.97734 |

**Table 4: Environment.**

| | P value | t value |
|---|---|---|
| **Environment** | 0.3672 | -0.909 |

## DISCUSSION

This study examined how pranayama influences the wellbeing of sweepers and found meaningful improvements in several areas of quality of life. Practicing Anulom Vilom and Bhramari for four weeks resulted in positive changes in the physical, psychological and social domains. The improvement in the physical health domain can be explained by the physiological mechanisms activated during slow, controlled breathing.

Pranayama enhances vagal tone, decreases sympathetic arousal and promotes better oxygen distribution in the body. These effects reduce muscle tension, improve energy levels and support better sleep quality, contributing to an "overall enhancement in physical wellbeing." Similar observations have been reported in previous studies, such as Kuppusamy et al where Bhramari pranayama was shown to improve cardiovascular relaxation and "stabilize autonomic functions".[8] A significant increase in psychological health was also noted. Sweepers often experience stress due to long working hours, exposure to unpleasant environments and job-related fatigue. Pranayama practices help activate the parasympathetic nervous system, reduce cortisol levels and promote a calm mental state. Regular breathing exercises also improve emotional regulation and concentration. Studies by researchers such as Jayawardena et al and Chandla et al similarly highlight that pranayama has a positive influence on anxiety, mood stability and "general mental wellbeing".[4,9] Therefore, the improved psychological scores in this study may be attributed to reduced stress reactivity and better coping ability developed through daily breathing practices.

The enhancement in the social relationship domain suggests that participants experienced better interpersonal interactions after the intervention. Reduced stress, improved emotional balance and increased self-awareness can facilitate healthier communication and stronger social bonds. When individuals feel physically and mentally better, they are more likely to engage positively with family members, colleagues and the community. This connection between mental calmness and social functioning has also been indicated in prior literature emphasizing the "holistic effects of yogic practices".[10] On the other hand, the environmental domain did not show significant improvement. This outcome is understandable because factors such as workplace conditions, income, access to health services and physical surroundings are external and cannot be changed through pranayama practice alone. Since these aspects depend on organizational policies and broader socioeconomic conditions. The study was conducted on a limited sample size and for a short duration. Long-term follow-up was not performed.

## CONCLUSION

A four-week pranayama program brought significant improvement in the physical, psychological and social domains of quality of life among sweepers. Although environmental factors remained unchanged, the results show that pranayama can be included as a simple health-promoting practice for workers facing demanding conditions.

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*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Sabde YD, Zodpey SP. A Study of Morbidity Pattern in Street Sweepers: A Cross-sectional Study. Indian J Comm Med. 2008;33(4):224-8.
2. Habybabady RH, Sis HN, Paridokht F. Effects of dust exposure on the respiratory health symptoms and pulmonary functions of street sweepers. Malays J Med Sci. 2018;25(6):76-84.

3. Felce D, Perry J. Quality of life: Its definition and measurement. Res Dev Disabil. 1995;16(1):51-74.
4. Shukla M, Chauhan D, Raj R. Breathing exercises and pranayamas to decrease perceived exertion during breath-holding while locked-down due to COVID-19 online randomized study. Complement Ther Clin Pract. 2020;41:101248.
5. Wasnik V, Patrikar V. Comparative Study of the Mechanism of Action of Pranayama and Swimming on Pulmonary Function in Healthy Individuals – A Review. 2019.
6. Seltmann CL, Killen LG, Green JM. Effects of 3 Weeks Yogic Breathing Practice on Ventilation and Running Economy. Int J Exerc Sci. 2020;13(2):62-74.
7. Development of the World Health Organization WHOQOL-BREF quality of life assessment. Psychol Med. 1998;28(3):551-8.
8. Kuppusamy M, Kamaldeen D, Pitani R, Amaldas J. Immediate Effects of Bhramari Pranayama on Resting Cardiovascular Parameters in Healthy Adolescents. J Clin Diagn Res. 2016;10(5):17-9.
9. Chandla SS, Sood S, Dogra R. Effect of short-term practice of pranayamic breathing exercises on cognition, anxiety, general well-being and heart rate variability. J Indian Med Assoc. 2013;111(10):662-5.
10. 10. Yüce GE, Taşcı S. Effect of pranayama breathing technique on asthma control, pulmonary function and quality of life: A single-blind, randomized, controlled trial. Complementary Therap Clin Pract. 2020;38:101081.

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