Effect of yoga on mindfulness in school going adolescents: A comparative study

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INTRODUCTION

Yoga is an art and science of living and is concerned with the evolution of mind and body. There are yoga components, which incorporates a system of discipline of integrated development of all the aspects of personality. Yoga helps in various ways to balance the sedentary lifestyle. Yoga helps manage the distracted energy in creative direction. The practice of asanas enables the healthy state of spine, muscles and joints. Subtle massages take place at different

Abstract

Context: We are passing through a period of general unrest. People are unable or incapable to adjust to the different circumstances and conditions of life. They are at the breaking point every moment. Our students are no exception to this phenomenon. Yoga incorporates a system of discipline of integrated development of all the aspects of personality. Yoga helps in various ways to balance the sedentary lifestyle.

Aims: To investigate the yoga-based module technique on the mindfulness of adolescents.

Settings and Design: The study follows pre–post single group design. Fifty-one adolescents were recruited, with age ranging between 11 and 14 years for yoga intervention. The attendance was 100% during the intervention.

Materials and Methods: A total of 51 participants were recruited in the present study, with age ranging between 11 and 14 years. The sample size was calculated with G-Power software by fixing the alpha at 0.05, power at 0.80, and an effect size of 0.99 based on the mean and standard deviation of an earlier study. The calculated sample size was 36, but due to possible dropout, we considered 51 individuals in the study.

Statistical Analysis Used: Data were found normally distributed using the Shapiro–Wilk test (P > 0.05). Within-group comparison was performed using the paired sample t-test. This was done using RStudio.

Results: The normality test of data was done by the Shapiro–Wilk test, and the p value was found to be 0.26, which was >0.05 level, showing that the data were normally distributed. Therefore, the paired sample t-test was done between pre- and post-data; the outcome of the study reported that there was a significant change from pre- to postdata in mindfulness. The p value was found to be 0.012, which proved the alternative hypothesis: the mean of differences is not equal to zero. The mean of the difference is equal to 2.29, which showed that yoga has its effects on mindfulness.

Conclusions: In this study, we compared 60 days of yoga-based intervention. The yoga module included some standing and balancing asanas, pranayama mudra, and short relaxation. The effect of this yoga module could be seen in the result of this study, which revealed that this yoga module improves mindfulness in adolescents.

Key Words: Adolescents, mindfulness, yoga

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glands and balance endocrine glands (Satyananda, 2006). Balancing asanas develop the function of the cerebellum, the brain center that controls the functions of the body. Balancing asanas develop concentration and balance at the emotional, mental, and psychic level, removing stress and anxiety (Satyananda, 2009). The balancing asanas were effective in improving attention and concentration (Thakur, Sharma & Joshi, 2018). The Vrikshasana is practiced to achieve the heightened sense of balance. It reduces hyperactivity of the kidneys and diuresis. It develops to retain seminal fluid for the maintenance of Brahmacarya (Niranjanananda, 2012). Using the values taken by the HAM-D, it is proven that Vrikshasana has an effect on depression (Varshini, Preetha, & Priya, 2018). The relaxation pose called Shavasana is briefly described in Gheranda Samhita and Hatha yoga Pradipika, that this asana relaxes the whole psychophysiological system. In one study, it was found that Shavasana can successfully reduce the physiological effects of stress (Sharma, Mahajan & Sharma, 2007). Shavasana was found to reduce pulse rate and stress level (Sharma, Mahajan and Sharma, 2007).

Practical integrated yoga module including asanas, pranayama increases sattvic quality (Patil & Nagendra, 2014). Nadi Shuddhi pranayama maintains better concentration in academics (Tawalare & Tawalare, 2014). Scientists have discovered that mental function in the form of changing thoughts and ideas caused rapid movements of the eyeballs. By stilling the eyeball movements, it is possible to bring the brainwaves into the meditative pattern. It is on the basis of this that Shambhavi Mudra is practiced (Muktibodhananda, 2000). The practice of Shambhavi Mudra and pranayama reduces the stress level and increase the level of general well-being. Yoga transforms the quality of consciousness (Satyananda, 2006). Bhramari pranayama relieves stress and cerebral tension, alleviating anger and anxiety. Bhramari pranayama gives individual peace and joy and develops optimistic attitude, self-esteem, and proper coordination between mind and body (Srivastava, Goyal, Tiwari & Patel, 2017).

**Mindfulness**

In the last few decades, mindfulness has received a lot of attention and has been proposed in schools as a common factor of psychotherapy (Martin, 1997). Mindfulness has its roots in eastern contemplative tradition called Buddhist meditation (Kabat-Zinn, 2003). Mindfulness is described as awareness wherein the attention is focused purposely on the present moment, and the person is non-judgmental of his experience every moment (Kabat-Zinn, 2003).

**MATERIALS AND METHODS**

**Participants**

A total of 51 participants were recruited in the present study, with age ranging between 11 and 14 years. The sample size was calculated with G-Power software by fixing the alpha at 0.05, power at 0.80, and an effect size of 0.99 based on the mean and standard deviation of an earlier study (Kim-Lan, Subramanian, Rahmat, & Pang, 2014). The calculated sample size was 36, but due to possible dropout, we considered 51 individuals in the study.

**Design of the study**

The study follows pre–post single group design. Fifty-one adolescents were recruited, with age ranging between 11 and 14 years for yoga intervention. The attendance was 100% during the intervention.

**Intervention**

This yoga module contains asanas such as Tadasana, Tiryaka Tadasana, Katichakrasana, and Paschimottanasana and pranayamas such as Nadi Shodhana Pranayama, Bhramari Pranayama, Shambhavi Mudra, and Shavasana. Children were given 45 min of yoga practice for 60 days. The practices were given both dynamic and static.

**Assessment**

The mindfulness was assessed using the Child and Adolescent Mindfulness Measure, by Greco, Baer & Smith (2011). This assessment was done before and after yoga intervention over a period of 60 days. Scoring is done by reversing all in a sequence according to the psychological tool.

**Data extraction and data analysis**

Data were collected on the 1st and 60th day of experiment and again it was collected after 60 days. The 1st day orientation was given to the children who participated in this study. Individuals were explained the details of the questionnaire and the instructions were given clearly before filling up the questionnaire.

The data were found normally distributed using the Shapiro–Wilk test ($p > 0.05$). Within-group comparison was performed using the paired sample $t$-test. This was done using RStudio.

**RESULTS**

The normality test of the data was done by the Shapiro–Wilk test, and the $p$ value was found to be 0.26 which was $>0.05$ level, showing that the data were normally distributed. Therefore, the paired sample $t$-test was done between pre- and postdata; the outcome of the study reported that there was a significant change from pre- to postdata in mindfulness. The $p$ value was found to be 0.012, which proved the alternative hypothesis: the mean of differences is not equal to zero. The mean of the difference is equal to 2.29, which showed that yoga has its effects on mindfulness [Figure 1 and Table 1].

**DISCUSSION**

Within group comparison showed that, there was a significant improvement in mindfulness total scores. During the practice of yoga, the breath is regulated and mental focus is directed to it, and thus it influences the physical and psychological aspects. The evidence supports the view that yoga has multiple effects: mental, emotional, and physical aspects of the individual (Dusek & Benson, 2009). The positive outcomes in this study are generally consistent with those of few previously published studies of yoga in school settings, although the use of different...
outcome measures and research design between studies precludes a precise comparison (Noggle, Steiner, Minami & Khalsa, 2012). We predicted that yoga would improve the mindfulness and the awareness in the present moment. There was a trend of greater mindfulness acceptance in the yoga group compared to those who do not practice yoga (Noggle et al., 2012). Thus, yoga may serve a preventive role in adolescent’s mental health.

CONCLUSION

In this study we compared 60 days of yoga based intervention. The yoga module included some standing and balancing asanas, pranayama mudra and short relaxation. The effect of this yoga module could be seen in the result of this study, which revealed that this yoga module improves mindfulness in adolescents.

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Conflicts of interest
There are no conflicts of interest.

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