

YOGA AND OM MEDITATION AS STRESS-REDUCTION STRATEGIES FOR ADOLESCENTS IN SOUTH GUJARAT

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Abstract

Adolescence is a critical developmental period marked by biological, psychological, and social transitions that increase vulnerability to stress and common mental health problems such as anxiety and depression. Global estimates suggest that 10–20% of adolescents experience a diagnosable mental health condition, with many remaining undiagnosed and untreated. In India, school-based studies report mental health problem prevalence ranging from 7% in community samples to over 20% in school populations, and recent research from Gujarat indicates a significant burden of emotional and behavioural difficulties among school-going adolescents. Academic pressure, competitive examinations, and parental expectations are salient stressors in the South Gujarat region, which comprises rapidly urbanizing districts such as Surat, Navsari, and Bharuch. Parallel to the growing burden of stress is a widening “treatment gap” in adolescent mental healthcare in India, with estimates suggesting that over 80% of individuals with mental health conditions do not receive timely or adequate care. In this context, school-based, low-cost, culturally congruent interventions such as yoga and Om meditation offer promising complementary strategies for stress reduction. Multiple Indian studies show that relatively brief yoga interventions can significantly reduce perceived stress, anxiety, and psychological distress among school and college students. Likewise, Om chanting-based meditation has been found to improve psychological well-being and reduce anxiety and distress among adolescents and young adults. The present paper focuses on “Yoga and Om Meditation as Stress-Reduction Strategies for Adolescents in South Gujarat”. It (a) synthesizes empirical evidence on adolescent stress and mental health in India and Gujarat, (b) reviews the efficacy of yoga and Om meditation as stress-management tools for adolescents, (c) proposes a school-based intervention framework tailored to South Gujarat, and (d) outlines an evaluation design that schools and researchers can adopt. The paper argues that structurally embedding yoga and Om meditation within the school timetable, aligned with recent Gujarat state guidelines on student mental well-being and emerging school meditation initiatives, could be an effective and scalable response to the evolving mental health needs of adolescents in South Gujarat.

Keywords: Adolescents¹, stress, yoga², Om meditation³, South Gujarat⁴, school mental health⁵, India⁶.

1. Introduction

Adolescence (10–19 years) is widely recognized as a period of heightened vulnerability to stress and mental health problems. The World Health Organization estimates that 4.1% of 10–14-year-olds and 5.3% of 15–19-year-olds experience an anxiety disorder, while 1.3–3.4% experience depression. Worldwide, around 8% of children and 15% of adolescents are estimated to live with a mental disorder, yet the majority do not receive appropriate care. In India, adolescents constitute approximately 21% of the population, and multiple national and regional studies over the last decade have documented substantial prevalence of depression, anxiety, stress, and behavioural difficulties in school-going adolescents. Systematic reviews suggest that the prevalence of mental health problems among Indian adolescents ranges from about 2% to over 60%, depending on the setting, tools, and outcomes studied. Gujarat, one of India's more industrialized states, has seen rapid urbanization and expansion of both government and private schooling. Studies from districts within Gujarat have reported:

- Emotional and behavioural difficulties among school-going adolescents in Sabarkantha district, indicating a notable burden of mental health issues.
- High levels of anxiety and depression among school adolescents in Rajkot, with socio-demographic factors such as sex, age, and family characteristics associated with higher risk.
- Common mental disorders (CMDs) such as anxiety, depression, and psychosocial distress among adolescent schoolgirls in an urban area of Gujarat.

Concurrently, contemporary reports such as the Student Well-being Pulse Report highlight a growing mental health crisis among Indian high-school students, driven by exam pressure, career uncertainty, late-night screen use, and sleep loss. South Gujarat covering districts such as Surat, Navsari, Valsad, Bharuch, Tapi, and Narmada has distinctive features: high academic competition, migration-linked family stress, and exposure to urban and semi-urban lifestyles. These factors, combined with limited access to specialized child and adolescent mental health services in many parts of the region, create an urgent need for scalable school-based interventions. Yoga and Om meditation are deeply rooted in Indian philosophical and cultural traditions, making them contextually appropriate modalities for stress reduction. Evidence from India indicates that relatively short yoga programs can significantly reduce perceived stress, anxiety, and psychological distress in adolescents. Similarly, Om chanting has been shown to exert beneficial effects on psychological well-being, anxiety, and physiological markers of relaxation. Against this backdrop, this paper examines how yoga and Om meditation can be systematically deployed as stress-reduction strategies for adolescents in South Gujarat.

2. Review of Literature

2.1 Adolescent stress and mental health in India and Gujarat

Evidence indicates that a large proportion of Indian adolescents experience significant stress and emotional difficulties. School-based studies using tools such as the Strengths and Difficulties Questionnaire (SDQ), Perceived Stress Scale (PSS), and various anxiety and depression inventories have reported:

- Abnormal SDQ scores (indicating probable mental disorders) in about 8–23% of school-going adolescents in different regions.
- In one PSS-10-based study, approximately 24% of school adolescents had high stress, with over 40% showing severe psychological distress on the General Health Questionnaire.
- Anxiety and depression prevalence among Rajkot adolescents using the Beck Anxiety Inventory and Beck Depression Inventory, with significant associations with socio-demographic variables.

A systematic review on school children and adolescents in India concluded that psychological, physical, and sexual violence, academic pressure, and socio-economic disadvantages contribute significantly to mental health problems.

In Gujarat specifically, studies have shown:

- Emotional and behavioural difficulties among adolescents in Sabarkantha.
- Higher burden of CMDs among adolescent girls in certain urban areas.
- Gender differences and high levels of academic stress among higher secondary students.

These findings are consistent with national data indicating that 10–20% of adolescents experience mental health conditions, many of which remain underdiagnosed and undertreated.

2.2 Evidence for yoga-based interventions in adolescent stress

Yoga includes physical postures (asanas), breathing exercises (pranayama), and meditative practices that collectively influence autonomic balance, respiratory patterns, attention regulation, and emotional self-regulation.

Several Indian studies have demonstrated the benefits of yoga for adolescent mental health:

- Ranjani et al. reviewed evidence showing that 21 days of Hatha yoga reduced perceived stress scores by about 4.3% in one trial and that pranayama practice among adolescents aged 12–17 years reduced stress scores by 17.2% in the experimental group, compared with 2.9% in controls.
- A study among 10th-grade students who practiced Yoga Nidra for 21 days reported reduction of stress from moderate to low levels.
- Pradhan et al. (2024) reported that a 12-week yoga intervention (asanas and pranayama) significantly reduced stress and anxiety among school-going male students, with improved mental well-being.
- Another study on female adolescents found that 15 days of yoga practice brought statistically significant improvements in perceived stress, anxiety, and mental health indicators.
- A specific yoga protocol tested in adolescents showed significant reductions in stress scores and improvements in academic performance after an eight-week intervention.

Collectively, these studies suggest that school-based yoga, even when delivered for 15–21 days or 8–12 weeks, can produce meaningful reductions in stress and anxiety among adolescents.

2.3 Evidence for Om meditation and Om chanting

Om (ॐ) is a sacred syllable in Indian spiritual traditions and is widely used as an object of meditation and chanting. Research indicates that Om chanting may influence both psychological and physiological functioning.

Key findings from Indian studies include:

- An early study on adolescents found that Om chanting meditation had a significant positive effect on psychological well-being, with a t-value of 5.59 ($p < 0.01$) in the experimental group and non-significant change in controls.

- A study on Om chanting and anxiety among adolescents reported significant reductions in anxiety following regular practice, suggesting its utility as a non-pharmacological intervention for mental health problems.
- Research on the physiological and psychological effects of Om chanting has highlighted beneficial changes in autonomic balance, reduced arousal, and improved mental well-being.
- A more recent study examining Om chanting as a mind–body practice found reduced psychological distress, improved sleep quality, and enhanced quality of life among young participants.

These findings support the integration of Om chanting into broader yoga-based interventions for adolescents, particularly in culturally congruent settings such as South Gujarat.

2.4 Policy and school initiatives in Gujarat

The Gujarat government has recently introduced guidelines aimed at safeguarding the mental and physical well-being of school students, mandating mental health professionals in larger schools, training in psychological first aid, and protocols for responding to self-harm risk. These guidelines explicitly discourage excessive academic load and derogatory behaviour by staff and promote inclusive, sensitive communication and co-curricular development. In Ahmedabad, the “Billion Minutes of Peace Appeal Project” has been launched across around 1,800 schools, involving more than five lakh students in 10 minutes of daily meditation to address rising aggression and impulsive behaviour. This initiative provides a real-world example of how meditation can be institutionalized within the school timetable at scale, offering an important precedent for South Gujarat.

3. Rationale and Objectives

Despite emerging initiatives, school-based yoga and meditation programs in South Gujarat remain fragmented, often limited to sporadic events such as Yoga Day celebrations rather than continuous, curriculum-integrated practice. Given:

- The documented burden of stress, anxiety, and emotional difficulties among adolescents in Gujarat,
- The strong empirical base for yoga and Om chanting as low-cost, side-effect-free stress-reduction tools,
- Cultural familiarity with yoga and mantra chanting in the region, and
- The policy environment in Gujarat favouring student mental health,

There is a compelling rationale to design and implement structured, evidence-informed yoga and Om meditation programs in South Gujarat schools.

Objectives of the paper

1. To contextualize adolescent stress and mental health challenges in South Gujarat using national and state-level evidence.
2. To review empirical research on yoga and Om meditation as stress-reduction strategies for adolescents.
3. To propose a school-based intervention framework integrating yoga and Om meditation for adolescents in South Gujarat.
4. To outline a methodological design for evaluating such interventions in real-world school settings.

4. Proposed Methodology for a School-Based Program in South Gujarat

This section presents a methodological framework that schools, NGOs, or researchers in South Gujarat can adopt. The numerical values and design elements are suggested as a **model** and should be adapted to local context and ethical requirements.

4.1 Study design

A quasi-experimental pre-test–post-test control group design is proposed, complemented by qualitative exploration.

- **Intervention group:** Schools implementing structured yoga + Om meditation.
- **Control group:** Schools continuing usual timetable (physical education period as usual), with option to receive the program later (wait-list control).
- **Mixed-methods:** Quantitative measures of stress and mental health; qualitative data from focus group discussions (FGDs) and teacher/parent interviews.

4.2 Study setting and population

- **Region:** South Gujarat (e.g., Surat, Navsari, Bharuch, Valsad districts).
- **Schools:** A mix of government and private higher secondary schools (classes 8–12).
- **Participants:** Adolescents aged 13–17 years enrolled in selected schools.

4.3 Sample size and sampling strategy

- **Sample size (illustrative):**
 - 4 schools in intervention arm and 4 schools in control arm.
 - Approximately 50 students per school, giving a total of about 400 participants ($n \approx 200$ intervention; $n \approx 200$ control).
- **Sampling:**
 - Stage 1: Random selection of eligible schools in each district.
 - Stage 2: Within each selected school, random selection of one or two classes and inclusion of all students who provide assent and parental consent.

Power calculations would be based on expected effect sizes drawn from previous Indian yoga intervention studies, which have reported reductions in stress scores ranging from about 4–20%.

4.4 Measures

1. **Socio-demographic data:** Age, sex, class, school type, family structure, parental education, socio-economic status.
2. **Perceived stress:** Perceived Stress Scale (PSS-10), widely used in adolescent samples in India.
3. **Mental health and distress:**
 - A brief mental well-being tool such as the Warwick–Edinburgh Mental Well-being Scale (WEMWBS) or SDQ, both used with Indian adolescents.
4. **School performance indicators (optional):** Recent exam scores, attendance, and disciplinary records.

5. **Qualitative tools:** Semi-structured interview guides for FGDs with students and key informant interviews with teachers and parents to explore perceived changes and contextual factors.

4.5 Intervention protocol: Yoga and Om meditation

The proposed program runs for **8 weeks**, five days per week, with **30-minute sessions** integrated into the regular timetable (e.g., morning assembly or physical education period). Drawing from existing effective protocols, each session may include:

1. **Centering and breath awareness (3–5 minutes)**
 - Simple instructions to notice natural breathing and sit with erect but relaxed spine.
2. **Warm-up and basic asanas (10–12 minutes)**
 - Tadasana, Trikonasana, Vajrasana, Bhujangasana, and other beginner-friendly postures, modified for safety.
3. **Pranayama (5–7 minutes)**
 - Deep diaphragmatic breathing, Anulom–Vilom (alternate nostril breathing), and simple counted breathing.
4. **Om chanting and meditation (5–8 minutes)**
 - Repeated chanting of Om on a long exhalation (e.g., 11 repetitions), followed by silent, eyes-closed awareness of sound vibration and breath.
5. **Relaxation (2–3 minutes)**
 - Brief guided relaxation in sitting or supine posture, with suggestions for calmness and mental clarity.

Sessions should be delivered by trained yoga instructors or teachers who have received standardized training and orientation in adolescent-friendly communication and mental health sensitivity, in line with Gujarat's guidelines for student well-being.

4.6 Data collection and analysis

- **Time points:**
 - Baseline (T0) before intervention.
 - Post-intervention at 8 weeks (T1).
 - Optional follow-up at 3 months (T2) to examine sustainability.
- **Quantitative analysis:**
 - Descriptive statistics for demographic variables and baseline stress scores.
 - Paired t-tests or non-parametric equivalents for within-group changes (T0 vs T1).
 - Independent t-tests / ANCOVA for between-group comparisons adjusting for baseline differences.
 - Effect sizes (Cohen's d) to quantify magnitude of change.
- **Qualitative analysis:**
 - Thematic analysis of FGDs and interviews to identify perceived benefits, barriers, and facilitators of program implementation.

5. Evidence-Based Expectations and Illustrative Data

Rather than presenting fabricated primary data, this section **projects likely outcomes** for adolescents in South Gujarat by synthesizing effect sizes from existing Indian studies of yoga and Om meditation.

5.1 Summary of key Indian studies

Table 1. Selected Indian yoga and Om meditation studies relevant to adolescent stress

Study / Year	Population	Intervention	Duration	Key Outcome	Main Finding (simplified)
Ranjani et al., 2023	Adolescents, 12–17 yrs	Hatha yoga	21 days	Perceived stress	~17% reduction in stress in yoga group vs ~3% in control
Pradhan et al., 2024	School boys	Asanas + pranayama	12 weeks	Stress, anxiety	Significant reductions in stress and anxiety, improved mental health
Female adolescents yoga study	Female adolescents	Daily yoga practice	15 days	Stress, anxiety, mental health	Significant improvement across all variables
Distress & yoga session in adolescents	Adolescents	Single yoga session	Once	Distress	Distress reduced from 40.6% to 26% in intervention arm
Om meditation & psychological well-being	Adolescents	Om chanting meditation	4 weeks (approx.)	Psychological well-being	Experimental group showed significant improvement vs control
Om chanting and anxiety	Adolescents	Om chanting	Several weeks	Anxiety	Significant decrease in anxiety scores
Om chanting, distress, sleep	Young adults	Om chanting	8 weeks	Stress, QoL, sleep	Reduced psychological distress, better sleep and QoL

From these studies, an intervention in South Gujarat could **reasonably expect**:

- A **10–20% reduction** in mean perceived stress scores among participants in the yoga + Om group over 8 weeks, relative to minimal change in controls.
- A reduction in the proportion of adolescents with high distress (e.g., from about 40% to 25–30% in the intervention arm, based on similar studies).
- Qualitative reports of improved calmness, better sleep, increased concentration, and enhanced emotional regulation.

6. Discussion

6.1 Mechanisms of action

The stress-reduction effects of yoga and Om meditation can be understood through multiple, interrelated mechanisms:

1. **Physiological regulation:**
 - Slow, deep breathing and asanas stimulate the parasympathetic nervous system, reduce sympathetic overactivity, and improve heart rate variability, all associated with lower stress and anxiety.
2. **Cognitive–emotional regulation:**
 - Focused attention on breath and body sensations, combined with mantra chanting, trains adolescents to notice thoughts and emotions without automatically reacting, thereby enhancing self-regulation and resilience.
3. **Psychosocial effects:**
 - Group yoga sessions can foster a sense of belonging, normalize conversations about mental health, and provide a socially acceptable entry point to stress management in settings where stigma remains high.

6.2 Relevance to South Gujarat

Adolescents in South Gujarat often face:

- High academic competition in cities such as Surat and Navsari.
- Parental and societal pressure linked to professional aspirations.
- Lifestyle changes including late-night screen use and reduced sleep. Within this context, yoga and Om meditation have several advantages:
 - **Cultural acceptability:** These practices are widely recognized, reducing resistance from families and school management.
 - **Low cost and scalability:** Once teachers are trained, recurring costs are minimal.
 - **Compatibility with policy:** Programs can be aligned with Gujarat government guidelines that already emphasize student mental health, psychological first aid, and safe school environments.

6.3 Equity considerations

To ensure that yoga and Om meditation programs do not inadvertently widen inequalities, it is essential to:

- Include government schools serving economically weaker sections, not only private schools.
- Design gender-sensitive sessions that consider comfort, privacy, and cultural norms for girls.
- Adapt the program for students with physical disabilities or health limitations.
- Offer sessions in Gujarati and Hindi, with simple instructions and locally relevant metaphors.

7. Implications for Practice and Policy

1. **Integration into school timetable:**
 - Allocate a fixed daily slot (10–30 minutes) for yoga and Om meditation, similar to the Ahmedabad meditation initiative, but with standardized protocols and monitoring.
2. **Teacher capacity-building:**
 - Train selected teachers (physical education, sports, or interested staff) in basic yoga instruction, adolescent mental health literacy, and referral mechanisms for high-risk students.
3. **Multi-level collaboration:**
 - Coordinate between the education department, health department, NGOs, and local yoga institutes to ensure quality implementation and supervision.
4. **Monitoring and evaluation:**
 - Use simple tools (PSS-10, SDQ, attendance, disciplinary records) to track changes and refine the program.
5. **Linkages to mental health services:**
 - Ensure that students with high distress or suicidal ideation identified during screening are referred to mental health professionals as per Gujarat’s guidelines for student safety and well-being.

8. Limitations and Directions for Future Research

This paper is conceptual and integrative rather than a report of completed fieldwork in South Gujarat. The projected effectiveness of yoga and Om meditation is based on existing Indian studies conducted in other states and contexts.

Future research should:

- Conduct randomized controlled trials or well-designed quasi-experimental studies in South Gujarat schools to generate region-specific evidence.
- Compare different formats (e.g., daily 10-minute sessions vs 30-minute sessions thrice weekly).
- Examine long-term sustainability and follow-up effects on academic performance, substance use, and risk behaviours.
- Investigate differential impacts by gender, socio-economic status, and urban vs rural residence.

9. Conclusion

Adolescent stress and mental health challenges are now well-recognized in India and Gujarat, with multiple studies documenting high levels of stress, anxiety, and emotional difficulties among school-going adolescents. The treatment gap remains large, and it is neither feasible nor desirable to rely solely on specialist-led clinical services. Yoga and Om meditation, when implemented as structured, school-based practices, represent promising, culturally grounded, and low-cost strategies to reduce stress and enhance well-being among adolescents in South Gujarat. Evidence from Indian studies supports their effectiveness in lowering stress and anxiety and improving psychological well-being. Integrating such practices into the daily timetable, supported by teacher training, systematic monitoring, and alignment with state mental health guidelines, can contribute significantly to building resilient, emotionally healthy youth in South Gujarat. However, rigorous local research and careful attention to equity and ethics are essential to ensure that these interventions are both effective and inclusive.

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