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Research Article

EFFECT OF YOGA ON ANXIETY AND DEPRESSION LEVELS OF ADOLESCENT ORPHAN GIRLS

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ABSTRACT

Objective: Orphaned children are often found to be in a chronic state of anxiety, depression and ill health that worsens into adulthood. The complementary and alternative medicine (CAM) practice of yoga holds promise as a non-invasive, cost effective, safe and non-pharmacological approach to child mental and physical wellbeing. The purpose of this preliminary study was to evaluate the effectiveness, feasibility, and acceptability of 8-week yoga intervention to reduce anxiety and depression symptoms among children living in orphanages.

Methods: In this single group pre-post study, adolescent girls (n=32) who were permanent residents of an orphanage, diagnosed with anxiety and depression were subjected to 8 week yoga intervention. The yoga intervention module for anxiety and depression validated at NIMHANS, Bengaluru comprised of Asana (yogic postures), Pranayama (yogic breathing practices), Meditation, QRT, and DRT (yogic relaxation techniques), Krida yoga (yogic games), and Bhajan sessions (singing of devotional and inspiring songs). Hospital anxiety and depression scale (HADS) was used to measure anxiety and depression symptoms at baseline and at the culmination of the study.

Results: Participation in 8-week yoga intervention resulted in significant reduction in anxiety and depression symptoms. (Wilcoxon signed rank test, $p = .000$)

Conclusion: This study suggests that the 8-week yoga practice reduces anxiety and depression in orphaned adolescent girls. Yoga programs of this kind facilitate the wellbeing of our youth thereby creating peace within the community.

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INTRODUCTION

Mental and emotional well-being is crucial for good health. Physical and mental health together are referred to as positive health. Anxiety and depression disorders are different from general nervousness and sadness. They such distress that it can interfere with one's ability to lead a normal life.

Children are the future denizens of the world who are required to shoulder the responsibility of building and sustaining a progressive community and nation. In their formative years, they need the nurturing care and love, which can have a strong influence on shaping their personality. Orphaned and abandoned children usually lack both the love and support from

a family, which can adversely affect them during this delicate phase of life.

Teenage is a challenging phase of life, as the growing child also has to cope with the onslaught of hormone-mediated cause rapid physical changes, mood swings, changes in appearance like acne, etc. In addition, the child has to handle peer and academic pressure. Life is tough enough with all these challenges and the lack of family care and support is like rubbing salt into a painful wound¹.

Some of the orphaned children are abused and / or abandoned and hail from disturbed family backgrounds which pose a different set of problems. Many times the traumatic events and life situations these children are forced to go through put them

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at risk for disorders such as anxiety, depression, PTSD and so on². In order to provide relief to children with such troubled backgrounds, conventional therapeutic approaches have been employed widely. However, these approaches come with issues of high costs, adverse side effects and obstacles to be applied as long-term solution. Therefore, interventions based on alternative therapeutic solutions such as Yoga, which are devoid of adverse side effects and are easily applicable as long-term solution to support orphaned children diagnosed with anxiety or depression².

Yoga aims at creating harmony between the body and mind to have a positive effect on the physical health as well as self-confidence levels, feeling of self-worth and overall behaviour. Thus, Yoga therapy will eventually reduce the negative feelings of anxiety and depression³. Each Yogic practice is known to have a specific frequency or wave pattern, which resonates with specific parts of the body that have a similar wave frequency. Hence, the yoga practices work at a very deep and subtle level. Combinations of yogic practices can help promote balance in mental and emotional functioning⁴.

Further, children living in orphanages can easily take to yoga as it is very simple, effective group activity and involves no expense. The main objective of the present study is to highlight these aspects and provide evidence to encourage the usage and acceptability of Yoga therapy in such subjects.

MATERIALS AND METHODS

Study subjects

Thirty-two adolescent girls, diagnosed with anxiety and depression symptoms, aged 13 –18 years residing at the Navajeevana and Rainbow Home orphanages, Bengaluru were enrolled in this study.

Inclusion Criteria

- Adolescent girls aged between 13 to 18 years.
- Girls residing at Rainbow Home orphanage who have lost one or both parents.
- Orphan girls diagnosed with either anxiety or depression symptoms.
- Adolescent girls who consented to participate in yoga intervention.

Exclusion Criteria

- Girls who were unable to attend yoga intervention classes due to extra classes at school.
- Adolescent girls who were not diagnosed with anxiety or depression symptoms.
- Adolescent girls who were not willing to participate in yoga sessions.

Design of the study

A Pre-Post experimental study design was selected for the study. Yoga intervention was provided for 8-weeks, 1 hour per day, 5 days a week, along with one day of Krida Yoga per week.

Informed consent

The informed consent was obtained from both the participants and head of the orphanage home before the commencement of

the study. The study was approved by the Institutional Review Board (IRB) of S-VYASA University.

Intervention

Yoga intervention was provided by an expert yoga instructor. The yoga modules for this study were adapted from two validated yoga modules for anxiety and depression from National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru.

Yoga module for Anxiety

Breathing Techniques: Hands in and out, tiger breathing and *Sethubandasana* breathing

Asana: *Tadasana* (palm tree posture), *Ardhakatichakrasana* (half waist posture), *Ardhachakrasana* (half-wheel posture), *Vajrasana* (diamond posture), *Vakrasana* (half-spinal twist), *Shasankasana* (rabbit pose), *Pavanamuktasana* (wind-relieving pose), *Bhujangasana* (cobra pose), *shavasana* etc.

Pranayama: Full yogic breathing, *Nadishuddhi pranayama*, *Chandranulomaviloma pranayama*, *Sheetali pranayama*, *Bhramari pranayama*

Meditation: (*Dharana-Dhyana*) *Nadhanusandhana* and *Yoga nidra*

Yoga module for Depression

Sukshma Vyayama: *Grivasaktivikasaka*, *mani bandha saktivikasaka*, *kaponisaktivikasaka*

Loosening exercises: *Suryanamaskara*, jogging, twisting etc
Asanas: *Ustrasana* (ostrich posture), *Paschimottanasana* (acute forward bend posture), *Bhujangasana* (cobra posture), *Pavanamuktasana* (wind release posture), *viparitamakarni*, *sethubandhasana* (bridge posture), Quick relaxation technique (QRT)

Pranayama: *Surya anulomaviloma*, *Ujjayi*, *Bhastrika*
Pranava Japa (OM chanting)

Assessment

The anxiety and depression levels were assessed at the baseline and after 8 weeks of yoga intervention using Hospital Anxiety and Depression Scale (HADS). It is a 14-item self-assessment scale divided into two subscales, of which seven items reflect anxiety and the other seven reflect depression. It is easy and quick enough for children with normal cognitive abilities to understand and answer. Each item is rated on a scale from zero (not at all) to three (very much). A score of 0-7 is the normal range, a score of 8-10 is borderline abnormal, whereas 11-21 is abnormal. It was designed to assess the dimensions of anxiety and depression in non-psychiatric participants in both hospital and community settings⁵. It is a reliable scale with Cronbach's alpha of 0.89⁶. It is a validated and reliable tool to diagnose anxiety and depression in adolescents and has been used in many research studies with adolescent population⁷.

Data Analysis

Data was analysed using SPSS version 20.0 (IBM SPSS data analytics, New York, United States). The data was checked for normal distribution using the Shapiro-Wilk test. Wilcoxon signed rank test was applied to find the difference in the pre-post anxiety and depression levels and ascertain the significance of the study. The pre and post HADS combined

anxiety and depression scores of $p < 0.05$ were considered statistically significant.

RESULTS

The baseline mean HADS score for anxiety before yoga intervention was 9.47. After 8 weeks of yoga intervention, the mean HADS anxiety score reduced to 4.39. The reduction in HADS anxiety score following yoga intervention was found to be statistically significant ($p < 0.000$) (Table 1, Figure 1).

The baseline mean HADS score for depression before yoga intervention was 8.86. After 8 weeks of yoga intervention, the mean HADS depression score was 5.00. The reduction in HADS depression score following yoga intervention was found to be statistically significant ($p < 0.000$) (Table 1, Figure 2).

Table 1 Effect of yoga on HADS anxiety and depression after 8 weeks (n=32). *Wilcoxon signed rank test

Variable	MEAN±SD		Percent Improvement	p value
	Before	After		
Anxiety	9.47± 2.501	4.39± 2.142	53.64	0.00*
Depression	8.86± 2.664	5.00± 2.586	43.56	0.00*
HADS combined	18.06±5.121	9.69±4.255	46.34	0.00*

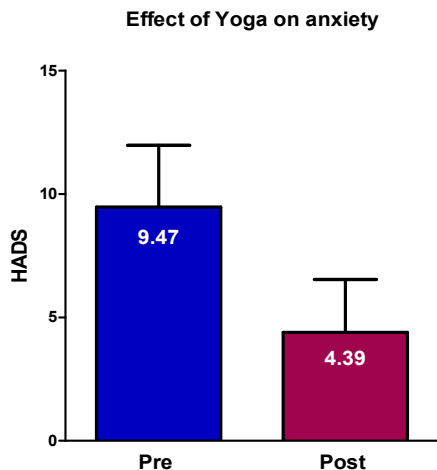


Figure 1 Graph showing the comparative HADS anxiety scores among the 32 participants before and after Yoga intervention.

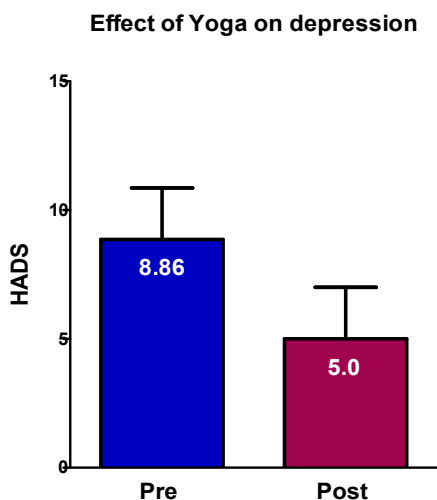


Figure 2 Graph showing the comparative HADS depression scores among the 32 participants before and after Yoga intervention

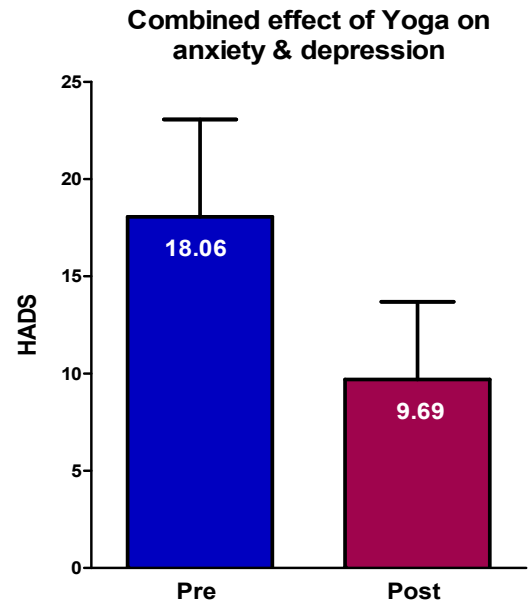


Figure 3 Graph showing the combined HADS anxiety and depression scores among the 32 participants before and after Yoga intervention.

DISCUSSION

The present study intended to test the efficacy of Yoga in orphaned adolescent girls suffering from anxiety and depression. This 8-week pre-post yoga study showed significant reduction in HADS anxiety and depression scores post yoga intervention in these subjects.

Promotion of trust and comfort through experience of tranquillity and peaceful states in the presence of peers was aimed at during the yoga sessions. Competition among children was discouraged and children were praised for doing their best. The children confirmed that the yoga classes made them feel less stressed, less angry and calmer.

The results of the present study are in line with the earlier studies. In a study about effect of yoga on anxiety, depression, and self-esteem in orphanage residents, there was a significant decrease in anxiety, depression and self-esteem in adolescent and young adult participants living in an orphanage after a 2-week intervention of yoga(8). Further, in one another study carried out on orphan children with trauma-related distress which compared yoga intervention group with dance group it was shown that children in the yoga group had significant improvement in the symptoms after 8-week of yoga intervention⁹.

Yoga has demonstrated its potentiality in influencing and normalizing the neurological and hormonal functions. This could be one possible explanation for the positive results shown in the above studies. Neuroscientists suggest that stress triggers increased secretion of corticotrophic hormone by affecting the hypothalamic-pituitary-adrenal (HPA) axis activity. The central and autonomic nervous systems are at a constant state of stimulation which disturbs the fight or flight response, pushing the body and mind to be always on “the edge”¹⁰. Yoga is known to be a great tool for healing the body and mind from the inside out. It helps the sufferer to build a positive relationship with their body and mind. The physical

postures, meditation and breathing techniques put together help regulate the hypothalamus-pituitary-adrenal (HPA) axis and the sympathetic nervous system and release stress¹¹¹².

To validate the results of the current study more studies with complex design and larger sample size need to be conducted. The period of intervention can be increased to study the long-term benefits of yoga practice. Further, well-controlled, randomized trials are needed to demonstrate the clinical efficacy of yoga intervention to manage issues of anxiety and depression in orphaned adolescent girls.

CONCLUSION

The present study reveals that mind-body therapies such as yoga positively facilitate mental health and wellbeing of orphaned adolescent girls. Further, this study provides evidence that yoga is a feasible, acceptable and enjoyable therapy for these adolescents. The highly significant improvement could be due to the longer duration and regularity of yoga intervention given to the children. To conclude, the positive effects of yoga shown here may be beneficial as an effective treatment for psycho-physiological ailments in adolescent orphaned girls who are deprived of a normal childhood.

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