



Effect Of Bhramari Pranayama On Stress Levels In Undergraduate Students

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ABSTRACT

In the present paper, the findings have been presented by studying the effects of Bhramari Pranayama on stress level in undergraduate students. For this study, the subjects were selected as 120 students of B.A. and B.Sc. courses, whose age was 17-20 years. Purposive sampling method and random sampling method were used to select the subjects. Under which the total number of subjects was selected by purposive sampling method. These selected subjects were divided into experimental and control groups (60 in experimental group, 60 in control group) using random sampling method. The control group was not given any kind of compound intervention. Whereas, the students of experimental group were made to practice Bhramari Pranayama for 15 minutes daily (6 days a week for 3 months). A pretest-posttest control group design was used for this study. For collecting these selected user based data, "Stress Scale for Students (SSS)" developed by J. Akhtar was used to measure the level of stress. T-test (Paired Sample T-test and Independent Sample T-test) was used for statistical analysis of the pre and post data obtained based on experimental research.

As a result, it was found that a significant decrease was observed in the symptoms of stress in the subjects of the intervention group, which is also statistically significant due to showing high significance level ($p < .001$). Also, in the condition of stress, changes in the breathing pattern and breathing distance of the students as well as heart rate were also seen. However, the respiratory cycle was found to be normalized by the practice of Bhramari Pranayama. Therefore, the practice of Bhramari Pranayama not only regulates the breathing pattern, but also enhances the vital force.

In conclusion, on the basis of the presented research study, it was found that the use of Bhramari Pranayama regular practice can help manage students' stress levels and academic anxiety as well as maintain overall health and well-being.

Key words: Yoga, Bhramari Pranayama, Stress, Health, Students.

1. Introduction:

Due to increasing competition in the modern era, stress has become a common problem. And it is widespread among adolescents and children in addition to adults. The main reasons for this are childhood abuse, deprived childhood, demands of family responsibilities from adolescents in many families, careless and stressed parents, lack of love etc. (Kaisathi, 2022; Pokhrel, Vyayal, & Tulachan, 2020; Janua, et al., 2020). Apart from this, multidisciplinary subjects, extracurricular activities, the current pressure of achieving future goals and high academic performance and other expectations in a coordinated manner are making today's student life full of stress. (Fiorilli, et al., 2020, Shreeve, et al., 2021). According to a research done in the year 2019, adolescents who are forced to discharge adult level responsibilities prematurely mostly become opposed to following the rules of parents and society. Such students react to day-to-day stress and academic anxiety with aggression. Due to persistent academic stress, headaches, irregular routines, disordered eating habits, fatigue,

lethargy, allergies as well as abnormal psycho-physical symptoms such as insomnia, fear, blood pressure problems in mild cases, diabetes, asthma, etc. also start affecting students (Homi Ilin, & Bukannu, 2019)

However, at present there are plenty of measures available to deal with mental conditions such as academic difficulties and stress, out of which the most sensible way or the most important and best solution is to make significant changes to organize the lifestyle. Incorporating alternative and natural methods such as yoga practice, yoga asanas, pranayama, meditation, personality development techniques, relaxation techniques in the lifestyle has been considered as some of the most effective ways to deal with stress (Riman Eisen, & Kanojia, 2020; Jala et al. 2020; Allen & Buchanan, 2010; Bedewald 2010).

Nowadays, due to increasing education, mental stress is also occurring in students. Therefore, students should start practicing yogasanas that are very easy and interesting and practicing Ashtanga Yoga through a trained teacher is a good option. Because practicing Yama, Niyama, Asana, Pranayama, Pratyahara, Dhyana, Dharana, etc. in Ashtanga yoga, the Niyama will make the students characterful and physically and mentally healthy. Therefore, it is proved that yoga based physical activity is helpful in reducing the level of stress. However, it is suggested that yoga based treatment can be included in under graduation program which is quite effective in reducing stress levels in young adults (Erdogan, G. & Buz, G. 2020).

2. Objective: The present research work has the following objectives-

- To study the effect of Bhramari Pranayama on the stress level of students.

3. Problem of the study: The research question as problem of the study is as;

- “Can regular practice of Bhramari Pranayama control stress in undergraduate students?”

4. Hypothesis: As a tentative solution the hypothesis formulated for the present research is as follows;

H₁₀: Bhramari Pranayama has no significant effect on the stress level of undergraduate students.

5. Research techniques

For this presented pilot study, the subjects were selected as 160 students of B.A. and B.Sc. courses, whose age was 17-20 years. Purposive sampling method and random sampling method were used to select the subjects.

(i) Instruments Used

To collect these selected user based stress level data, “Student Stress Scale”(SSS) consisting of total 20 statements developed and standardized by J. Akhtar was used.

(ii) Methodology

For this study, the subjects were selected as 120 undergraduate students whose age was 18-21 years. Purposive sampling method and random sampling method were used to select the subjects. These selected subjects were divided into experimental and control groups (60 in experimental group, 60 in control group). For this study, before and after experimental controlled research design was used. According to which questionnaire was given to student subjects of both the groups to collect the previous data. Thus, the intervention After collecting the previous data, out of these two groups, the control group was not given any kind of intervention, they were only suggested to go for a walk every day, while the students of the experimental group were asked to practice Bhramari Pranayama for 15 minutes every day. This program lasted for 3 months. After that, both the groups were re-assessed and they were asked to answer the questionnaire.

(iii) Yoga Intervention

The following yoga technique was used in the present study-

- Duration of Yoga Intervention - 6 days a week for three months.
- Total time for practicing yoga daily- 15 minutes
- Total minutes for practicing Bhramari Pranayama- 13 minutes
- Total minutes for practicing Shantipath- 2 minutes

Bhramri pranayama (Bee Breathing)

Bhramari is a Sanskrit word meaning ‘bumble bee’. Similarly, during the practice of Bhramari Pranayama, a bumble bee-like humming sound is produced from the back of the throat, hence this pranayama is called Bhramari Pranayama (Saraswati, 2006). While describing the method of Bhramari Pranayama in the 79-84th verse of the fifth chapter of Gheranda Samhita, it is said that first of all the practitioner should sit in a positive posture. Now keep the jaw wide and the teeth apart. Spread both the hands in the line of the shoulders and bring them near the ears, keep the index or middle finger on the ears so that the outside sound does not reach the ears. Then exhale slowly and hum while in this process the mouth should be kept closed so that the vibration of humming can be felt in the whole body. While exhaling, the sound should be in a rhythm and steady. After exhaling, take a deep breath again and repeat this exercise.

Whereas, in the second chapter/updesh of the major Hatha Yoga text Hatha Yoga Pradipika, Swami Swatmaram Ji has described the method of practice of Bhramari Pranayama by verse 68 as follows: *^osxkn ?kks"ka iwjda Hk`M~-xukne~] Hk`M~-xhukna jspda eUneUneA ;ksxkkUnzk.kk esoeH;kl ;ksxkr~] fpRrs tkrk dkfnpkuunyhykAA^^* (Hatha Yoga Pradipika 2/68, Hatha Ratnavali 2 /26), that is, first place your index

fingers on both ears and breathe towards the butterfly's humming sound. Then the butterfly's Exhale outwards while making a humming sound. This practice is called Bhramari Pranayama.

And according to the 26th verse of the second chapter of the authentic text Hatharatnawali of Hatha Yoga, the ritualistic practice of Bhramari Pranayam is described as follows; [^]osxkn ?kks"ka iwjda Hk`M~-xukne~] Hk`M~-xhukna jspda eUneUneA ;ksxkkUnzk.kk fuR;eH;kl ;ksxfPpUrs tkrk dkfpnku UnyhykAA[^]^ (Hatharatnawali 2/26). According to the above shloka, to perform Bhramri Pranayama, one should inhale with a soft sound like the humming of a bee and exhale slowly with the same force as the humming of a bee. This is called Bhramari Pranayama (Gharote, Devnath, & Jha, 2014). At the beginning of the exercise, do it only 5-10 times, then gradually increase the time period to 10-15. In case of mental stress and anxiety, this exercise can be done for 30 minutes.

The best time to practice this prāṇāyāma is early morning or midnight as these are less loud sounds and noises than at other times (Saraswati, 2006). Bhramari Pranayama should not be practiced while lying down. Its practice is prohibited in case of any kind of infection in the ear. Heart patients should practice this Pranayama without Kumbhaka. Place your thumb on the degas cartilage and do not put it in the ear. Do not press the degas cartilage too hard, but place your thumb on it gently. Bhramari Pranayama should be practiced on an empty stomach or at least 4-5 hours after a meal.

Benefits obtained from the practice of Bhramari Pranayam is as follows; According to (Hatha Yoga Pradipika 2/68 Hatha Ratnavali 2/26), the practice of Bhramari Pranayama generates joy in the mind of high practitioners. The practice of Bhramari Pranayama makes the mind stable and calm (Hathasthanvali 2/3). This is such a pranayama that helps in relieving stress in the brain. (Arana Pranayama Moodha Bandha 412). Practicing Bhramari Pranayama is very beneficial in a situation like mental anxiety or stress. It maintains peace in the mind. Bhramari Pranayama is capable of preventing stress in the brain. Bhramari Pranayama is also beneficial in the treatment of diseases related to the throat. Bhramari Pranayama is beneficial in relieving insomnia. It helps in awakening all the glands of the body. Regular practice of Bhramari Pranayama improves concentration and memory.

(iv) Statistical Analysis:

t-tests (paired sample t-test and independent sample t-test) have been used for statistical analysis of the pre and post data obtained based on the presented experimental research.

6. Result

Hypothesis 1 (H_{10}) Bhramari Pranayama have no significant effect on the level of stress of students.

Table 1- Stress Scale Based Paired Samples T-Test

Paired Samples T-Test			statistic	df	p
Stress_Ctr_Pre	Stress_Ctr_Post	Student's t	0.45	58.0	0.631
Stress_Exp_PRE	Stress_Exp_POST	Student's t	20.2	58.0	< .001

As per Table-1, after analyzing the paired sample - test based on the pre and post data collected from the subjects of controlled and experimental stress groups on the basis of stress questionnaire of the subjects, it was found that the pre and post scores of the controlled group were 0.63 whereas the pre and post scores of the experimental group were 0.001. Hence, this difference between the calculated values obtained at the certain confidence limit (or 58 degrees of freedom) of the experimental group before and after the scores in comparison to the control group is more than the tabular value and hence shows the significance (0.01) of the difference of means. Which rejects the hypothesis of the presented research work (H_{10}) Bhramari Pranayam have no positive effect on the stress level of students, and accepts the directional hypothesis (H_{11}) formulated as its alternative, and concludes that Bhramari Pranayam have a positive effect on the stress level of students. This means that the significant difference observed between the average of the data before and after stress in the applied students is due to the effect of Bhramari Pranayam.

Along with this, the results can also be easily understood on the basis of the statistical diagrams (Plots) obtained as a result of the analysis of paired sample t-test, shown in Figures 1 i.e., the stress scale based control group pre-post statistical diagram and the stress scale based experimental group pre-post statistical diagram.

Figure 1 - Stress Scale Based Control Group Pre-Post Statistical Plots
Stress_Ctr_Pre - Stress_Ctr_Post

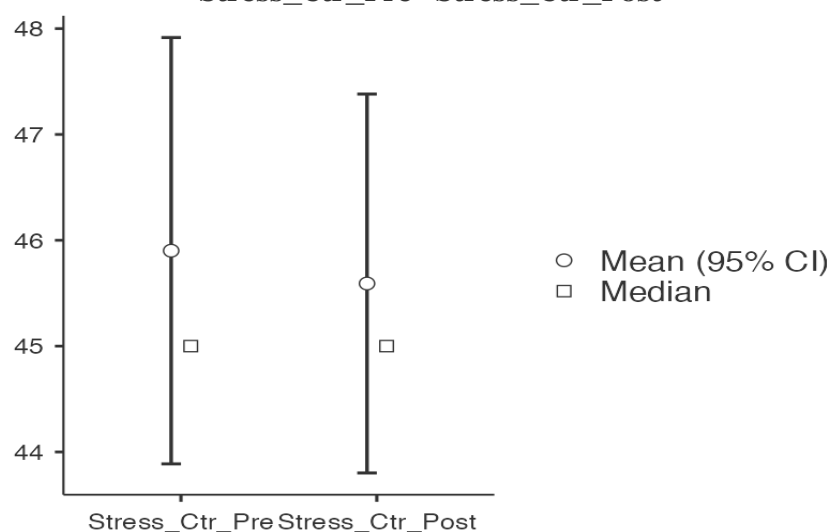
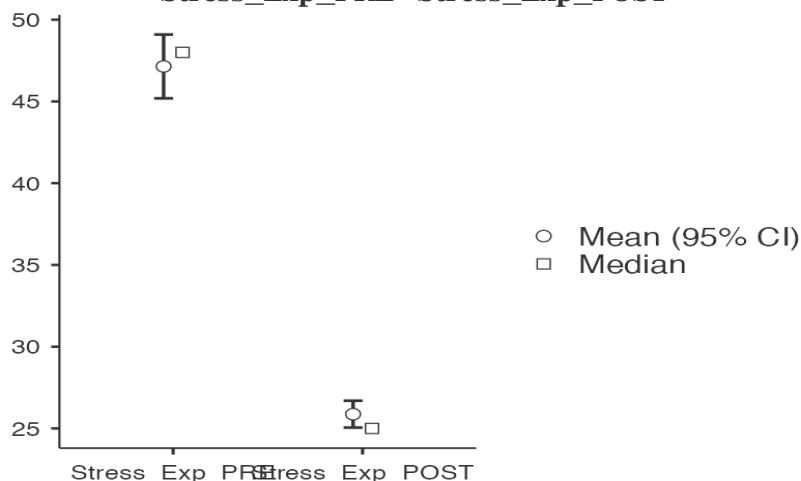


Figure: 2- Experimental group pre-post statistical diagram based on stress scale
Stress_Exp_PRE - Stress_Exp_POST



7. Discussion

Mental health includes our emotional, psychological and social well-being. A review of previous research studies shows that mental disorders are promoted by stress. Mental health is important at every stage of life, from childhood and adolescence to adulthood. Therefore, from the point of view of psychiatrists, stress is considered an important factor in the factors affecting health, which also induces anxiety (Jurena et al., 2020). Research has shown that stress can cause a discrepancy in the homeostasis of the human body. Another previous research conducted by researchers Bhati, and Bhati (2012) also shows that symptoms of stress and anxiety can affect the immune system of a person's body. Stress of perceived or real nature affects the body's response system by stimulating the secretion of stress hormones in the subconscious mind of a person, leading to increased anxiety, fear and emotional disorders. Similarly, a research conducted by researchers O'Connor, Thayer and Pedhara, 2021; Crosswell, and Lockwood, 2020 found that physical stress affects the biochemical functions of the human body by changing the amount of excess hydrocortisone and other adrenal steroids such as epinephrine in the bloodstream. In another research work, researcher Manoharan, (2021) suggested that stress or anxiety increases mental manifestations such as fear, anger or aggression and it also causes an increase in blood pressure and heart rate. In conclusion, stress results in irregular biochemical changes in the body, causing the body to suffer from various psycho-physical diseases. As a result of a lot of research, yoga is very effective in relieving stress. However, according to current research, adolescents may suffer from many mental problems in their life such as academic difficulties, emotional disorders, anger, etc. which negatively affect the quality of their student life. Timely management of these mental concerns is very important which prevents any serious condition in the future.

However, the results of the present study show empirical results about the quality of practices like Bhramari Pranayama included under yoga intervention as a very natural, beneficial and effective management technique for these stress. Numerous previous research studies on yoga for stress management support and provide

evidence that by developing body awareness, releasing tensions in bodily muscles, establishing a balance between body and mind through the practice of yoga asanas, various pranayama techniques and meditation, stress can be managed and overall health and well-being can be ensured. Based on the results obtained from the presented research study, it was found that the results of the experimental groups showed statistically significant ($p < .001$) results as compared to the control groups for stress, which means that the significant difference observed between the average of pre and post scores for stress in the subject students is due to the effect of Bhramari Pranayama.

Therefore, based on the current evidence and review of previous research, it has been found that the practice of conscious mantra chanting and pranayama can be considered important for maintaining improved psychophysical health through yoga, which helps in improving concentration, relaxing the body and calming the mind, maintaining emotional balance and reducing fear and anxiety by coordinating the nervous system (Jagadeesan, et al., 2022, Chandravati, Dwidayati, & Vidyastuti, 2018, Lolla, 2018, Kuppusamy, et al., 2016).

8. Conclusion

Based on the results and analysis of the presented research, it is concluded that regular practice of Bhramari Pranayama reduces the level of physical problems and academic stress of undergraduate students, which in many cases was found to be completely eliminated. Apart from this, in the results obtained from the research, the psychophysical changes and homeostasis imbalance and loss caused due to stress can also be completely cured by the practice of Bhramari Pranayama. This yoga practice brings concentration and peace, thus according to this research it can be said that Bhramari Pranayama was found to be very effective in creating emotional balance and reducing stress in undergraduate students.

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