



Physioanatomical Effect Of Bhramari Pranayama In Stress Allevation

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ABSTRACT: -

Pranayama is among one of the eight limbs of Ashatang yoga's i.e. Yama Niyama, Aasan, Pranayama, Pratyahara, Dyana, Dharana, Samadhi. Pranayama Practice help us control the life force and make our system healthier and more energetic. Pranyamas such as Savitri, Kapalabhati, Bhastrika, Nadisuddhi, Bhramari cause pronounced physiological responses among normal healthy people. My current review article is somatic and psychological effect of bhramari pranayama in stress allivation. Bhramari Pranayama as described in the books Hath Yoga Pradipika and Gherand Samhita is Sanskrit word for "Honey Bee," involves emitting a humming sound similar to that of a bee. Through this Pranayama, we generate sounds and vibrations to establish a connection with our mind, regulate breathing, and attain elevated levels of concentration. It is beneficial to both physical and mental wellness on regular basis. This technique is a stress-relieving and helps to calm the body and mind, releasing agitation, frustration, anxiety and anger, making it a simple yet effective way to manage stress. It potentially reduces the secretion of stress hormones such as cortisol and adrenaline. It. trigger the production of endorphins, the body's natural mood enhancers. Elevated endorphin levels can induce a sense of calmness, alleviating pain and stress.

KEYWORDS: - Bhramari Pranayama, Gherand Samhita, Ashatang Yoga.

INTRODUCTION: -

Yoga boasts a long and illustrious history, stretching back millennia in the Indian subcontinent. Its origins can be traced to the pre-Vedic era, where archaeological findings in the Indus Valley Civilization suggest the presence of early yogic practices. As time progressed, yoga underwent significant transformations across various epochs, including the Vedic, Upanishadic, Classical, and Post-Classical periods. Each era contributed distinctively to its philosophical and practical evolution. Critical junctures in yoga's journey include the appearance of seminal texts like Patanjali's Yoga Sutras, which delineated the Eight Limbs of Yoga, and the proliferation of diverse yoga schools during the post-classical phase, exemplified by Hatha Yoga and Tantra Yoga. Through a combination of physical postures, breath control, and meditation, yoga promotes flexibility, strength, and relaxation. Its benefits extend beyond the physical, fostering mental clarity, emotional balance, and spiritual growth. Regular practice of yoga has been associated with reduced stress, improved sleep quality, increased energy levels, and enhanced overall well-being. Yoga serves as a powerful antidote to stress, offering a multifaceted approach to relaxation and well-being. Through gentle movements, mindful breathing, and meditation, yoga helps release physical tension, calm the mind, and regulate stress hormones. Its emphasis on present-moment awareness and self-awareness equips

practitioners with tools to recognize and manage stress effectively. Regular practice cultivates resilience, enabling individuals to navigate life's challenges with greater ease and serenity.

Stress is a prevalent and widespread phenomenon across the globe, affecting individuals of all ages, backgrounds, and demographics. While it's challenging to pinpoint exact prevalence rates due to the subjective nature of stress and cultural differences in its expression, numerous studies indicate that stress is a common experience for many people worldwide. Factors contributing to stress include work pressures, financial concerns, relationship issues, health problems, societal expectations, and global events such as pandemics and natural disasters. Modern lifestyles, characterized by rapid technological advancements, information overload, and constant connectivity, also contribute to rising stress levels. Incidences of stress-related disorders, such as anxiety, depression, and burnout, have been on the rise in recent years. The World Health Organization (WHO) has recognized stress as a global epidemic, with significant implications for both individual well-being and public health.

Stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree. The way we respond to stress, however, makes a big difference to our overall well-being. Today, this problem affects everyone in their daily lives, from young children to the elderly. Stress impacts physical health, mental health, cognitive function, and emotional well-being. It can lead to physical health issues like high blood pressure, heart disease, and headaches, while impairing cognitive function and causing mood swings.

MATERIAL AND METHODS: -

❖ **Stressors-sources of stress:** - Stressors are events or situations that can trigger a stress response in the body. They can vary widely and affect individuals differently are-

1) Emotional stressors 2) Family stressors 3) Social stressors 4) Change stressors 5) Chemical stressors 6) Work stressors 7) Decision stressors 8) Commuting stressors 9) Phobia stressors 10) Physical stressors 11) Disease stressors 12) Pain stressors 13) Environmental stressors

❖ **Dimensions of stressors:** -

The stresses which people experience also vary in terms of -

- ✓ Intensity - low intensity vs. high intensity,
- ✓ Duration - short-term vs. long-term,
- ✓ Complexity - less complex vs. more complex
- ✓ Predictability - unexpected vs. predictable

➤ **Classification of Stress:** -

Eustress, characterized as positive stress, arises from situations that present opportunities for personal growth or achievement. It serves as a motivator, driving individuals to tackle challenges and elevate their performance. Without eustress, individuals may lack the drive needed to excel. On the other hand, distress, regarded as negative stress, stems from feelings of insecurity or inadequacy due to circumstances such as helplessness or disappointment. Distress can lead to various health issues, including cardiovascular diseases, substance abuse, and relationship breakdowns.

❖ **Acute Stress:** - Acute stress is the type of stress that has an effect upon the mental balance of the individuals. This is the type of stress that comes in a rapid way and often expectedly. One of the main benefits of this stress is it does not last long

❖ **Episodic Acute Stress:** - Episodic acute stress is a form of stress that significantly impacts individuals' mental well-being. It often occurs suddenly and predictably, yet fortunately, it tends to be short-lived. Despite its brevity, this type of stress can have detrimental effects on both physical and psychological

health. Physical health issues that may arise include joint pain, cardiovascular ailments, high or low blood pressure, and difficulties with speech and language. Meanwhile, psychological challenges such as anxiety, depression, and feelings of anger and frustration can also manifest.

- ❖ **Chronic stress:** - Chronic stress profoundly affects individuals across various aspects of their lives. It manifests in physical health issues like cardiovascular diseases, high blood pressure, and chronic pain, alongside mental health challenges such as anxiety disorders and depression. Behaviourally, it can lead to unhealthy coping mechanisms like substance abuse and withdrawal from social activities. Interpersonally, chronic stress strains relationships due to increased irritability and moodiness. Work performance suffers, with impaired cognitive function and increased workplace conflicts. Overall, chronic stress diminishes quality of life, fostering a sense of hopelessness and helplessness. Addressing it requires comprehensive strategies encompassing stress management, self-care, social support, and professional intervention when necessary.
- ❖ **Emotional stress:** - Emotional stress, according to Freshwater (2018), can be more intense and distressing than other forms of stress. It arises from excessive work pressure or challenging interpersonal relationships with various individuals like family members, friends, colleagues, supervisors, or employers. When this stress becomes significant, it adversely affects both the physical and psychological well-being of individuals.
- ❖ **Physical stress:** - Physical stresses are pressures that alter the condition of our bodies. We experience strain when we push ourselves too hard physically, have an inadequate diet, sustain an injury, or do not get sufficient sleep. Environmental stresses consist of elements in our environment that are frequently inevitable, such as pollution, overcrowding, noise, and extreme temperatures like summer heat or winter cold. Additionally, environmental stresses encompass catastrophic events like fires, earthquakes, and floods.
- ❖ **Psychological stress:** - Psychological stress originates from within our minds and varies from person to person. It encompasses internal sources of stress, including frustration, conflicts, and pressures, which individuals experience uniquely. Frustration arises when our needs or goals are obstructed by external factors, such as social discrimination or academic setbacks. Conflicts emerge when incompatible needs or desires clash, like choosing between pursuing a passion or a practical career path. Internal pressures stem from self-imposed expectations, such as striving for perfection, leading to inevitable disappointment. Social pressures result from excessive demands placed on us by others, often leading to interpersonal difficulties or clashes.
- ❖ **Symptoms of Stress:** - The response to stress differs based on individual personality, upbringing, and life history, resulting in unique patterns of stress reaction for each person. Consequently, both the symptoms and their severity can vary significantly among individuals. Stress symptoms may manifest in physical, emotional, and behavioral forms.

Emotional symptoms include-

- Becoming easily agitated, frustrated, and moody
- Feeling overwhelmed, like you are losing control or need to take control
- Having difficulty relaxing and quieting your mind
- Low self-esteem, lonely, worthless, and depressed
- Avoiding others

Physical symptoms include-

- Insomnia - lack of sleep
- Low energy
- Headaches
- Nervousness and shaking, ringing in the ear, cold or sweaty hands and feet
- Upset stomach, including diarrhea, constipation, and nausea
- Aches, pains, and tense muscles
- Chest pain and rapid heartbeat
- Frequent colds and infections
- Loss of sexual desire and/or ability
- Dry mouth and difficulty swallowing
- Clenched jaw and grinding teeth

Cognitive symptoms-

- Forgetfulness and disorganisation
- Poor judgment
- Constant worrying
- Racing thoughts
- Inability to focus
- Being pessimistic or seeing only the negative side

Behavioural symptoms of stress include-

- Changes in appetite - either not eating or eating too much
- Increased use of alcohol, drugs, or cigarettes
- Procrastinating and avoiding responsibilities
- Exhibiting more nervous behaviours, such as nail biting, fidgeting, and pacing.

Yoga offers a holistic approach to stress management, addressing both the physical and mental aspects of stress. Through its combination of physical postures, breathing techniques, and meditation, yoga promotes relaxation, reduces muscle tension, and calms the mind. Regular practice of yoga has been shown to lower levels of stress hormones like cortisol and increase the production of mood-enhancing neurotransmitters such as serotonin. Furthermore, yoga cultivates mindfulness and self-awareness, helping individuals to recognize and understand their stress triggers and responses. By fostering a sense of inner peace and balance, yoga empowers individuals to cope more effectively with the challenges of daily life. *Asana, pranayama, bandha, mudra, and meditation are forms of yoga practise. Studies in the scientific literature indicate that yoga can improve mood and brain health. Yoga, said simply, is a method for mastering mind modification, achieving a healthy lifestyle, and arriving at a state of balanced mind-body consciousness*

❖ PRANAYAMA: -

The fourth pillar of *Ashtanga Yog*, as outlined by the sage *Patanjali*, is *pranayama*, which focuses mostly on breath management. Expanding the dimensions of *Prana* within oneself is the definition of the Sanskrit word *Pranayama*, which is derived from two basic words: *Prana*, which means “life force, the cosmic vital energy,” and *Ayama*, which means “stretch or expand.” While thorough exhale cleanses the body and mind of impurities, deep inhalation of fresh air heals, revitalises, and revitalises the system. In *Ashtanga Yoga*, *Maharishi Patanjali* places greater emphasis on *Pranayama* than *Asana* for overall health. Eight types of *Pranayama* are known as *Ashta-Kumbhakas*, and they are *Suryabhedhi*, *Ujjayi*, *Seetkari*, *Sheetali*, *Bhastrika*, *Bhramari*, and *Murcha*.

- **Deep Breathing (Diaphragmatic Breathing)** - Involves deep, slow inhalation through the nose, filling the lungs completely, followed by a slow exhalation. This technique promotes relaxation, reduces stress, and increases oxygen intake.
- **Ujjayi Pranayama (Victorious Breath)** - Characterized by a slight constriction of the throat during both inhalation and exhalation, creating an audible sound resembling ocean waves. Ujjayi breathing helps to calm the mind, regulate breathing, and generate internal heat.
- **Nadi Shodhana (Alternate Nostril Breathing)** - Involves alternating the flow of breath between the left and right nostrils by using the fingers to block one nostril at a time. Nadi Shodhana balances the left and right energy channels (nadis), promoting mental clarity, balance, and relaxation.
- **Kapalabhati (Skull Shining Breath)** - Consists of rapid, forceful exhalations through the nose, followed by passive inhalations. Kapalabhati cleanses the respiratory system, increases circulation, and energizes the body.
- **Bhastrika (Bellows Breath)** - Involves rapid, forceful inhalations and exhalations through the nose, emphasizing the movement of the diaphragm. Bhastrika increases oxygen supply, enhances vitality, and improves digestion.
- **Sheetali (Cooling Breath)** - Requires rolling the tongue and inhaling slowly through the mouth, followed by a slow exhalation through the nose. Sheetali cools the body, reduces stress, and calms the mind.
- **Sheetkari (Hissing Breath)**: Similar to Sheetali, but instead of rolling the tongue, practitioners clench their teeth and inhale through the gaps between the teeth, followed by a slow exhalation through the nose. Sheetkari also cools the body and helps to control thirst.
- **Bhramari (Bee Breath)**: Involves inhaling deeply through the nose and exhaling while making a buzzing sound like a bee by gently closing the throat. Bhramari calms the mind, relieves tension, and promotes concentration.

Pranayama is essentially divided into three phases-

1. **PURAKA (INHALATION)**
2. **KUMBHAKA (BREATH RETENTION)**
3. **RECHAKA (EXHALATION)**

The most crucial part of Pranayama is *Kumbhaka*.

The ratio of time should be given to each of the three steps—inhaling, regulating, and exhaling the breath is 1:4:2, according to Yogic scriptures. When mastered, *Kumbhaka* awakens innate potential in the brain's higher areas.

<i>Puraka</i>	<i>Kumbhaka</i>	<i>Rechaka</i>
Inhalation	Retention	Exhalation
1	4	2

There are two methods for performing *Kumbhaka*: *Antaranga Kumbhaka* is performed inside, while *Bahiranga Kumbhaka* is performed externally.

PURAKA (INHALE)Antaranga Kumbhaka (retention on the inhale)**RECHAK (EXHALE)**Bahiranga Kumbhaka (retention on the exhale)❖ **BHRAMARI PRANAYAMA: -**

Bhramari, an important *Pranayama*, is a slow, deep breathing technique resembling a black bee's sound. Breathing in quickly, the sound imitates the male black bee, and exhaling slowly, while keeping mouth and ears closed. This Yogic practice promotes bliss and lordhood.

➤ **TECHNIQUE 1st -**

1. Sit in any comfortable meditative pose, relax the body and practice kaya sthairyam.
2. Keep the eyes closed throughout the practice.
3. Inhale slowly and deeply through the nose, listening to the sound of the breath.
4. Close the ears with the index and middle fingers by pressing the middle outer part of the ear ligament into the ear hole.
5. Keep the ears closed and exhale, making a deep soft humming sound.
6. Concentrate on the sound, keeping it low pitched.
7. When exhalation is complete, lower the hands to the knees and breathe in slowly.
8. Continue to practice in the same way, performing ten to twenty rounds.
9. When finished, keep the eyes closed and listen for any subtle sounds.

➤ **TECHNIQUE 2nd -**

Stage 1: Practice in the same way as Technique 1, but after exhalation perform *Bahiranga kumbhaka* and *jalandhara bandha*. Practice ten to twenty rounds, taking a few normal breaths between rounds if necessary.

Stage 2: Practice as in stage 1, but add *moola bandha* after *jalandhara*.

➤ **TECHNIQUE 3rd -**

Stage 1: Practice Technique 1 with shankh mukhi mudra. That is, after inhalation do kumbhaka and close the ears with the thumbs, the eyes with the first fingers, the nostrils with the middle fingers and the mouth with the ring and little fingers. Hold for as long as comfortable, then exhale maintaining the same position. Keep your awareness on the subtle sound vibrations or any images that may appear in front of the closed eyes.

Stage 2: Practice stage 1 with shankh mukhi mudra, but add moola bandha.

- **Time of practice:** - The best time to practise is late at night or In the early morning as there are fewer external noises.
- **Indication of *bhramari pranayama*:** -
 1. The main indication of *Bhramari Pranayama* for peacefulness of mind.
 2. Insomnia, stress, anxiety, depression
 3. Rhino sinusitis
 4. Thyroid dysfunction
 5. Hypertension
- **Contraindications of *bhramari pranayama*:** -
 1. Sever ear infection
 2. Heart diseases
 3. Uncontrolled psychotic problem and Psychiatric illness.
 4. Suffering from organic brain disease
 5. Suffering from complication of Substance abuse
 6. Migraine
 7. Pregnancy, Menstruating women
- **Precaution during *bhramari pranayama*:** -
 1. Bhramari Pranayama should be done in empty stomach.
 2. Sitting position
 3. Preferably *Bhramari Pranayama* Should be practiced in early morning.
 4. Do not press your earlobes hard.
 5. In heart disease should practice *Bhramari* without Kumbhaka and also for short time.

DISCUSSION: -

Numerous studies have explored the health advantages of pranayama, but little research has focused on the specific health impacts of practicing Bhramari pranayama. Despite numerous studies, little scientific proof exists to identify the specific health advantages of practicing Bhramari pranayama on its own. These are the results of a few earlier research that looked into the advantages of practicing Bhramari pranayama. Bhramari pranayama being a type of slow speed breathing exercise, it stimulates the parasympathetic nervous system. More they described that while exhaling, vibration effect on the nasal/ laryngeal mucous membrane together with the humming of “AUMmmm” lead to reflex apnoea by turning of inspiratory centre. It causes bradycardia through chemoreceptor sinu-aortic mechanism. *Bhramari* is one such *Pranayama* that is commonly used to treat mental issues such as tension, cerebral tension, hypertension, anxiety, and blood pressure regulation. Immediately after 5 min of practice of *Bhramari*, the heart rate and blood Pressure is influenced in healthy subjects Because of the parasympathetic Dominance.

It has been proposed that increased parasympathetic activity (linked to expiration time) decreases the release of stress-related hormones and improves GABA inhibition from the insula and prefrontal cortex to the amygdala, lowering its activity and the associated somatic and psychological symptoms. Connected to stress. According to research, humming while performing *Bhramari Pranayama* releases nitric oxide, which helps to avoid deafness. The generation of nitric oxide by *Bhramari Pranayama* enhances blood microcirculation, and the vibration of Bhramari opens tiny blood vessels in cases of dementia and presbycusis in the brain. Nitric oxide not only calms the brain by enhancing the quality of sleep, but it also helps memory and behaviour by passing information between neurogenic cells in the brain. THE study titled

'EEG paroxysmal gamma waves during Bhramari Pranayama: A yoga breathing technique' done by Vialatte et al. in 2008, they found that Bhramari pranayama practice has a significant influence on the brain activity and induces a feeling of 'blissfulness'.

In their study titled 'Role of self-induced sound therapy: Bhramari Pranayama in Tinnitus', Pandey et al. concluded that Bhramari pranayama practice promotes parasympathetic predominance and it significantly reduces the irritability, depression and anxiety associated with tinnitus. All the previous studies directly or indirectly have found the effect of Bhramari Pranayama practice leading to 'Parasympathetic dominance', thus causing reduction in stress levels and a calmer state of mind, and hence an improved quality of sleep. Further, the neural respiratory elements may be responsible for a mechanism that brings about the above effects as Bhramari Pranayama practice modifies the normal breathing rhythm, with prolonged exhalation & short inhalation, and thus produces significant impact in the physiological system through neural respiratory elements.

CONCLUSION: -

As per Acharya Charaka, Raja and Tama are the really pathogenic parts of the brain, and subsequently, a great deal of Manas Vikar is created. Normal use of Bhramari Pranayama hoists Satwaguna while bringing down Raja and Tamadosha. From the clarification above, it tends to be construed that regular Bhramari Pranayama practice brings about sonic vibrations, and that these vibrations might considerably affect cerebrum tissues. By utilizing your voice, one might extend actually. It affects various substantial frameworks, including the respiratory and autonomic nerve frameworks, which brings about impacts on generally close to home wellbeing as well as mental problems like Stress, tension, and sorrow. Consequently, Bhramari Pranayama is a fundamental part of our furious daily existences for both deterrent and restorative purposes connected with psychological well-being.

REFERENCES: -

1. Muktibodhananda S. Hatha Yoga Pradipika. 3rded. Shatkarma and Pranayama, Chapter 2, Verse 21. Munger, Bihar: Yoga Publications Trust; 1998. P. 185.
2. <https://www.sarvyoga.com/bhramari-pranayama-bee-breath-steps-andbenefits> (06.03.2020)
3. <https://www.tummee.com> software, used by yoga teachers to plan yoga classes. (25.04.2020)
4. <https://www.banyanbotanicals.com/info/ayurvedicliving/livingAyurveda/yoga/bhramari-pranayama/>
5. Rosalba C. Special Issue, Strength, Weakness, and Possibilities of the Buteyko Breathing Method. Biofeedback Summer 2008;36(2):59-63.
6. <https://101yogasan.com/pranayam/bhramari-pranayama.htm>
7. Pramanik T, Sharma HO, Mishra S, Mishra A, Prajapati R, Singh S. Immediate effect of slow pace Bhastrika pranayama on blood Pressure and heart rate. The Journal Of Alternative and Complementary Medicine. 2009;15(3):293-95
8. Novaes MM, Palhano-Fontes F, Onias H, Andrade KC, LobãoSoares B, Arruda-Sanchez T, Kozasa EH, Santaella DF and de Araujo DB (2020) Effects of Yoga Respiratory Practice (Bhastrika pranayama) on Anxiety, Affect, and Brain Functional Connectivity and Activity: A Randomized
9. Vialatte FB, Bakardjian H, Prasad R, Cichocki A. EEG paroxysmal gamma waves during Bhramari Pranayama: A yoga breathing technique. Conscious Cogn. 2009;18:977-988.
10. Pandey S, Mahato NK, Navale R. Role of selfinduced sound therapy: Bhramari Pranayama in Tinnitus. Audiol Med. 2010;8(3):137-141.
11. Kuppusamy M, Kamaldeen D, Pitani R, Amaldas J, Shanmugam P. Effects of Bhramari pranayama on health - A systematic review. J Tradit Complement Med. 2018;8(1):11-16
12. Sathe S, Thodge K, Rajandekar T, Agrawal A. To Find Out Immediate Effect of Bhramari Pranayama on Blood Pressure, Heart Rate and Oxygen Saturation in Hypertensive Patients. Int J Cur Res Rev. 2020;12(19):193-197.