

Effect of Yoga on anxiety, depression and self-esteem in orphanage residents: A pilot study

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Abstract

Introduction: There has been an increase in a number of orphanages and children living in orphanages in last few years. The children living in orphanages often have psychological problems among which anxiety, depression, and low self-esteem are considered to be most prominent. Yoga is a noninvasive, cost-effective, and safe intervention among complementary and alternative medicine which is known to have a positive impact on psychological problems. **Aims:** The present pilot study intended to assess the effect of a two week Yoga intervention on anxiety, depression, and self-esteem of adolescents and young adults living in an orphanage. **Materials and Methods:** Adolescent and young adults participants who were the permanent residents of an orphanage ($n = 34$; males = 27, females = 7) between age ranges of 12–20 years underwent 2 week of Yoga intervention. Yoga intervention comprised *Asana* (Yogic postures), *Pranayama* (Yogic breathing practices), and *Dharana-Dhyana* (Yogic relaxation techniques) for 1 h daily over 15 days. Hospital anxiety and depression and Rosenberg self-esteem scale were administered at baseline and after the intervention to assess anxiety, depression, and self-esteem, respectively. **Results:** There was a significant reduction ($P = 0.001$) in anxiety, depression, and significant improvement in self-esteem ($P = 0.001$) at the end of 2 weeks Yoga intervention. **Conclusions:** This pilot study suggests that 2 weeks of Yoga practice potentially reduced anxiety and depression and improved self-esteem of orphanage adolescents and young adults. These findings need confirmation from studies with a larger sample size and randomized controlled design, which are implicated in the future.

Keywords: Adolescents, anxiety, depression, orphanage, self-esteem, Yoga

Introduction

It takes a parent, family, and community to bring up a healthy child through love, nurturance, and gentle guidance. When children are neglected and abandoned or even abused, it may lead to a severe effect on them lasting till lifetime. Several studies have shown such effects of child abuse and neglect although the outcome may vary as a function of the interaction between specific genes and environmental conditions.^[1] Children living in orphanages not only have to face challenges such as malnutrition, crowded living spaces, and lack of parental care which have been shown having a deleterious effect on development^[2] but they may also have psychological difficulties such as loneliness, sense of abandonment, and difficulties in identity formation. One study from South Asia found behavioral problems in around 33% orphanage children.^[3] In another comparative study between 52 adolescents living in an orphanage and 55 nonorphanage

residents, it was reported that participants living in the orphanage had significantly higher anxiety, depression, negative self-concept, hostility, and Global Severity Index points than the control group.^[4] Further, children living in orphanages often have low self-esteem.^[5]

Yoga is one of the alternatives and complementary medicine interventions, which is noninvasive, safe, as well as cost-effective. It has found to be effective in many clinical health conditions such as hypertension, diabetes, asthma, Parkinson's disease,^[6] as well as psychological problems such as anxiety^[7] and depression.^[8] In a study with school children, it was found that 10 days of residential Yoga program improved

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short-term and working memory.^[9] In another study, 8 weeks of mindful awareness practice 30 min/session, 3 sessions/week showed a significant improvement in cognitive functions.^[10]

However, none of the earlier studies have looked into the effects of a short term Yoga intervention on anxiety, depression, and self-esteem in orphanage adolescents and young adults. Hence, this pilot study was conducted to explore this area.

Materials and methods

Thirty-four adolescents and young adults' residents of an orphanage Manav Mandir Gurukul, New Delhi, were enrolled in this study. The participants were from both the genders (boys = 27 and girls = 7) and in the age ranges of 12–20 years. Informed consent was obtained from both the participants and head of the orphanage home before the commencement of the study. Those participants not willing to participate in the study and those who had previous exposure to any form of Yoga were also excluded from the study. The study was approved by the Institutional Board of Directorate of distance education, Swami Vivekananda Yoga Anusandhana Samsthana University (no. 407/12-54; Dt. 16 February, 2015).

Exclusion criteria

Participants with a history of any acute or chronic disease, recent surgery, or under any long-term antipsychotic medications were excluded from the study. Demographic details of the participants are mentioned in Table 1.

Yoga module: Intervention

- *Asanas: Ardhakati Chakrasana* (half waist pose), *Pada Hastasana* (hand feet pose), *Vakrasana* (diamond pose), *Bhujangasana* (cobra pose), *Shalabhasana* (locus pose), *Vajrasana* (diamond pose), etc.
- *Pranayama: Nadishudhi Pranayama* (alternate nostril breathing), *Bhramari Pranayama* (humming sound while exhalation), sectional breathing, etc., breathing practices – hands in and out breathing and ankle stretch breathing
- *Suryanamaskara* (twelve steps sun postures): Five rounds (increased day by day) – up to 12 rounds
- QRT – Quick Relaxation Technique and A-U-M and OM chanting
- Deep relaxation technique OM meditation.

Criteria for assessment

Both anxiety and depression were assessed at baseline and after 2 weeks of yoga intervention using Hospital Anxiety

Depression Scale (HADS). While self-esteem was assessed using Rosenberg self-esteem scale.

Anxiety and depression

HADS^[11] is a self-assessment scale, it is designed to assess the dimensions of anxiety and depression in nonpsychiatric participants in both hospital and community settings.^[12] It is a validated and reliable tool to diagnose anxiety and depression in adolescents^[13] and has been used for research in many surveys with the adolescent population.^[14] It has got 14 items, which are divided into two subscales of seven items each, to measure the levels of anxiety and depression. Each item is rated on a scale from 0 (not at all) to 3 (very much). This is a popular and reliable scale, with Cronbach's alpha of 0.89.^[15]

Self-esteem

The Rosenberg self-esteem scale is a widely used self-report scale for evaluating individual self-esteem^[16] on a global basis.^[17] It has been used in many studies to assess self-esteem in the adolescent population.^[18] It is a 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. All items are answered using a 4-point Likert scale.

Intervention

All the participants underwent 2 weeks of Yoga intervention 1 h daily for 6 days/week. Yoga was taught by an expert Yoga instructor.

Data analysis

Data were analyzed using the SPSS version 10 (IBM SPSS data analytics, headquartered in Armonk, New York, United States). Data of all variables, except anxiety, were found to be not normally distributed by Kolmogorov–Smirnov test. Wilcoxon signed rank test was applied to see pre–post changes and paired sample *t*-test was applied to find pre–post difference in the anxiety level.

Observations and results

At the baseline, we observed that a total number of the participants having HADS anxiety and depression score above 11, suggestive of clinical anxiety and depression were 15 (42.82%) and 03 (8.5%), respectively. After 2 weeks of yoga intervention, these numbers fell down to 1 and 1, respectively. A significant reduction in a number of the participants having clinical anxiety ($P < 0.001$, –93.33%) and depression ($P < 0.001$, –66.66%) was observed at the end of the intervention [Table 2].

A significant reduction in depression ($P < 0.001$; –32.98%) and anxiety ($P < 0.001$; –32.95%) along with significant improvement in self-esteem ($P < 0.001$; +19.24%) was also observed at the end of 2 weeks [Table 3].

Discussion

This study aimed to test the effect of short-term (2 weeks) Yoga intervention on anxiety, depression, and self-esteem in

Table 1: The demographic details of the participants

Variable	Male	Female	Total
Number of participants	27	7	34
Age (mean±SD) in years	12.55±4.52	12±4.18	12.27±4.38

SD: Standard deviation

Table 2: The number of participants with clinical anxiety and depression before and after Yoga intervention

Variables	Before	After	Percentage change	P
Anxiety	15	1	93.33 ↓	<0.001
Depression	3	1	66.66 ↓	<0.001

↓- decrease

Table 3: Effect of Yoga intervention after 15 days (n=35)

Variables	Mean±SD		Percentage change	P
	Before	After		
Anxiety	10.53±2.711	7.06±2.145	32.95↓	<0.001 ^a
Depression	7.64±2.044	5.12±2.579	32.98↓	<0.001 ^b
Self-esteem	20.47±3.369	24.41±3.751	19.24↑	<0.001 ^b

^aWilcoxon signed rank test, ^bPaired sample *t*-test, ↓- decrease, ↑-increase. SD: Standard deviation

adolescent and young adult participants living in an orphanage. On post intervention, it is observed that a significant reduction in anxiety and depression along with a significant increase in self-esteem. Also a significant decrease in the number of the participants having clinical anxiety and depression after 2 weeks of Yoga intervention was observed. During the intervention phase, most of the participants were enthusiastic and motivated. Participants enjoyed the Yoga sessions, and no adverse effects of Yoga practice were reported.

In one of the earlier comparative studies between Yoga intervention and a control dance group with orphanage children having trauma-related distress, the participants showed significant improvements in symptoms after participation in an 8-week Yoga program as compared to controls.^[19] Apart from this, Yoga is widely used in the adolescent population (nonorphanage) in many health-related conditions and one study with irritable bowel syndrome found 4 weeks of Yoga practice reduces anxiety, depression, pain, and functional disability.^[20]

One possible mechanism behind these findings could be that Yoga improves autonomic functions through influencing neurohormonal mechanisms that suppress sympathetic activity through downregulation of the hypothalamic–pituitary–adrenal axis.^[21] Reduced sympathetic activity leads to enhanced physical and mental relaxation. This may help in reducing anxiety, depression, and improve self-esteem. It has been reported that active participation in practice and increased physical activity may improve self-esteem^[22] by improving perceived physical competence. Structured group physical activity program for the management of depression is a part of the treatment guidelines.

It is relevant to mention that in our study, we found the prevalence of anxiety is more than the prevalence of depression in this orphanage. One possible reason behind high anxiety levels in this age group may be related to worries about their career and uncertainty about future.

To the best of our knowledge, there are very few studies which have focused on the adolescent population living in orphanages. Therefore, in future, another study may be planned with the inclusion of a randomly assigned control group which can be given an intervention package of only physical exercise and relaxation by a trainer. This will control factors such as increased activity, as well as the interpersonal interaction, influencing the outcome. The blind objective behavioral rating can also be included as an outcome measure in future. Long-term follow-up may also be done to assess whether these children are able to sustain motivation to engage in Yoga once the intervention is over.

In summary, study results support the earlier findings about the efficacy of Yoga-based intervention in at-risk children and adolescents to significantly reduce anxiety and depression, even with a short-term intervention. More studies are required to explore the feasibility of scaling up such interventions as a preventive public mental measure.

Future studies should be carried out with larger sample size, proper randomization, and inclusion of an active control group. Duration of intervention should be increased and long-term effect should be studied. The intervention should also include counseling sessions and other components of Yoga such as *Yama* and *Niyama*. Assessment tools may include other robust objective variables such as heart rate variability, muscle strength, cognitive functions, mindfulness, and emotional states.

Conclusions

Two weeks of Yoga intervention may help in reducing anxiety and depression and may improve self-esteem in orphanage adolescents and young adults. However, further randomized controlled studies are required to confirm these findings. The limitations of this study were a short period of intervention and lack of a control group. However, as a pilot study, this research has brought new insights into the potential positive role of Yoga on psychological states in adolescents and young adults living in orphanages.

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Conflicts of interest

There are no conflicts of interest.

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हिन्दी सारांश

अनाथालय के निवासियों में चिंता, अवसाद और आत्मसम्मान पर दो सप्ताह की योग

क्रियाओं का प्रभाव: एक आरंभिक अध्ययन

रविशंकर तेजवानी, काशीनाथ जी मेत्री, ज्योत्स्ना अग्रवाल, एच आर नागेन्द्र

पिछले कुछ सालों में अनाथालयों और अनाथालयों में रहने वाले बच्चों में वृद्धि हुई है। अनाथालयों में रहने वाले बच्चों में कई तरह की मनोवैज्ञानिक समस्याएँ होती हैं जिनमें चिंता, अवसाद, और कम स्वाभिमान सबसे महत्वपूर्ण माना जाता है। योग एक किफायती, लाभकारी और सुरक्षित वैकल्पिक चिकित्सा पद्धति है जिससे मनोवैज्ञानिक समस्याओं पर सकारात्मक प्रभाव पड़ता है। प्रस्तुत आरंभिक शोध अध्ययन का उद्देश्य किशोरावस्था और वयस्कों में चिंता, अवसाद और आत्म-सम्मान पर दो सप्ताह के योग क्रियाओं के प्रभाव का आकलन करना था। इस अध्ययन में कुल ३४ किशोरों और युवाओं को चुना गया जो स्थायी रूप से अनाथालयों में रहने वाले थे ($n = ३४$; युवक-२७, युवती-७) और जिनकी उम्र १२-२० वर्ष के बीच थी। इन युवाओं को योग क्रियाओं में आसन, प्राणायाम और धारणा-ध्यान क्रियाओं को १ घंटे के लिए १५ दिनों तक रोज करवाया गया। हॉस्पिटल एंजाइटी तथा डिप्रेशन, सेल्फ-स्टीम पैमाने के द्वारा क्रमशः चिंता, अवसाद और आत्म सम्मान का आंकलन योग क्रियाओं को करने के पहले और बाद में किया गया। परिणाम स्वरूप दो सप्ताह के अंत में चिंता, अवसाद में ($P = ०.००१$) और आत्मसम्मान में ($P = ०.००१$) महत्वपूर्ण सुधार पाया गया। इस प्रकार इस अध्ययन से यह निष्कर्ष निकलता है कि दो सप्ताह के योग अभ्यास से अनाथालयों के किशोरों और युवा वयस्कों की चिंता, अवसाद और कम स्वाभिमान की भावनाओं को कम कर दिया है। इस निष्कर्ष के आधार पर प्रस्तुत शोध को एक बड़े आकार में यादृच्छिक नियंत्रित डिजाइन के साथ भविष्य में कार्यान्वित करने की आवश्यकता है।