

REVIEW ARTICLE

A Narrative Review on the Role of *Bhramari Pranayama* in Stress Management

A. Kavitha^{1*}, Gangadhar Singh², Jyoti Kumari³

¹PG Scholar, Department of Swasthavritta and Yoga, Government Ayurvedic College and Hospital, Patna, Bihar, India.

²Professor, Department of Swasthavritta and Yoga, Government Ayurvedic College and Hospital, Patna, Bihar, India.

³Associate Professor, Department of Swasthavritta and Yoga, Government Ayurvedic College and Hospital, Patna, Bihar, India.

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ABSTRACT

Background: Stress is the body's natural physical and psychological response to pressure, demands, or perceived threats. It is most commonly reported among young adults aged 18–29 years. However, stress remains a universal experience that can impact individuals at any stage of life. *Bhramari Pranayama* is a yogic breathing practice where you make a gentle humming sound like a bee while exhaling. The vibration created during humming has a soothing effect on the brain and nervous system.

Aim and Objectives: This review aims to study the benefits of *Bhramari Pranayama* in stress management, to review the literature related to *Bhramari Pranayama*, and to review the literature regarding stress.

Materials and Methods: Various sources of literature, including research articles, journals, and classical texts of Ayurveda, modern science, and Yoga, were systematically reviewed and analyzed.

Discussion: The humming sound produced during *Bhramari Pranayama*, similar to *Mantra* repetition, along with its regulatory effect on breathing rhythm, may help in alleviating stress and promoting mental relaxation.

Conclusion: *Bhramari Pranayama* may be highly beneficial in managing stress-related problems and improving psychological well-being.

1. INTRODUCTION

According to the World Health Organization (WHO), stress can be described as a state of worry or mental tension caused by a difficult situation. It is a natural human response that prompts individuals to address challenges and threats in their lives.^[1] Stress has become a widespread global health concern affecting individuals across all age groups. According to the WHO, stress-related disorders are among the leading contributors to the global burden of disease, particularly in relation to mental health conditions such as anxiety and depression. Globally, it is estimated that a significant proportion of adults experience stress regularly due to work pressure, financial difficulties, social challenges, and health problems.

Corresponding Author:

Kavitha, PG Scholar, Department of Swasthavritta and Yoga, Government Ayurvedic College and Hospital, Patna, Bihar, India.
Email: kavivjs1998@gmail.com

1.1. Common Symptoms of Stress

- Physical: Headaches, muscle tension and pain, rapid heart rate, fatigue, insomnia, digestive issues, diarrhoea, constipation, and high blood pressure
- Emotional: Irritability, anxiety, depression, mood swings, feeling overwhelmed, and loss of control
- Cognitive: Poor memory, difficulty concentrating, constant worrying, and poor decision-making
- Behavioral: Changes in appetite (overeating or undereating), social withdrawal, procrastination, and substance abuse.

In *Ayurveda*, “*Unmada*” refers to a collection of mental illnesses that are very similar to psychosis. “*Chittodvega*” is a prodromal sign of *Unmada*, although it is not mentioned in the classics. Numerous terminologies pertaining to mental conditions have also been detailed in various writings, such as *Chittavibhramsha* (mental decadence), *Chittavibhrama*^[2] (mental turbulence), *Anavasthita Chitta*^[3] (unstable

mind), *Chittaviparyaya* (misapprehension of mind), and *Unmatchitta*^[4] (furoreous mind).

Chittodvega is characterized by symptoms analogous to modern descriptions of stress and anxiety, such as excessive apprehension, restlessness, insomnia, impaired attention, heightened autonomic responses, and psychological distress.

Pranayama (yogic breathing) is one of *Ashtanga Yoga*; Acharya Patanjali mentioned *Pranayama* as the fourth limb of *Ashtanga Yoga*.^[5] *Bhramari Pranayama* is one of the eight types of *Pranayama* described in traditional *Yoga* practice.

Although *Pranayama* therapy is considered a useful adjuvant approach in stress management, current evidence suggests that individuals may derive significant benefits from regular *Pranayama* practice in terms of improved well-being, better sleep patterns, emotional balance, and overall quality of life. While *Yoga* has been widely studied for its role in reducing stress and promoting health, there is limited research focusing on individual *Pranayama* techniques, particularly with respect to their specific effects in stress-related conditions. *Bhramari Pranayama*, known for its calming and soothing properties, is traditionally recommended for relieving mental tension and promoting relaxation. However, sufficient scientific evidence exclusively supporting its role in stress management remains limited. Most available literature discusses the combined effects of various *Pranayama* practices rather than specifically evaluating *Bhramari Pranayama*. Therefore, this systematic review aims to examine the existing research on *Bhramari Pranayama* in the context of stress, critically analyse the methodologies employed, and assess the benefits reported. The findings may help identify gaps in current research and create opportunities for further scientific exploration in this field.

Bhramari Pranayama, an important practice of Yogic breathing, is highly beneficial for promoting and maintaining mental well-being, particularly during stressful conditions. This review aims to explore the potential benefits of *Bhramari Pranayama* among individuals experiencing stress.

1.2. Aim and Objectives

1. To review the literature regarding stress
2. To review the *Ayurvedic* literature regarding stress
3. To review the literature regarding *Bhramari Pranayama*
4. To review the benefits of *Bhramari Pranayama* in stress.

2. METHODOLOGY

A narrative review methodology was adopted. Relevant literature was collected from classical *Ayurvedic* texts, *Yoga* treatises, and modern scientific databases such as PubMed, Google Scholar, and research journals. Keywords including “*Bhramari Pranayama*,” “*Pranayama*,” and “stress management” were used. Selected articles were reviewed and analyzed to understand the role of *Bhramari Pranayama* in stress reduction.

2.1. Stress

Following a stressful event such as a serious illness, accident, or major life change, some individuals may develop feelings of anxiety, anger, depression, withdrawal, and altered activity patterns. It triggers the “fight or flight” response, releasing hormones such as cortisol and adrenaline.^[6]

2.2. Causes

- Work or academic pressure
- Financial problems
- Relationship conflicts
- Health issues
- Major life changes
- Family problems.

2.3. Symptoms

- Muscle tension
- Bowel disturbance
- Sleep disturbance
- Sorrow
- Tearfulness
- Loss of interest
- Sense of futility
- Anxiety
- Anger
- Depression
- Aggressive behavior
- Emotional numbing.

The symptoms are transient and usually resolve completely within a few days.

2.4. Treatment

- Psychological treatment:
- listen
- Reassurance
- Counselling.
- Psychotropic drugs:
- Benzodiazepines.

3. AYURVEDIC LITERATURE REVIEW

3.1. Definition of *Chittaodvega*

Chittodvega is described as a *Mano Vikara* characterized by mental agitation and anxiety. The word *Chittodvega* is derived from *Chitta* meaning mind and *Udvega* meaning anxiety, thereby signifying an anxious state of mind.

3.2. Nidanam (Etiological Factor)

- Disease arises due to improper or harmful interaction with time (*Kala*), intellect (*Buddhi*), and sense objects (*Indriyarth*). This is referred to as *Asatmya-indriyarth-samyoga*, along with *prajnaparadha* (intellectual error) and *parinama*^[7] (natural transformation)
- It occurs in individuals who do not follow *Sadvritta*, the prescribed code of good conduct and healthy living
- It is caused by *Vegadharana* (suppression of natural bodily urges)
- It is influenced by an excess of *Rajas* and *Tamas* qualities, especially in people with low *Sattva* (mental purity and clarity)
- It involves impairment or disturbance of *Buddhi* (intellect), *Dhriti* (restraint), and *Smriti*^[8] (memory)
- It may also be the result of karma actions from *Purvajanmakrita karma* from previous births.

3.3. Samprapti (Pathology)

Because of the above causative factors, the *Doshas*, mainly *prana vata* and *Sadhaka Pitta*, become aggravated in individuals with low levels

of *Sattva Guna* (mentally weak or less stable minds). This disturbs the *Hridaya* (heart), which is considered the seat of intellect. From there, the channels that carry mental functions (*Manovaha Srotas*) are quickly affected, leading to *Chittodvega* and instability of the person's mind.^[9]

3.4. Samprapti Ghatakas

- *Dosha Manas - Rajas, Tamas* (especially *Rajas*)
- *Sharira - Vata, Pitta* (specially *Prana Vata*)
- *Dushya - Manas, Sarvadhātu*
- *Srotas- Manovaha Srotas* (specifically), *Sarvastrotodushṭi*
- *Agni - Jatharagni, Dhatvagni*
- *Udbhavasthaana - Manas (Hridaya)*
- *Adhisthaana - Hridaya (Shiro-hridaya)*
- *Vyaktisthaana - Manas, Sarvasharira*
- *Rupa - Udvega, Bhaya, Kampa, Atisweda* etc.
- *Rogamarga - Madhyam*
- *Sadhyasadhyata - Kriccha Sadhya*
- *Upadrava - Unmadadi Manovikara, Sarva Shariravikara.*

3.5. Rupam (Symptoms)

There is no distinct description of *Chittodvega*. Hence, the *Purvarupa*^[10] of *Unmada* may be regarded as the *Lakshana* of *Chittodvega*, which are described as follows:

- Perverted intellect
- Mental agitation
- Restless gaze
- Impatience
- Incoherent speech
- Feeling of emptiness in the heart
- Inactive mind
- Loss of memory, intellect, and perception
- Wanders aimlessly.

3.6. Chikitsa

Trividhachikitsa is recommended by *Ayurveda* for the treatment of mental disease.

Trividhachikitsas^[11] are:

- *Daivavyapashraya Chikitsa*
- *Yuktivyapashraya Chikitsa*
- *Satvavajaya Chikitsa.*

3.7. Daivavyapashraya Chikitsa

The following treatments are referred to as *Daivavyapashraya Chikitsa* (Spiritual/Divine Therapy).

1. *Ausadhi* (herb tying)
2. *Mantra* (incantation)
3. *Mani* (wearing jewels)
4. *Mangala* (rites of propitiation)
5. *Bali* (offerings)
6. *Upahara* (gifts)
7. *Homa* (offering/oblation)
8. *Niyama* (observances/promises)
9. *Prayascitta* (ceremonial penance)
10. *Upavasa* (fasting)
11. *Svastayana* (auspicious rites/protection rituals)
12. *Pranipata* (surrender/prostration)
13. *Yatragamana* (pilgrimage).

By eliminating anxiety and negative inclinations, it gives patients confidence and indirectly aids in *Manovikara* management.

3.8. Yuktivyapashraya Chikitsa (Rational Therapy)

It discusses using *Aushadha* (medicine), *Vihara* (exercise), and *Ahara* (food) to treat illness.

3.9. Satvavajaya Chikitsa (Mental Therapy)

It is designed for the treatment of mental disorders since it includes spiritual and scriptural knowledge, patience, memory, and breathing exercises. The principle of normalising the *manasika doshas* serves as the foundation for the therapy of mental illnesses. *Satvavajaya*, according to *Acharya Charaka*, is a “mind control therapy” that focuses on keeping the mind away from unhealthy *Arthas* (subjects of senses).

4. REVIEW

Pranayama is one of *Ashtanga Yoga*; Acharya Patanjali mentioned *Pranayama* as the fourth limb of *Ashtanga Yoga*. *Pranayama* (yogic breathing) is a term in *Sanskrit* derived from two components: “*Prana*” which signifies breath of life or vital energy, and “*Ayama*” which refers to expansion, regulation, or control.

Prana is the essential energy needed to maintain the active functioning and cooperation of every organ in the body. The ongoing movement of *Prana* within the *Nadis*, or subtle nerves throughout the body, is essential for maintaining a disease-free state. *Pranayama* involves managing and facilitating the steady movement of *Prana* via *Yoga* practices. *Pranayama*, or the control of *Prana*, can be attained through altering breath patterns. *Pranayama* involves the correct management of inhalation, breath retention, and exhalation. Although *Pranayama* can be performed independently, it can also be combined with various *Asanas* (postures) for enhanced benefit.

The regulation of breath or control of *Prana* involves halting inhalation and exhalation, which occurs after achieving stability in posture or seat, *Asana*. Controlling the inspiration and expiration is known as *Pranayama*.

4.1. Bhramari Pranayama

In Gheranta Samhita, the *Kumbhakas* or breath retentions are classified into eight types: *Sahita*, *Surya Bheda*, *Ujjayi*, *Shitali*, *Bhastrika*, *Bhramari*, *Murchha*, and *Kevali*. *Bhramari Pranayama* is one of the eight types of *Kumbhaka* (breath retention techniques) described in classical Yogic texts.

At midnight, in a quiet place free from the sounds of animals or other disturbances, the *Yogi* should practice *Puraka* (inhalation) and *Kumbhaka* (breath retention) while closing the ears with the hands. This technique is known as *Bhramari Pranayama*, also referred to as the beetle droning *Kumbhaka*, due to the humming sound produced during the practice.^[12]

In the Hatha Yoga Pradipika mentioned, by producing a humming sound like that of a bee during inhalation and exhalation, and practicing in this manner regularly, a unique bliss arises in the mind of the *Yogi*.^[13]

4.2. Technique

- Sit in any comfortable meditative pose, relax the body and practice *Kaya Sthairyam*
- Keep the eyes closed throughout the practice

- Inhale slowly and deeply through the nose, listening to the sound of the breath. Close the ears with the index and middle fingers by pressing the middle outer part of the ear ligament into the ear hole
- Keep the ears closed and exhale, making a deep, soft humming sound
- Concentrate on the sound, keeping it low-pitched
- When exhalation is complete, lower the hands to the knees and breathe in slowly
- Continue to practice in the same way, performing ten to twenty rounds. When finished, keep the eyes closed and listen for any subtle sounds.

4.3. Benefits^[14]

- Induces Mental Bliss (*Ananda*)
- Calms the Mind (*Citta Prasadana*)
- Reduces Stress
- Enhances concentration
- Balances nervous system activity
- Relieves anger, anxiety, and insomnia
- Extremely beneficial for all mental illnesses
- Reduces blood pressure and cerebral tension.

5. DISCUSSION

Bhramari Pranayama, a traditional *Yogic* breathing technique, appears to reduce stress through an integrated neurophysiological and psychological mechanism. The practice involves slow inhalation followed by prolonged exhalation with a humming sound, which promotes parasympathetic dominance by stimulating the vagus nerve and enhancing autonomic balance. This shift from sympathetic fight-or-flight activity to parasympathetic regulation is associated with reductions in heart rate, blood pressure, and perceived stress.^[15] The humming component further increases nasal nitric oxide production, improving vascular dilation, cerebral blood flow, and oxygen delivery, which may contribute to enhanced cognitive clarity and emotional stability.^[16] In addition, the internal vibratory and auditory focus functions similarly to meditative attention, reducing rumination and calming limbic hyperactivity linked to anxiety. Together, these effects suggest that *Bhramari Pranayama* operates through coordinated autonomic modulation, biochemical enhancement, and cognitive-emotional regulation, making it a simple, non-pharmacological, and potentially effective complementary intervention for stress management.

From an *Ayurvedic* perspective, stress can be understood as a disturbance of *Vata Dosha*, particularly *Prana Vata*, which regulates respiration, mental activity, sensory processing, joy, courage, and higher cerebral functions.^[17] Classical texts such as the *Charaka Samhita* describe that aggravation of *Vata* leads to symptoms including anxiety (*Chittodvega*), fear, insomnia, restlessness, and irregular physiological functioning. Similarly, the *Ashtanga Hridayam* explains that imbalance of *Prana Vata* disturbs mental equilibrium and sensory coordination. *Bhramari Pranayama*, through slow inhalation and prolonged humming exhalation, pacifies aggravated *Vata* (*Chala Vata*) by inducing rhythmic stability (*Sthira Guna*) and calming the mind (*Nichala Chitte*). The vibratory humming sound promotes internal resonance that may be interpreted in *Ayurvedic* terms as facilitating unobstructed flow of *Prana* through the nadis and preventing *Srotorodha* (channel obstruction), which is considered a contributing factor in psychosomatic disorders. Furthermore, *Ayurveda* describes mental health in terms of the three *Gunas*-

Sattva, *Rajas*, and *Tamas*. Stress reflects predominance of *Rajas* (agitation) and sometimes *Tamas* (inertia), whereas practices like *Pranayama* enhance *Sattva*, promoting clarity, emotional balance, and cognitive steadiness. Thus, within the *Ayurvedic* framework, *Bhramari Pranayama* restores dosha balance, stabilizes *Prana Vata*, and enhances *Sattvic* mental qualities, thereby addressing the root energetic disturbance underlying stress.

6. RESULTS

The charts below figures 1-3 illustrate the efficacy of various *Ayurvedic* interventions in reducing stress, anxiety, and depression symptoms. *Yoga* and *Meditation* appear to be the most effective, followed closely by *Panchakarma* and *Satwajaya*. Herbal supplements such as *Ashwagandha* and *Brahmi* also show significant efficacy, while dietary changes and lifestyle modifications have a more moderate impact. Based on the data provided in the research done on.^[18]

7. CONCLUSION

Bhramari Pranayama may be viewed as a holistic and integrative breathing method for managing stress, uniting contemporary physiological insights with classical *Ayurvedic* principles. From a biomedical standpoint, it facilitates parasympathetic dominance, improves autonomic regulation, stabilizes cardiovascular function, and enhances emotional and cognitive control through vagal engagement and regulated breathing patterns. These responses help attenuate excessive sympathetic activation and alleviate both the physical and psychological effects of stress. In *Ayurveda*, the practice of *Pranayama* mitigates aggravated *Vata*; especially *Prana Vata* calms mental fluctuations, supports the smooth circulation of *Prana*, and regulates *Sattva*, thereby reestablishing equilibrium at both the bodily and subtle energetic levels.

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9. AUTHORS' CONTRIBUTIONS

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11. ETHICAL STATEMENT

Ethical approval was not required for this study as it is a review article.

12. CONFLICT OF INTERESTS

The authors declare no conflicts of interest regarding the publication of this paper.

13. DATA AVAILABILITY STATEMENT

The data analyzed in this review were obtained from publicly available sources, including peer-reviewed articles, observational studies, and surveys accessible through databases.

14. DISCLAIMER/VIEW AND OPINIONS

The opinions expressed in this article are solely those of the authors and do not reflect the views of the *International Research Journal of Ayurveda and Yoga* or its editorial board.

15. AI-USE DECLARATION

The authors declare that no generative AI tools were used to create scientific content, interpret data, or draft any sections of this manuscript. AI-based tools were used solely for minor language and grammar refinements to improve clarity and readability. All scientific content, analysis, and conclusions remain the sole responsibility of the author.

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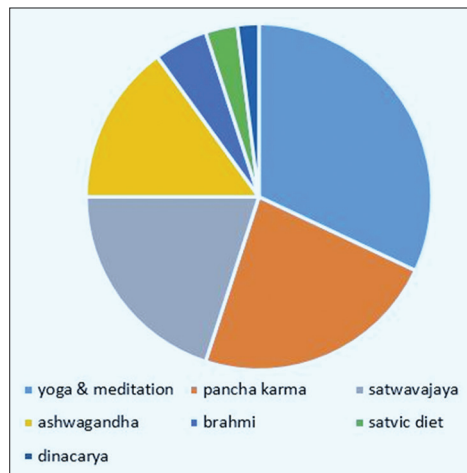


Figure 1: Illustration of depression reduction (%) by various *Ayurvedic* management

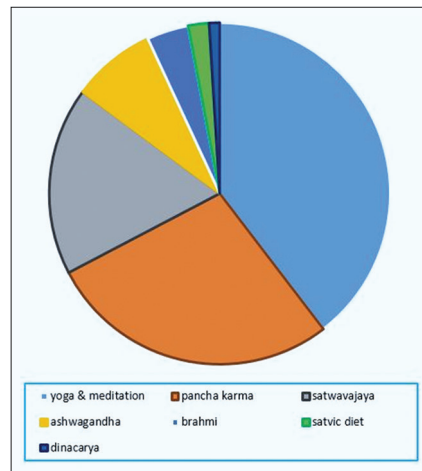


Figure 2: Illustration of anxiety reduction (%) by various *Ayurvedic* management

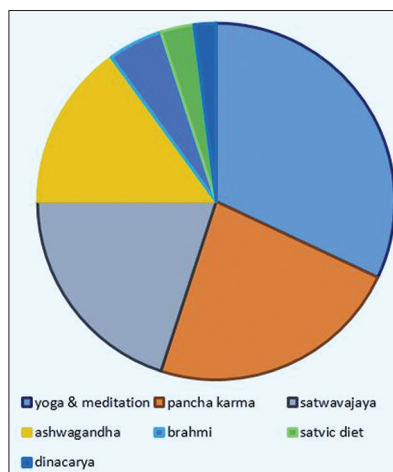


Figure 3: Illustration of stress reduction (%) by various *Ayurvedic* management