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Original Research Article

EFFECT OF 8-WEEK PRACTICE OF BRAMARI PRANAYAMA ON STRESS LEVELS AND COGNITIVE FUNCTIONS IN YOUNG ADULTS.

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ABSTRACT

Background: Regular pranayama practice increases the vagus's dominance and regulates cardiovascular and respiratory functions. Bramari pranayama is a simple technique that can be learnt and practiced by all age groups.12 As the pranayama offers multiple benefits, it is the need of time to encourage the young adults to adopt this in their daily lifestyle. Hence, the present study was undertaken to educate the young adults about the Bhramari pranayama. The present study was undertaken to observe the effect of Bramari Pranayama on cognitive functions in young adults.

Materials and Methods: Both male and female, willing, healthy participants within the age group of 18-24 years were part of the study.Then they were divided into two groups, that is control and experimental groups. The random assignment to the groups was performed using the random numbers generated by randomizer.org. The participants in the experimental group were trained to practice Bhramari pranayama by a yoga teacher for a week. Thereafter after they were allowed to practice the bhramari pranayama for an 8-week duration.

Results: Demographic data were not statistically significant between the control and experimental groups. There was no significant difference between the stress scores, spatial, and verbal memory scores among the participants. There was a significant decrease in the stress scores following the intervention. Significant improvement was observed in the spatial and verbal memory scores following the intervention in the experimental group participants.

Conclusion: The present study results support that the Bhramari pranayama has significant effects on reducing stress and improving cognitive functions in young adults. Further detailed studies are recommended in this area to recommend including the Bhramari pranayama in a routine lifestyle.

Keywords: Stress, Cognition, Pranayama, Yoga, Young adults.

INTRODUCTION

Yoga is the traditional way of maintaining homeostasis, comprising various asanas, meditation, and breathing exercises.[1] Pranayama means controlling the vital forces through breathing exercises.[2] Patanjali yoga explained that practicing the pranayama regularly offers good health.[3] There are three phases of pranayama: inhaling, then retention, and exhaling.[4] Breathing exercises connect the body and mind; hence, practicing these breathing exercises modulates the body and mind and offers good health.[5,6] Regular pranayama practice increases the vagus's dominance and regulates cardiovascular and respiratory functions.[7,8] Bramari pranayama is a simple technique that can be learnt and practiced by all age groups.[9] In this pranayama, the participant sits comfortably and performs the inhalation and exhalation slowly and deeply. While performing the exhalation, they will have to produce a humming sound from the nasal airways. At this time mouth has to be closed and the ears also closed with fingers.[10] It is well known that any of the yoga must be followed as a regular practice on a long-term

basis to get the maximum benefits. Similarly, the pranayama has to be included in the daily lifestyle and has to be practiced. The word cognition refers to multiple functions that are thinking, memory, problem solving, recalling, etc. For the young adults, these functions are essential. The pranayama was reported to cause multiple health benefits that includes physical, psychological, and improvement in overall quality of life. A significant rise in the alpha wave of the EEG was reported, followed by the practice of the Bhramari pranayama.[11,12] As the pranayama offers multiple benefits, it is the need of time to encourage the young adults to adopt this in their daily lifestyle. Hence, the present study was undertaken to educate the young adults about the Bhramari pranayama.

Aim and objectives: The present study was undertaken to observe the effect of Bramari Pranayama on cognitive functions in young adults.

MATERIALS AND METHODS

The present study was an observational study that included 60 young adults after obtaining voluntary, written, informed consent. The study protocol was approved by the institutional human ethics committee. Both male and female, willing, healthy participants within the age group of 18-24 years were part of the study. Those with any severe complications were excluded from the study. After the recruitment, the participants underwent a general physical examination soon, Then they were divided into two groups, that is control and experimental groups. The random assignment to the groups was performed using the random numbers generated by randomizer.org. The participants in the experimental group were trained to practice Bhramari pranayama by a yoga teacher for a week. Thereafter after they were allowed to practice the bhramari pranayama for an 8-week duration. Each session of pranayama comprises 10 minutes of relaxation, followed by chanting OM for 10 minutes and practicing Bhramari pranayama for 15 minutes, followed by 10 minutes of relaxation. The posture followed by the participants throughout the session was padmasana. The participants in the control group were not allowed to practice the pranayama during the study period. However, they were allowed to follow the same soon after the study period. Baseline values were recorded soon after the recruitment, and post-intervention values were recorded after 8 weeks of practice of pranayama. Cognitive parameters were assessed using spatial and verbal memory tests.13 Stress levels were assessed using the perceived stress scale.14 This questionnaire was self-administered. After recording, the data was entered in an Excel sheet and analyzed and compared.

Statistical analysis: The data was analyzed using SPSS 21.0 version. Student t-test was applied to observe the significance of the difference between the groups. A probability value of less than 0.05 was considered significant.

RESULTS

The results are presented in the table no 1 and 2. Table 1 presents the demographic data of the participants. Demographic data was not statistically significant between the control and experimental groups. Table 2 presents the stress and cognitive functions in the participants before the intervention. There was no significant difference between the stress scores, spatial, and verbal memory scores among the participants. Table 3 presents the stress scores, spatial and verbal memory scores among the participants after the intervention. There was a significant decrease in the stress scores following the intervention. Significant improvement was observed in the spatial and verbal memory scores following the intervention in the experimental group participants.

Table 1: Demographic parameters of the participants.

Parameter	Control group (n=30)	Experimental group (n=30)	P value
Age (years)	20.71± 1.80	20.29 ± 1.80	0.6638
Height (cm)	169 ± 6.32	173.29 ± 5.82	0.2118
Weight (kg)	65.11 ± 4.94	59.78 ± 4.94	0.0689

Data was expressed as mean and SD.

Table 2: Stress and cognitive functions in the participants before intervention.

Parameter	Control group (n=30)	Experimental group (n=30)	P value
Perceived stress score	18±2.05	18.27±2.33	0.7735
Spatial memory	4.18±1.08	4.73±1.10	0.2549
Verbal memory	3.09±0.70	3.50±0.85	0.2418

Data was expressed as mean and SD.

Table 3: Stress and cognitive functions in the participants after intervention

Parameter	Control group (n=30)	Experimental group (n=30)	P value
Perceived stress score	18±2.05	14±1.09	0.0001*
Spatial memory	4.18±1.08	6±1.77	0.0001*
Verbal memory	3.09±0.70	5±1.23	0.0001*

Data was expressed as mean and SD. *P<0.01 is significant.

DISCUSSION

There is excess stress in the current busy lifestyle. This statement is applicable to all age groups. Further, the stress from academic work and expectations from parents and teachers adds additional stress to the students. This hurts the mental health of the students and extreme deterioration of the quality of life. Every student is experiencing this stress and different levels. But the major issue is in the current context, either parents or teachers give less importance to the stress felt by the students. An article published by Sai Sailesh kumar et al., 2019, explained the need to set a committee to screen the students' stress levels periodically to identify those with excess stress.[14] The students must be screened, educated, and offered methods to overcome the stress. There exist multiple methods to overcome stress. Still, as the stress is subjective, the methods used to overcome also subjective. One such method is practicing the Bramhari pranayama. This is one of the yoga methods that allows the individual to have great control over the respiration. Earlier studies reported that practicing the Bramhari pranayama has immense positive effects on psychological health and quality of life. In this study, the participants practiced the pranayama for fifteen days, and an immense improvement in sleep quality was also observed.[15] Excessive stress has adverse effects on cognitive functions; managing stress with pranayama can also improve cognitive functions. Practicing the Bramhari pranayama helps to improve the breathing pattern by minimising the inspiration within the physiological limits and increasing the expiration duration. It was reported that the Bramhari pranayama reduces the latent period and increases the response rate. This is called as reaction time, one of the cognitive parameters.[16] Long-term practice of the Bramhari Pranayama causes parasympathetic dominance and brings the individual to a stress-free state. This relaxation effect is caused by the pranayama helps to improve the sleep patterns which was evident with the studies reported changes in the EEG recordings as well.[18] Regular practice of the pranayama can improve attention and concentration through the neurohumoral mechanisms.[19] Interestingly, it was reported that the Bramhari pranayama practice helps to improve the immunity and can be a simple lifestyle intervention to be adopted by all age groups, and especially by the student age group. The present study results are under the earlier studies, as we have observed a significant improvement in the cognitive functions and a reduction in the stress scores in the study participants.

CONCLUSION

The present study results support that the bhramari pranayama has significant effects on reducing stress and improving cognitive functions in young adults. Further detailed studies are recommended in this area to recommend including the Bhramari pranayama in a routine lifestyle.

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