



## Yoga

## COMPARATIVE EFFICACY OF YOGA NIDRA & BHRAMARI PRANAYAM: A RANDOMIZED CLINICAL TRIAL IN GERIATRIC POPULATION TO OVERCOME NIDRANASHA (PRIMARY INSOMNIA)

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**ABSTRACT** *Nidranasha* can be broadly defined as the loss of sleep or the derangement in the quality and quantity of sleep. Advanced age brings about sleep deterioration, encompassing the time it takes to fall asleep, a decrease in overall Sleep duration, and an increase in the number of awakenings. *Yoga Nidra* is a wonderful alternative to medication for anyone suffering from stress-induced insomnia. *Bhramari pranayama* is an excellent breathing technique that has a pragmatic effect on sleeplessness. The present study was planned to investigate the comparative efficacy of *Yoga nidra* and *Bhramari Pranayam* in *Nidranasha* (Primary Insomnia). The study group comprised of 60 subjects suffering from *Nidranasha* between the age group of 60- 80 years, further subdivided into 2 groups having an equal number (n=20) of subjects-group A (*Yoga nidra*), group B (*Bhramari Pranayam*). It was a randomized clinical study. The Parameters of assessment were 1) Clinical Symptoms of *Nidranasha*. 2) Athens Insomnia Scale. Follow up was taken periodically after 15 days for 60 days. The obtained information was analyzed statistically by using the Wilcoxon test & The Man-Whitney test. The result showed a significant mean increment in clinical symptoms. Group A showed more increment in major variables compares to Group B. The study confirms that *Yognidra* has shown more promising results than *Bhramripranayam*.

**KEYWORDS :** *Nidranasha*, *Yoganidra*, *Bhramari Pranayam*, Insomnia, Geriatrics.

### INTRODUCTION

Ayurveda is the Science of Life. Life is a time-bound phenomenon. Ayurveda has a holistic approach towards all the miseries of man & aging is one of them.

*Jara* is an inevitable degenerative process that occurs in every living being. Demographically India is second the largest country in the world sharing 8% of the total population for old aged ones. The increasing number of the aged ( $\geq 60$  years) in the present scenario marks a new outlook for our reflection.

As per *Acharya Vagbhata*, *Aahar*, *Nidra*, and *Abhramcharya* are three pillars of life. *Nidra* relished at proper time bestows nourishment, good color complexion, strength, enthusiasm, keenness of digestive power, wakefulness and maintains normalcy of the tissues.

The sleep is indeed a “Chief nourisher at life's feast.”

Insomnia remains one of the most common sleep disorders encountered in the geriatric population. In India, more than 40% of elders are suffering from primary insomnia. Insomnia is a condition that is under-recognized, underdiagnosed, and undertreated in the general population. Insomnia is a subjective report of insufficient or nonrestorative sleep despite adequate opportunity to sleep.

Insomnia can be correlated with *Nidranasha* an imbalance in *Tarpaka Kapha*, *Sadhaka Pitta* & *Pranavayu*. Sleep in older persons is characterized by decreased ability to stay asleep, resulting in fragmented sleep and reduced daytime alertness.<sup>1</sup> Symptoms of *Nidranasha* & Primary Insomnia are almost the same hence we correlate it.

According to our ancient science, Ayurveda, the causes of *Nidranasha* are due to *Vata vrudhhi*, *pitta vrudhhi*, *manas santap* (due to *rajas*, and *tamas* disturbances) and *abhighata*<sup>2</sup> *Angamarda* (body ache), *Shirogaaurav* (heaviness of head), *Jrumbha* (Yawning), *Jadya*, *Glani*, *Bhrama*, *Apakti* (Indigestion), *Tandra* these are the *Lakshana* of *Nidranasha*.<sup>3</sup> In *Jaravastha* *Vata* get to increase it leads to *Nidranasha*. Primary Insomnia is described as the difficulty getting to sleep or staying awake over a period of at least 1 month or experience of non-refreshing sleep (U.S. Nation Institutes of Health). Primary insomnia is sleeplessness or the perception of poor quality sleep that is not caused by medical or psychiatric diseases, conditions, genetics, or illness; or environmental causes. Of all insomnia about 15% is of primary Source. Non-Pharmacological interventions produce reliable and durable clinical benefits in the treatment of Primary Insomnia in the elderly.

Descriptions of *Yoga Nidra* in the traditional yoga text tend to be oblique and often refer to the state of *Yoga Nidra* rather than descriptions of the practice.<sup>4</sup> The contemporary yoga literature includes several descriptions of methods of *Yoganidra*. Swami Satyananda, of the Bihar School of Yoga, describes several preliminary practices related to *Yoga Nidra*. This is the most detailed description of the preliminary practices of *Yoga Nidra*. *Yoga Nidra* is a more efficient and effective form of psychic and physiological rest and rejuvenation than conventional sleep.<sup>5</sup> Those who adopt this technique in their daily routine soon experience profound changes in their sleeping habits.

The Reference of *Bhramari pranayama* found in Gherand Samhita and Hathayoga pradipika. *Bhramari pranayama* does *Veerysuddhi*, *Raktasuddhi*, *majjatantu suddhi*, increases concentration<sup>6</sup> *Bhramari* relieves stress and cerebral tension, and so helps in alleviating anger, anxiety, and insomnia, increasing the healing capacity of the body.<sup>7</sup> It has a positive effect on the endocrine system<sup>8</sup> Hormonal imbalance,<sup>9</sup> Pulmonary function,<sup>10</sup> effective in improving acoustic and aerodynamic parameters of voice.<sup>11</sup>

Therefore, the present study was planned to investigate the comparative effects of *Yoga nidra* and *Bhramari Pranayam* in *Nidranasha* (Primary Insomnia) in the elderly.

### MATERIALS AND METHODS

The Comparative Randomized Clinical study was conducted in Matoshree Vrudhashram, Karve Nagar, Pune. Prior permission was taken. The Ethical clearance for the study was taken from the IEC (Institutional Ethics Committee) before the commencement of clinical trials. (Ref.No BVDU/Exam/1927/2018-19). Detailed information of the study was given to all the volunteers in the Marathi language. Total of 74 volunteers was screened of 60 - 80 yrs. & having complaints of sleep disturbance. As per inclusion criteria out of them 64 were selected for the study considering drop out. It was an Exploratory Clinical study. Considering the ethical aspects of Intervening in elderly people, we had to restrict our sample size to 60. Randomization was done using the chit method. Patients were divided according to the group. Patients were divided into 2 groups named Group A & Group B. Each group contained 30 patients. Written consent was signed by them. A detailed case record form was filled. As per the groups, Instruction regarding *Yoga nidra* & *Bhramari Pranayam* was given. In Group A- Personal training of 15 days was given & Recording of *Yoganidra* in suitable language was provided. In Group B- Demonstration of *Bhramari Pranayam* was given for 15 days. Later both groups were instructed to continue the procedure for the next 30 days. Personal follow up was taken on day 30, day 45, & day 60. The

changes during the study were recorded in case record Format.

**I. Inclusion criteria:**

- Diagnosed Patients of *Nidranasha* (Primary Insomnia) were included.
- Patients between the ages group 60 to 80 years were included.
- Patients of both sexes were included.

**II. Exclusion criteria:**

- *Nidranasha* due to another condition such as *madatyay*, *abhighata*, and other systemic diseases was excluded.
- Patients dependent on any other medicine or therapy for *Nidranasha* were excluded.
- Secondary cases of insomnia were excluded.

**Intervention**

**DURATION OF UPAKRAMA:**

Group A (*Yoganidra*)- 45 MINUTES for 30 days.

Group B (*Bhramari pranayama*)- Trail was started by doing for 5 minutes gradually increase to 10- 15 minutes for 1 month depending upon the capacity of the person.

*Yoganidra* technique works as relaxation so it may take a longer time whereas *Bhramari pranayama* is respiration related procedure. So it is restricted to this much time. So both Group duration is different though both group are comparable because the rest of the variables were the same.

**Techniques:**

*Yoga Nidra*: (Swami Satyanand Saraswati, 2005)

**Preparation:**

*Yoga Nidra* is performed in the posture of *Shavasana*, with the eyes closed, the corpse posture. Lie in such a way that spine is aligned, and feet and arms are a comfortable distance to both sides. It is best to have a thin pillow under the head and a shawl or blanket over the body so do not feel cold. Subjects should take a deep breath in and out. Subjects should allow their whole body to relax completely throughout the practice. The only important point is to follow the voice of the instructor.

**Relaxation**

It brings about a feeling of inner relaxation in the whole body; Subjects will be instructed to concentrate on their body and become aware of the importance of complete stillness.

Subjects should develop an awareness of their body from the top of the head to the tips of the toes and mentally asked to repeat the mantra "OM".

The subjects were instructed to experience complete stillness and complete awareness of the whole body and will be asked to repeat "OM"

**Resolve**

At this moment subjects should make a mental resolve themselves. The resolve will have to be very simple; it should be short, positive statements in simple language stated three times with awareness, feeling, and emphasis. The resolve they make during *Yoga Nidra* is bound to come true in their life. In our study the most suitable resolve was "I will sleep well".

**Rotation of consciousness**

The subjects will begin rotation of consciousness, by bringing their awareness at different parts of the body. Subjects should be aware of that part in their mind and simultaneously become aware of that part of the body. They should be aware of the complete right side, complete left side, back of the body, front of the body, and all the major areas of the body.

**Breathing**

Subjects should become aware of the movement of their breath. They should feel the flow of their breath in and out of the lungs counting breaths with the movement of the navel, chest, throat, and nostrils.

**Image visualization**

The subjects will be asked to stop counting and visualize several scenes which will be named. They should try to develop a vision of

these scenes on all levels of feelings, awareness, emotions, imagination, as best they can as per instructions.

**Resolve**

The subjects will be asked to repeat the same resolve that they made at the beginning of the practice, and should not change it. They will be asked to repeat the resolve three times with full awareness and feeling.

**Finish**

Relaxing all efforts, the subjects will be instructed to draw their mind outside and become aware of their natural breath & awareness of the whole body. Subjects will be instructed to relax their body totally lying down on the floor, breathing quietly and slowly. They will be asked to develop an awareness of their body from the top of the head to the tips of the toes and chant mentally "OM". In the end they will be instructed to sit up slowly and open their eyes.

**Bhramari pranayama:**

SOP for *Bhramari pranayama*: Pre Procedure- First, the Individual was asked to breathe out whatever tidal air remains in the lungs, then start Pranayam. The training was given under expert guidance and after consultation from a physician. Sitting down. With erect Spine, closed eyes.

Here deep inhalation is done and deep exhalation with a humming sound. *Bhramari* did while performing *sanmukhi mudra*.

Procedure: Asked to raise the hand to the face and the elbow to the level of shoulders. Place the thumb-tip in the ear-holes to keep out external sounds. If the thumb tip cause pain, reduce the pressure or push the tragic (the small protuberances at the entrance of the ears) over the ear-holes and press them in.

Close the eye. Bring the fore and middle fingers over the eyelids. Draw the upper lids down with the pads of the middle figure-tip and cover the remaining space above it with the pads of the tips of the forefinger to keep out the light. Keep the eye-balls passive and receptive and press them gently with the fingers. Now, press the nostrils with the ring finger-tip to narrow the nasal passages for slow, steady, rhythmic, and subtle breathing. Keep the little fingers on the upper lips to feel the flow of breath. Inhalation and exhalation are done forcibly with a humming sound. Close the eye. Bring the fore and middle fingers over the eyelids. Enjoying the sound and vibrations produced during these breathing techniques.

**ss: Physical – on Agnya chakra**

After completing the practice of *bhramari pranayama*, inhale then do *savasana*.

**ASSESSMENT**

Lakshana of *Nidranasha*<sup>3</sup> and Athens Insomnia scale was used to assess the data.

**STATISTICAL ANALYSIS**

The software used for data analysis was SPSS Software. The obtained information was analyzed statistically by using the Wilcoxon test to know the effect of treatment in both groups individually. Man-Whitney test was carried out to compare the result of Both groups.

**RESULTS**

The result of our study showed that there is a statistically significant difference between Group A and Group B in most variables. The analysis within the group done by using the Wilcoxon test, showed a statistically significant decrease in the mean of the variables post-treatment.

**TABLE-1 Inter group efficacy Statistics**

Variables		Interventions	Mean	Percentage of Improvement
		BT	AT	
Angamarda	Group A	2.3	0.6	73.91%
	Group B	2.1	0.9	58.06%
Shirogaurav	Group A	2.03	0.367	81.97%
	Group B	1.93	0.267	86.21%
Apakti	Group A	1.6	0.367	77.08%
	Group B	1.9	0.367	81.03%

Tandra	Group A	1.8	0.467	74.55%
	Group B	1.4	0.433	69.05%
Sleep induction	Group A	2	0.3	84.75%
	Group B	2	0.5	75.41%
Awakenings during the night	Group A	1.2	0.167	85.71%
	Group B	1.5	0.933	36.36%
Final awakening	Group A	1.5	0.933	78.26%
	Group B	1.3	0.433	67.50%
Total sleep duration	Group A	1.6	0.367	77.55%
	Group B	1.5	0.867	40.91%
Sleep quality	Group A	1.9	0.467	75.44%
	Group B	1.3	0.533	60.00%
Well-being during the day	Group A	1.4	0.33	76.76%
	Group B	1.5	0.433	71.11%
Functioning capacity during the day	Group A	1.8	0.8	54.72%
	Group B	1	0.6	40.00%
Sleepiness during the day	Group A	1.8	0.46	74.55%
	Group B	1.4	0.5	65.12%

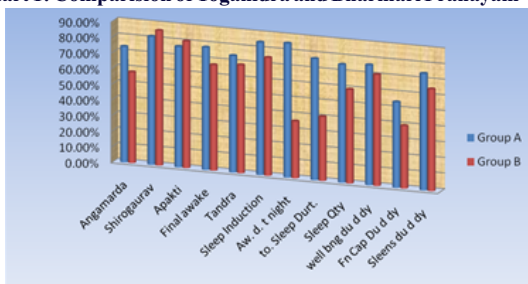
The comparative analysis was done using Mann Whitney u test. For most of the variables P value>0.05. We found that there was a statistical significant difference between group A and Group B.

**TABLE- 2 Comparative efficacy statistics**

Variables	Intervention	Mean	SD	Mann Whitney U	P-value
Angamarda	Group A	0.6	0.76	344	0.1
	Group B	0.87	0.62		
Shirogaurav	Group A	0.37	0.6	418	0.62
	Group B	0.37	0.6		
Apakti	Group A	0.37	0.55	450	0.99
	Group B	0.37	0.55		
Tandra	Group A	0.47	0.5	435	0.9
	Group B	0.47	0.5		
Sleep induction	Group A	0.3	0.46	360	0.19
	Group B	0.5	0.5		
Awakenings during the night	Group A	0.17	0.37	118	0
	Group B	0.93	0.36		
Final awakening	Group A	0.33	0.47	405	0.6
	Group B	0.43	0.5		
Total sleep duration	Group A	0.37	0.48	225	0
	Group B	0.87	0.34		
Sleep quality	Group A	0.47	0.5	420	0.8
	Group B	0.53	0.5		
Well-being during the day	Group A	0.33	0.47	405	0.6
	Group B	0.43	0.5		
Functioning capacity during the day	Group A	0.8	0.65	384	0.27
	Group B	0.6	0.49		
Sleepiness during the day	Group A	0.47	0.5	435	0.99
	Group B	0.5	0.5		

Overall Effect of Group A (Yoga Nidra) and Group B (Bhramari pranayama)

**Chart 1: Comparison of Yoganidra and Bharmari Pranayam**



As a percentage of improvement seen from the above diagram we get a percentage of improvement in Group A (Yoganidra) was more than Group B (Bhramari pranayama) hence we can say that Group A (Yoganidra) is more effective than Group B (Bhramari pranayama) on parameters in geriatric population for the management of Nidranasha (Primary Insomnia).

**DISCUSSION**

The result of our study showed a significant difference between Yoga Nidra and Bhramari Pranayam in some of the variables such as Angamarda, Awakenings during the night, Total Sleep duration.

Yognidra individually showed significant improvement for variables Angamarda, Tandra, Sleep Induction, Awakenings during the night, Final awakening, Total sleep duration, Sleep quality, Wellbeing during the day, Functioning capacity during the day & Sleepiness during the day compared to Bhramari Pranayam. Whereas Bhramari Pranayam showed a significant increment in the percentage of improvement for Shirogaurav, Apakti compared to Yognidra.

**Angamarda:** In Jaravavastha Vata is predominantly resulting in Angamarda as a Lakshana. Yognidra is certainly working on Vata Doshha & Manovaha strotasa (praneta cha mansa). It calms the mind and reduces the shola resulting positive effect in Angamarda lakshan.

**Shirogaurav:** Bhramri Pranayam Showed more significant results in Shirogaurav compared to Yognidra. Bhramari pranayama showing a positive effect in kapha Pradhan dosha as it stimulates the body due to vibrations created during pranayama. The entire lung is ventilated in contrast to the shallow breathing which refreshes the base of lungs. It leads to laghvata in the body. So it presented more effective in this lakshana.

**Apakti:** Apakti is ShleshmaVikar. Bhramari Pranayam depicted more beneficial showing 81.93% improvement. It improves Shwas-Uchchwas Niyaman vitiliating Vata dosha which leads to Agni deepen because vayu is considered as agni sandhyukshnman.

**Tandra -** Yognidra presented more beneficial as it showed a 74.55% improvement. Tamo guna, Vata dosha & kapha dosha is responsible for tandra. As per findings Effects of Yognidra increase satvaguna & brings vata into prakrutaavastha.

The breath being in motion, the mind is moving. The breath being without motion, the mind is motionless. This verse from Hathyogpradipika describes the relation of Vata and Mana. Yoga Nidra has a calm & soothing effect which brings snigdhatta in body pacifies the vatavruddhi which may have helped in early induction of sleep, Sleep quality so on.

But Yognidra nor Bhramari Pranayam showed significant improvement for increasing functioning capacity during the day in patients. Functioning capacity during the day depicts Bala of the patient. Whereas bala is related to mamsa dhatu and Udana Vayu. Due to the limited study duration, Yognidra was not up to the mark in improving the beneficial effect in a functioning capacity.

While poring over the details which were taken while filling the case paper-like demographic data it was observed that the highest number of Patients 23% were having Pitta Pradhan Vata Prakriti. This gives evidence that Pitta-Vata Prakriti patients are more at risk for developing Nidranasha because generally Vata and Pitta Prakriti people have disturbed or less sleep. Observation also adds that the maximum no. of patients i.e. 67% depicted mandaagni. Whereas 27% of patients were having Madhyamaagni and 17% procured tikshnaagni. In jaravastha Abhyavaran Shakti & jarana Shakti decreases. Agnisaad naturally occurs in jaravastha. i.e 57% had frequent micturition. 20% of Patients showed normal micturition and 10% had burning micturition. May be due to Dhatu Shaithilya the controlling power of micturition decreases so maximum patients had frequent micturition.

**PROBALE ROLE ON NIDRANASHA: YOGANIDRA<sup>5</sup>**

- While Practicing the Yognidra person is sensing the body and breathing in specific ways to trigger the relaxation response. The relaxation response balances the sympathetic and parasympathetic nervous systems
- Brain shifts from beta to alpha, a more relaxed state. In alpha, the mood-regulating hormone serotonin gets released, and this calms the person down.
- From alpha, going into a deep alpha and high theta brain-wave state, the dream state, REM sleep. In theta, thoughts slow down to 4 to 8 thoughts per second. This is where super learning happens
- After theta, the Patient guided to the delta, where thoughts are only 1 to 3.9 thoughts per second. This is the most restorative state, in

- which organs regenerate and the stress hormone cortisol is removed from the system.
- After the fourth state of consciousness, a person is guided back to a waking state. Again, you couldn't live in this fourth state, but as a result of touching into it, you bring a little of its peace back with waking, everyday brain state.
  - In yoga Nidra, the Person often asked to bring attention to the space between eyebrows. Behind this spot lies the pineal gland & it is stimulated when you bring your attention there. Studies confirm that the pineal-gland hormone, melatonin, is a powerful agent for reducing stress, inducing more restful sleep.

### BHRAMARI PRANAYAM

While performing Bhramari Pranayam, Three components are Important

1. Shanmukhi Mudra- Shanmukhi Mudra is performed by the closing of 7 gates (two ears, two eyes, Nose, & mouth) it is a symbolic way of saying that for the next few minutes taking awareness inward. As per Contemporary Yoga Science, Relaxation of the muscles of the face, forehead & eyes by steady hand pressure as in Shanmukhi mudra helps to remove stress-induced overactivity of the vital autonomic controls in the brain stem.
  2. Dirgha Shwas Uchwas
  3. Bhramari naad – Naad Yoga is the use of sound vibration & resonance which are used to pursue palliative effect on various problematic psychological conditions.
- According to Ayurveda, the forehead and head are areas of many vital spots – *Marma*, which has got a very important place in the body. In some cases, even slight stimulation of such *Marma* may have a beneficial effect on the body, due to their connection with higher centers. *Bhramari Pranayam* makes the patient concentrate on this area, by which the stability arrives in the mind function and this leads to locate the *Mana* in “*Nirindriya Pradesha*” and the patient may get sleep.
  - *Bhramari pranayama* stimulates the reflex of the autonomic nervous system. This leads to an increase of Noradrenalin & decreases of neuro hormones which is responsible for stress, anxiety, & hyper arousal of mental state.<sup>12</sup>
  - In this way, *Bhramari Pranayam* can be considered as an adjunct aid among the method of relaxation through its procedural effect and might be able to break the pathogenesis of *Anidra* at different levels.

### CONCLUSION

Based on all observations, the study concludes that *Yoga nidra* & *bhramari pranayama* individually show significant results in the management of *Nidranasha*.

*Yoga nidra* showed significant results in total i.e. *Angamarda*, *Tandra*, Sleep Induction, Awakenings during the night, Final awakening, Total Sleep Duration, Sleep Quality, Wellbeing during the day, Sleepiness during the day. *Bhramari Pranayam* Showed more improvement in *Shirogaurav*, *Apakti*.

Overall *Yognidra* has shown better results compared to *Bhramari pranayama* in *Nidranasha*.

*Yoga Nidra* has a more significant result for the management of *Nidranasha* in the Geriatric Population compare to *Bhramari Pranayam*.

It would be very helpful to conduct study research within the same area of limitation by measuring the electrical activity of the brain using EEG during *Yoga nidra* and *Bhramari Pranayam*.

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