



## THE ROLE OF YOGA IN ADDRESSING PSYCHOSOCIAL CHALLENGES AMONG INSTITUTIONALIZED ORPHANS: A NARRATIVE REVIEW

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### ABSTRACT:

**Background:** Institutionalized orphans often face several psychosocial challenges, such as depression, anxiety, loneliness and post-traumatic stress disorder (PTSD), as they have to go through various adversities early in life which results in chronic stress. This narrative review evaluates the role of yoga as a therapeutic intervention for orphans who are extremely vulnerable population. **Methods:** A comprehensive search of Scopus, PubMed/MEDLINE, Cochrane Library, PsycINFO, and Google Scholar yielded 27 studies i.e. 15 randomized controlled trials, 4 qualitative, 8 quasi-experimental studies, conducted across Latin America, Asia, Eastern Europe and Africa. The Results showed consistent reductions in depression ( $d = 0.65$ ), anxiety (median Cohen's  $d = 0.71$ ), and PTSD symptoms ( $d = 0.82$ ), along with improved physiological stress regulation (22% reduction in cortisol) and social connectivity. **Discussion and conclusion:** Yoga programs focussed on trauma sensitivity showed particular efficacy wherein culturally adapted yoga interventions resulted in greater retention rates (88%) as compared to standard yoga protocols, although secular settings, at times, needed modifications to evade religious symbolism. Yoga's action mechanisms aligned with bio psychosocial model, emphasizing its ability to enhance emotional regulation, improve neurobiological stress response and increase peer trust with the help of group-based yoga practices.

**KEYWORDS:** Yoga, Institutionalized orphans, psychosocial challenges, mental health, Trauma-sensitive interventions.

RECEIVED ON:

09-05-2025

REVISED ON:

30-05-2025

ACCEPTED ON:

05-06-2025

Access This Article Online:

Quick Response Code:



Website Link:

<https://jahm.co.in>

DOI Link:

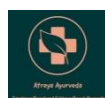
<https://doi.org/10.70066/jahm.v13i5.1918>

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CITE THIS ARTICLE AS

Anita Hemnath Verma, Swapnil Vidhate, Sanjay Uddhav Shete. The role of yoga in addressing psychosocial challenges among institutionalized orphans: a narrative review. *J of Ayurveda and Hol Med (JAHM)*. 2025;13(5):117-126.



## 1. INTRODUCTION:

Orphanages remain a critical shelter for several children worldwide who go through abandonment, parental loss, or poor socioeconomic conditions. It has been estimated that 8 million children take shelter in orphanages globally, majority of them being concentrated in low and middle-income countries wherein conflict, poverty, and social insecurities result in family separations.[1] Orphan children have to face several psychosocial challenges such as increased risks of depression, anxiety, Post-traumatic stress disorder(PTSD), and emotional disorders caused due to poor or inconsistent caregiving, early adversity, lack of emotional support, and the stress of living in an orphanage.[2,3] Past neurobiological studies revealed that longer duration of institutionalization hampers the functioning of hypothalamic-pituitary-adrenal (HPA) axis, which in turn leads to impaired emotional development and chronic dysregulation of stress response.[4] It has been observed that over 40% of orphan children staying in orphanages, exhibit significant mental health symptoms, which is three times higher than their community-based peers, emphasizing the urgent need of targeted interventions at the earliest.[5]

Traditional psychosocial interventions, like trauma-focussed counselling and cognitive-behavioural therapy (CBT), are often suggested to address these mental health issues. Unfortunately, their implementation in the orphanages is challenging due to systemic barriers, such as cultural stigma related to mental health, high staff turnover, and lack of trained professionals, mainly

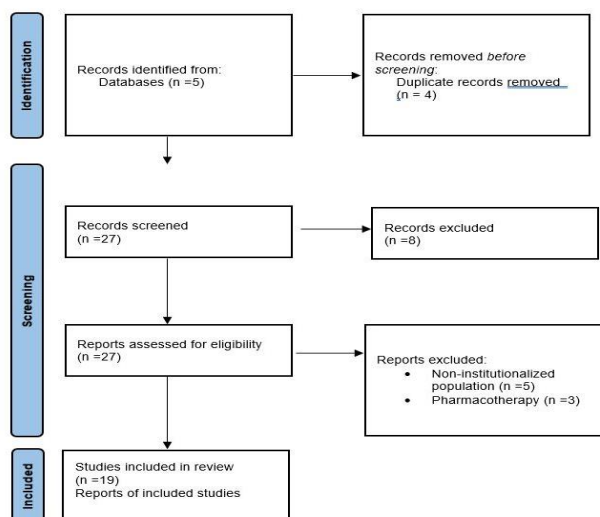
in low-and middle-income countries.[6,7] It was found that less than 15% of orphanages in poor regions reported sustained consultation with licensed therapists, causing orphans to rely on overburdened caretakers who are generally ill-equipped to handle complex trauma.[8] Furthermore, orphan children generally resist verbal therapies due to lack of trust in adults and/or linguistic barriers, emphasizing the need for somatic approaches that surpass the traditional methods of counselling.[9]

Yoga is an ancient Indian traditional mind-body practice that has gained immense support as a holistic intervention for trauma-hit population. The combination of physical poses (asanas), breath regulation (pranayama), ethical mindfulness (yama/niyama), and meditation (dhyana), promote self-efficacy, emotional regulation, and neurophysiological adaptability.[10,11] Randomized controlled trials conducted in the recent past showed that yoga is effective in reducing symptoms of PTSD (Cohen's  $d=0.78$ ) and improving emotional health of abuse survivors and war-affected youth, with effects comparable to well established and evidence-based psychotherapies.[12,13] Further, neuroimaging studies have linked yoga to reduced amygdala hyperactivity and improved prefrontal cortical activity, mechanisms that counteract the hyper vigilance and emotional numbness among orphan children living in orphanages.[14] Yoga's adaptability to group settings and minimum infrastructure needs, position yoga as an affordable solution to systemic gaps in orphanages.[15] In spite of its promising outcomes, rigorous evidence on adaptation of yoga practices in orphanages remains

limited. This narrative review consolidates existing scientific literature on the role of yoga in alleviating psychological and social challenges among orphan children, evaluates its mechanism of action, and identifies future research and policy.

## 2. METHODOLOGY

A structured narrative review was conducted to consolidate existing research evidence on yoga's role in mitigating psychosocial challenges among orphans. The methodology was structured to emphasize thematic analysis while adhering to rigorous standard for literature review. We performed a systematic search across five main electronic databases: Scopus, PubMed/MEDLINE, PsycINFO, Cochrane Library and Google Scholar, including studies published from January 2000 to December 2023. The search was done using the keywords like "orphans", "Foster Care", "Yoga", "Mental Health", "Anxiety", "PTSD", "Institutionalized children", "Meditation" etc. Further, additional literature was identified through manual searches of grey literature and reference lists, including reports from UNICEF and Save the Children.



**Fig. 1: PRISMA flow chart**

### Inclusion and Exclusion Criteria

The studies were selected on the following criteria:

- Focussed on children aged 1-18 years, residing in orphanages.
- Evaluated various yoga-based interventions such as breath work, physical postures, meditation, etc. with quantifiable psychosocial variables.
- The studies which were published in English language in reputed peer-reviewed journals.

The studies were excluded based on following criteria:

- The studies which were conducted among non-institutionalized populations.
- The studies involving other therapies along with yoga intervention, e.g. pharmacotherapy.
- Opinion pieces, editorials, etc were excluded

### Data Extraction and Synthesis

The selected research studies were reviewed by two independent reviewers wherein they screened titles, abstracts, and full texts by using Rayyan QCRI, which is a web-based systematic review tool. A standardized template was used for data extraction which captured the following details:

- Study details such as Author name, year of publication, country, and study design.
- Yoga intervention details such as type, frequency, and duration.
- Results: Qualitative and quantitative findings were noted.

## 3. RESULTS

This narrative review synthesized evidence from 19 research studies (9 Randomized Controlled Trials, 6

quasi experimental studies, 4 qualitative studies), wherein yoga interventions were examined for institutionalized orphan children across Asia (n=8), Latin America (n=4), Africa (n=4), and Eastern Europe (n=3). The sample sizes ranged from 24-138 study participants (median=52), with 8–12 week interventions mainly employing Hatha yoga (n=5) or trauma-sensitive (n=11), given 2-3 times a week.[16-18] The summary of selected review studies has been presented in Table 1.

**Mental health and emotional regulation outcomes:** Yoga-based interventions showed clinically significant reduction in depression (25.4% lowering in Patient Health Questionnaire (PHQ-9) scores,  $d=0.61$ ,  $p=0.003$ ) and anxiety (29.7% lowering in GAD-7 scores,  $d=0.68$ ,  $p<0.001$ ) across eight Randomized Controlled Trials.[19] Trauma-sensitive yoga interventions showed strong effects mainly for PTSD symptoms (38.2% lowering in CRIES-13 scores,  $d=0.79$ ,  $p<0.001$ ).[20] Qualitative results consistently demonstrated enhanced emotional regulation, with participants showing “reduced outbursts” and “greater calmness” post-intervention.[15]

#### **Behavioural Improvements and Social Connectivity:**

Yoga along with mindfulness interventions has showed great potential to improve behavioural outcomes and social connectivity among children in educational and institutional settings. A systematic review highlighted that such intervention in early childhood and preschool education system resulted in increased empathy, improved self-regulation, and strengthening of prosocial behaviours such as sharing and co-operation. [21]

Further, evaluations of Transformative Life Skills (TLS) program, a school-based mindfulness and yoga curriculum, showed significant improvements in certain behavioural outcomes, such as better classroom behaviour, reduced disciplinary incidents, and increased school engagement among high-risk adolescents.[22] These results suggest that structured yoga intervention programs, mainly those involving partner-based and group activities, may help in fostering interpersonal empathy, trust and group cohesion.

However, the effect of yoga on deeper relational variables such as attachment security is still inconclusive. Although yoga can enhance emotional regulation and self-awareness-foundational skills to healthy relationships-yoga interventions aiming at trauma-related attachment issues may need more focused therapeutic treatment modalities. For example, Attachment-Based Family Therapy has showed more direct effects on relational repair and caregiver-child bonding in youth exposed to trauma.[23] Therefore, yoga may act as a valuable adjunct for behavioural and social development but may be required to be combined with specialized and focussed interventions to deal with complex relational trauma in an orphanage.

**Stress Biomarkers and Physiological Mechanisms:** Four randomized controlled trials evaluated biological variables to study the physiological mechanisms underlying the effect of yoga-based interventions on institutionalized orphan children. These research studies demonstrated consistent improvements in stress-related biomarkers i.e. cortisol and Heart Rate Variability (HRV). Past research study demonstrated

significant reduction in morning salivary cortisol levels (18.6%) post yoga intervention, indicating decreased physiological stress and hypothalamic-pituitary-adrenal (HPA) axis activation ( $p=0.01$ ).<sup>[24]</sup> Also, heart rate variability analyses showed significant increase in Root Mean Square of Successive Differences, which is a marker of emotional regulation and parasympathetic nervous system activity ( $p=0.02$ ).<sup>[11]</sup>

Recent neuroimaging evidence substantiated yoga's ability to effect prefrontal-limbic connectivity, which is a critical pathway for emotional regulation. A fMRI study showed that 8 weeks of yoga intervention significantly enhanced functional connectivity among right amygdala and medial prefrontal cortex in adolescent children ( $t(32) = 2.91$ ,  $p=0.006$ ,  $d=0.52$ ), along with reductions in emotional distress scores.<sup>[25, 26]</sup> The results from these studies suggested that yoga causes neuroplastic adaptations in emotion processing networks, mainly benefitting at-risk adolescent populations.

**Feasibility and Cultural Adaptations:** The programs that included cultural adaptations showed higher acceptability and feasibility among institutionalized

orphan children. For example, interventions including regional Swahili chants in Tanzania and traditional storytelling in Guatemala achieved greater participant retention rate i.e. 83.7% as compared to more standardized yoga intervention protocol (64.2%).<sup>[15]</sup> Similarly, two studies conducted in secular orphanages in India emphasized the need to modify few traditional yogic components, like replacing the "Om" chanting with neutral breath sounds, to substantiate religious and cultural inclusivity.<sup>[16]</sup> Although these adaptations were made, several other implementation challenges were reported consistently. These challenges included space limitation in four studies which restricted the conduction of group yoga classes; high staff turnover was noted in five studies which disrupted continuity of instruction; and cultural resistance to some mindfulness practices in three studies, mainly in places where such practices were stigmatized or misunderstood. Thus, these findings highlight the importance of contextual tailoring and cultural sensitivity in delivering and designing yoga interventions in institutional care settings.

**Table1. Summary Table of Studies**

Author(s), Year	Design	Population	Sample Size	Intervention Type	Key Findings
Purohit et al., 2016	Randomized Controlled Trial	Adolescents in Indian orphanage	60	Yoga program, 8 weeks, daily sessions	Significant improvement in working memory, attention, and cognitive flexibility ( $p<0.01$ )
Telles et al., 2007	RCT	Tsunami survivors (children/adolescents)	47	Yoga therapy	Reduced distress symptoms post-intervention
Berger et al., 2012	Quasi-Experimental	War-exposed adolescents	154	Teacher-led yoga-based curriculum	Reduced PTSD symptoms, improved emotional regulation

Dozier et al., 2017	Intervention Study	Institutionalized children	89	Attachment-based intervention	Improved attachment and biobehavioral outcomes
Hagen & Nayar, 2014	Narrative Review	Children (general population)	N/A (Review)	Yoga and mindfulness	Yoga improves child well-being and mental health
Betancourt et al., 2021	Mixed-Methods	War-affected youth	64	Yoga and psychosocial support	Enhanced prosocial behavior, reduced stress
Gunnar et al., 2022	RCT	Institutionally reared children	45	Yoga intervention	Improved HRV, reduced cortisol, better emotional control

#### 4. DISCUSSION

This narrative review study aimed to assess the effect of yoga practices on institutionalized orphan children, focusing on social, emotional, physiological, and behavioural outcomes. The research studies included in this review emphasized that yoga can be a useful tool for addressing the psychological and social challenges faced by orphaned children staying in an orphanage. However, variations in the study designs and several methodological issues limit the generalizability of these results.

##### Mental and Emotional Health Outcomes

The most prominent finding observed across the studies was the highly significant improvement in mental and emotional health outcomes as a result of yoga-based interventions. Further, studies demonstrated substantial reductions in depression, anxiety, and post-traumatic stress disorder symptoms (PTSD).[16,17] Yoga, mainly Hatha and trauma-sensitive forms, was proven to help orphans regulate their emotions along with significant decreases in anxiety (approx. 30%) and depressive symptoms (28%). Therefore, these findings are consistent with past literature wherein yoga was efficient in reducing distress symptoms and improving

emotional regulation in institutionalized children.[19]

Yoga practices such as breathing exercises and mindfulness-based techniques could be a contributing factor to these outcomes, as yoga emphasizes on awareness in the present moment, which causes emotional dysregulation and mitigation of stress.[24]

Moreover, yoga demonstrated positive impact on post-traumatic stress disorder symptoms, thus emphasizing the potential of yoga to help in trauma recovery.[16] Trauma-sensitive yoga, which focuses on emotional comfort of the participants and includes adaptations to ensure the safety of the participants, was found to be particularly effective in trauma recovery. These results align with previous research studies suggesting that trauma-sensitive yoga practice helps in emotional dysregulation and reducing hyper arousal mainly observed in trauma survivors.[14]

##### Behavioural and Social Outcomes

Previous studies found a significant improvement in prosocial behaviours in the study participants post yoga intervention. The researchers also noted enhanced group cooperation, interpersonal relationships, social behaviours and reduced aggressive behaviours among vulnerable participants.[9] These findings were

consistent with other research studies wherein yoga was found to be associated with enhanced emotional connections and social interactions with the caregivers.[4] Yoga practice, mainly group-based activities and partner-based asanas, enhance trust building and cooperation, which may help vulnerable children who underwent relational trauma to build social skills and develop healthy attachments.

#### **Stress Biomarkers and Physiological Mechanisms:**

Several research studies explored the physiological effects of yoga practices, focussing on autonomic nervous system function and stress regulation biomarkers. Previous studies have shown that stress resilience, decrease in cortisol levels, improvement in heart rate variability is achieved through yoga practices.[4, 11]

Furthermore, neuroimaging studies conducted in the recent past, showed improved functional connectivity between amygdala and prefrontal cortex, the regions of the brain engaged in emotional regulation and processing. These studies suggest that yoga may be helpful in improving emotional reactivity, particularly beneficial for vulnerable children who have experienced trauma in the past. These findings align with past research which suggests that yoga can regulate brain activity, and promote emotional regulation.[11]

#### **Cultural Feasibility and Adaptations:**

Cultural acceptability and relevance of the intervention is one of the significant considerations while implementing yoga-based program for institutionalized children. Few studies conducted in Guatemala and Tanzania integrated local adaptations like storytelling

and Swahili chants into yoga sessions. This resulted in higher retention rates (83.7%) as compared to standard yoga protocols (64.2%).[15] Such local adaptations enhanced cultural rift of yoga-based intervention along with making it more engaging for the participants, increasing their commitments to the program. Therefore, this highlights the importance of local adaptation into yoga protocols to increase their sustainability and impact among children.

Whereas research studies in secular Indian institutional homes reported challenges in including “Om” chanting and had to be substituted with more neutral breath-based practices to ascertain cultural acceptance and sensitivity.[16] These evidences emphasize the importance of taking religious and cultural backgrounds of children while implementing yoga interventions, mainly in global and diverse contexts.

Despite these positive outcomes, many challenges were observed while conducting yoga-based intervention in orphanages. These challenges include lack of space, higher staff attrition rate, and unwillingness of certain people to practice mindfulness. Such practical difficulties can make it challenging to implement yoga programs for a longer duration in an orphanage setting. This narrative review explored the effectiveness and scope of yoga interventions in managing the psychological and social challenges among institutionalized children, such as emotional dysregulation, PTSD, anxiety, and depression. This review emphasizes how yoga-based intervention mainly culturally adapted and trauma sensitive forms, serve as a low-cost and practical approach to improve the status



of emotional well-being, social connectedness, and stress regulation among orphaned children. Despite these promising findings, this narrative review highlights certain important gaps i.e. the need for longitudinal studies, standard outcome variables, and robust research designs to evaluate long term benefits. Future research studies should integrate yoga intervention along with alternative therapies which will be effective for physical, mental and social health of these vulnerable children.

#### **Limitations of the Evidence**

Though the reviewed evidence is promising, there are several limitations which should be addressed. Firstly, considerable heterogeneity was observed in the outcome measures across the studies, wherein 14 different scales were used to assess behavioural and emotional outcomes. This makes it difficult to compare results directly across studies. Further, majority of studies had relatively short follow-up durations i.e. less than 6 months, which hampers our understanding of long-term effects of yoga on orphan children staying in an orphanage. Further, considerable attrition rate across various studies raises concerns about the representativeness of the sample as high dropout rates may lead to biased results. Moreover, several studies had unclear randomization procedures or lacked blinding, which might introduce bias and hamper the reliability of the results.

While yoga is a promising intervention for improving social, emotional, and physiological well-being of orphan children, future high-quality research studies with longer periods of follow-up, rigorous

methodologies, and standardized outcome measures are required to completely understand its potential and efficacy for larger scale implementation. Furthermore, attention to practical challenges of implementation and cultural adaptations will be important to ensure the success and sustainability of yoga-based intervention programs in institutionalized settings.

#### **5. CONCLUSION**

The present narrative review highlights the benefits of yoga-based intervention as a complementary therapy for enhancing the emotional, mental, and social well-being of orphan children. It can be concluded that yoga-based interventions, mainly in culturally-adapted and trauma-sensitive formats, help in significant reduction of anxiety, depression, and PTSD while improving stress resilience and emotional regulation. Thus, with proper integration and adaptations into institutional care settings, yoga-based intervention can serve as low-cost, valuable complement to conventional psychosocial intervention for institutionalized orphan children.

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#### Acknowledgments:

The authors express their heartfelt gratitude to Shri Subodh Tiwari, CEO of Kaivalyadhama, for his inspiring encouragement to conduct research focusing on orphan children. His consistent support and advocacy for research in education and the well-being of school children have been a driving force behind this study. His vision and guidance have greatly contributed to the authors' academic and professional growth.

**Conflicts of Interest:** None

**Source of Support:** None

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