

Integrating Yoga into School Education

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Abstract— Schools worldwide are under growing pressure to address not only academic outcomes but also the physical fitness, emotional regulation, and psychosocial well-being of students. Yoga, a low-cost, low-equipment practice combining physical postures, breath regulation, and meditative attention, has attracted sustained research interest as a feasible school-based intervention capable of addressing this broader mandate. This paper reviews peer-reviewed evidence on the integration of yoga into school education, drawing on systematic reviews, scoping reviews, and randomized controlled trials published between 2012 and 2023, alongside India's National Education Policy (NEP) 2020, which explicitly mandates the inclusion of yoga in school curricula. The review finds that school-based yoga programs are associated with improvements in attention, executive function, emotional regulation, anxiety and stress reduction, and, in several studies, academic engagement and performance, although the evidence base continues to be constrained by small sample sizes, inconsistent intervention protocols, and a shortage of high-quality randomized designs. The paper further examines the policy context in India, where NEP 2020 positions yoga as a core component of holistic, multidisciplinary education from the foundational stage onward, and considers the practical, curricular, and teacher-training challenges that accompany this policy ambition. The paper concludes that yoga integration in schools holds considerable promise as a scalable well-being intervention, but that its educational value depends on standardized program design, trained instructors, and rigorous evaluation embedded within the school system rather than treated as an occasional extracurricular activity.

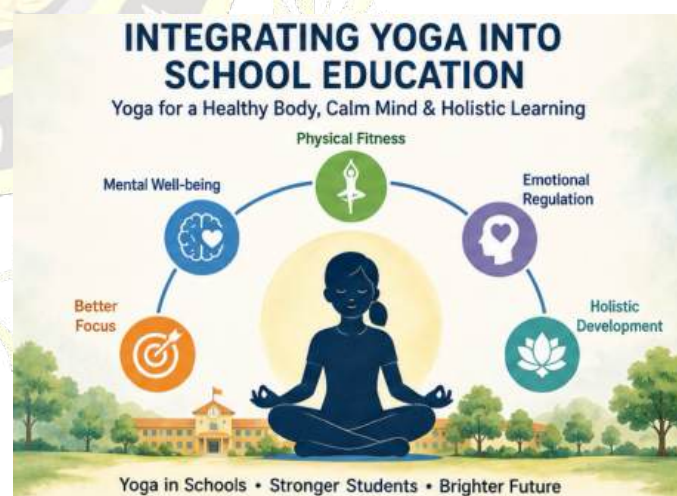
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INTRODUCTION

Educational institutions have traditionally been evaluated primarily on academic metrics such as test scores, literacy, and numeracy. Over the past two decades, however, a parallel body of research and policy attention has emphasized that cognitive achievement cannot be separated from students' physical health and emotional regulation, and that schools are uniquely positioned to intervene on all three simultaneously, given the amount of time children spend within them. Within this broader

shift toward "whole child" education, yoga has emerged as a particularly attractive intervention because it requires minimal equipment, can be delivered by trained teachers within existing classroom or physical education periods, and addresses physical fitness, attentional control, and emotional regulation within a single, integrated practice.

Yoga's suitability for school settings has been documented across a range of populations, from typically developing children to those with attention-deficit/hyperactivity disorder (ADHD), autism spectrum conditions, and emotional and behavioural disorders. Early reviews of the school-based yoga literature identified promising but methodologically limited evidence, noting that programs varied considerably in duration, frequency, and content, and that many available studies lacked randomization or adequate sample sizes (Serwacki & Cook-Cottone, 2012). Subsequent systematic reviews and randomized trials have substantially expanded this evidence base, addressing outcomes ranging from attention and executive function to anxiety, stress, self-esteem, and academic engagement (Ferreira-Vorkapic et al., 2015; Khunti et al., 2023; Saxena et al., 2020).



In India, the integration of yoga into school education has acquired particular policy significance following the release of the National Education Policy (NEP) 2020, which explicitly identifies yoga as part of the "Knowledge of India" component of the curriculum and calls for its inclusion from the foundational stage of schooling onward as part of a broader commitment to holistic, multidisciplinary education

(Government of India, 2020). This policy context distinguishes the Indian case from many Western school systems, where yoga integration has typically occurred through individual school initiatives, pilot programs, or extracurricular offerings rather than as a nationally mandated curricular component.

This paper reviews the empirical literature on yoga integration in school education across three interconnected areas: cognitive and academic outcomes, mental health and emotional regulation outcomes, and the policy and implementation context, with particular attention to the Indian NEP 2020 framework. The paper aims to synthesize what is currently known, identify persistent gaps in the evidence base, and propose directions for more rigorous and scalable integration of yoga within formal school curricula.

LITERATURE REVIEW

Early Foundational Reviews

One of the earliest systematic reviews of school-based yoga was conducted by Serwacki and Cook-Cottone, who examined peer-reviewed studies in which yoga and a meditative component were taught to youths in a school setting. Their review identified twelve eligible studies spanning populations including students with autism, intellectual disability, learning disability, and emotional disturbance, as well as typically developing youth (Serwacki & Cook-Cottone, 2012). While the review concluded that school-based yoga programs appeared beneficial overall, the authors emphasized that methodological limitations, including a lack of randomization, small samples, and insufficiently detailed intervention descriptions, curtailed the ability to draw definitive conclusions or firm recommendations. This early caution has remained a recurring theme across subsequent reviews of the field.

Randomized Controlled Trial Evidence

Building on this foundational work, Ferreira-Vorkapic and colleagues conducted a systematic review specifically restricted to randomized controlled trials of yoga-based interventions delivered in school settings, addressing the concern that much of the earlier literature relied on weaker quasi-experimental designs (Ferreira-Vorkapic et al., 2015). Their review supported the feasibility of delivering yoga interventions within the constraints of a normal school day and pointed to favourable effects on psychological and behavioural outcomes, while also noting that the number of methodologically rigorous RCTs available at the time remained limited.

More recent RCT evidence has continued to strengthen this base. Saxena and colleagues conducted a randomized trial examining the effects of twice-weekly, twenty-five-minute Hatha yoga sessions delivered over twelve weeks to ninth-grade

students in a Texas high school, comparing a yoga group of 123 students to a control group of 51 students. The study found improvements in self-reported measures of inattention, hyperactivity, and perceived stress among students in the yoga group relative to controls, providing evidence that a moderate-dose, school-embedded yoga program can produce measurable benefits for attention and stress within a standard academic term (Saxena et al., 2020).

Systematic and Scoping Reviews of Mental Health Outcomes

Khunti and colleagues conducted a systematic review and narrative synthesis of twenty-one randomized controlled trials examining the effects of yoga on the mental health of school-aged children, searching major databases from January 2008 through May 2022 (Khunti et al., 2023). The review found generally encouraging evidence that yoga interventions were associated with improvements in children's mental health, while also cautioning that the number of high-quality RCTs remained small and that results across included studies were at times contradictory. The authors specifically recommended that future school-based yoga research be more standardized in its intervention protocols and that it incorporate the perspectives of students, parents, and teachers regarding the type of yoga most suitable for classroom delivery.



A broader scoping review by Hart and colleagues mapped the relationship between school-based yoga programs and both mental health and cognitive outcomes, distinctively extending this inquiry to neurodiverse as well as neurotypical youth populations (Hart et al., 2022). Their review found substantial evidence supporting the use of school-based yoga programs for improving anxiety, self-concept, resilience, depression, and self-esteem among neurotypical students, and additional evidence supporting improvements in self-concept, subjective well-being, executive function, academic performance, and attention among neurodiverse students. This review is significant for the present paper because it demonstrates that

yoga's benefits in school settings are not confined to a narrow subgroup of students but extend, with some variation in the strength of evidence, across the diversity of learners typically present in mainstream classrooms.

Policy Context: NEP 2020 and Yoga in Indian Schools

Within India, the integration of yoga into school education has moved beyond individual research studies into national policy mandate. The National Education Policy 2020 explicitly incorporates yoga as part of its vision for holistic, multidisciplinary education, positioning it within the "Knowledge of India" strand of the curriculum alongside other indigenous knowledge traditions, and recommending its inclusion from the foundational stage of schooling onward (Government of India, 2020). Analyses of this policy shift have characterized it as a deliberate move to integrate yoga, health education, and physical education from the primary level, reflecting the policy's broader emphasis on developing not only cognitive capacities but also social, ethical, and emotional dispositions in students. This positions India as a distinctive case study in yoga-education integration: rather than relying solely on individual school pilots or extracurricular programs, as has largely been the pattern in Western contexts, the Indian policy framework treats yoga as a mandated component of the national curriculum, with corresponding implications for teacher training, curriculum design, and assessment.

RESEARCH GAP

Several gaps constrain a comprehensive understanding of yoga integration in school education. First, despite an expanding evidence base, high-quality randomized controlled trials with adequate statistical power remain relatively scarce, and existing studies continue to vary widely in intervention duration, frequency, and content (Khunti et al., 2023; Serwacki & Cook-Cottone, 2012). Second, most empirical research to date has been conducted in Western school systems, whereas India's NEP 2020 represents a distinctive national-policy approach to yoga integration that has not yet been matched by an equally robust body of Indian school-based outcome research. Third, comparatively little research addresses the practical implementation challenges of yoga integration, including teacher training capacity, curricular time allocation, and assessment mechanisms, as opposed to the health outcomes of yoga interventions themselves. Fourth, while evidence increasingly extends to neurodiverse student populations (Hart et al., 2022), further research is needed to determine how yoga programs should be adapted for the full diversity of learners within a single, mainstream classroom setting. This paper addresses these gaps by synthesizing outcome evidence alongside the policy and implementation context, with particular attention to the practical requirements of scaling yoga integration within formal school systems.



OBJECTIVES OF THE STUDY

The present study is guided by the following objectives:

- To review and synthesize empirical evidence on the cognitive and academic outcomes associated with yoga integration in school education.
- To review and synthesize empirical evidence on the mental health and emotional regulation outcomes associated with school-based yoga programs.
- To examine the policy context surrounding yoga integration in Indian school education under NEP 2020.
- To identify the methodological and implementation gaps that limit the scalability of school-based yoga programs.
- To propose practical recommendations for integrating yoga into school curricula in a standardized, evidence-based manner.

RESEARCH METHODOLOGY

This study employs a narrative and integrative literature review methodology, appropriate given its objective of synthesizing findings across the cognitive, psychological, and policy dimensions of yoga integration in schools. Literature was identified through targeted searches of peer-reviewed academic databases and journals, including the International Journal of Yoga Therapy, Evidence-Based Complementary and Alternative Medicine, Clinical Child Psychology and Psychiatry, Children (MDPI), and the Journal of Alternative and Complementary Medicine, alongside the official text of India's National Education Policy 2020. Search terms included combinations of "yoga," "school," "children," "adolescents," "academic performance," "mental health," and "curriculum integration."

Inclusion criteria required that sources be peer-reviewed systematic reviews, scoping reviews, or randomized controlled

trials addressing yoga interventions delivered specifically within school settings, or official government policy documents relevant to yoga's inclusion in national curricula. Studies were excluded if they could not be verified against an indexed, citable academic source, or if they addressed yoga interventions delivered outside school settings (for example, clinical or community-based programs) without direct relevance to school curricula. As with the integrative approach taken in this review, no formal meta-analytic pooling of effect sizes was conducted; instead, findings were organized thematically around cognitive/academic outcomes, mental health outcomes, and policy/implementation considerations, and then synthesized to identify convergent findings and persistent evidence gaps.

Discussion

Table 1: Summary of Key Studies on Yoga Integration in School Education

Author(s) & Year	Population / Setting	Study Design	Key Reported Outcomes
Serwacki & Cook-Cottone (2012)	School-aged youth (varied, including autism, intellectual disability, emotional disturbance)	Systematic review (12 studies)	Generally beneficial effects, but findings limited by lack of randomization and small samples
Ferreira-Vorkapic et al. (2015)	School-aged children and adolescents	Systematic review of RCTs	Feasibility of delivery confirmed; favourable psychological and behavioural effects reported
Saxena et al. (2020)	Ninth-grade high-school students (Texas, USA), n = 174	Randomized controlled trial	Reduced inattention, hyperactivity, and perceived stress in yoga group vs. control
Khunti et al. (2023)	School-aged children (5–16 years)	Systematic review and narrative synthesis (21 RCTs)	Encouraging mental health improvements; calls for standardized protocols
Hart et al. (2022)	Neurotypical and neurodiverse youth in schools	Scoping review	Improvements in anxiety, self-concept, resilience, executive function, and academic performance
Government of India (2020)	National school curriculum, India	Policy document (NEP 2020)	Mandates yoga integration from foundational stage as part of holistic, multidisciplinary education

The evidence summarized in Table 1 indicates a reasonably consistent pattern: across varied populations, intervention designs, and geographic contexts, school-based yoga programs are associated with improvements in attention, stress regulation, and emotional and behavioural outcomes, even as individual

reviews continue to flag methodological limitations. The Saxena et al. (2020) trial is particularly informative because it demonstrates that even a modest-dose intervention, twice weekly for twenty-five minutes over a single academic term, embedded within a standard high-school schedule, can produce statistically detectable improvements in attention and stress. This suggests that yoga integration need not require an extensive restructuring of the school timetable to yield measurable benefit, a finding with direct relevance for schools considering how to fit yoga within already crowded curricula.

At the same time, the persistent methodological caution voiced across reviews spanning more than a decade, from Serwacki and Cook-Cottone (2012) to Khunti et al. (2023), suggests that the field has not yet resolved its foundational evidentiary challenges. Variation in intervention protocols, in particular, remains a central obstacle: without a standardized description of what a "yoga" intervention actually consists of in terms of postures, breathing practices, and meditative content, and without consistent reporting of dose and duration, it remains difficult to specify which components of yoga practice are responsible for which outcomes.

Table 2: Domain-Wise Benefits and Implementation Considerations for School Yoga Programs

Domain	Reported Benefits	Supporting Evidence	Implementation Considerations
Cognitive / Academic	Improved attention, executive function, and academic engagement	Hart et al. (2022); Saxena et al. (2020)	Requires trained instructors and consistent scheduling within the school day
Emotional / Behavioural	Reduced anxiety, stress, hyperactivity; improved self-esteem and resilience	Khunti et al. (2023); Saxena et al. (2020); Hart et al. (2022)	Needs age-appropriate program design and teacher sensitivity to individual student needs
Inclusion / Neurodiversity	Benefits extend to neurodiverse populations, including improvements in self-concept and executive function	Hart et al. (2022)	Programs may require adaptation for students with additional support needs
Policy / Curricular	National mandate for yoga as part of holistic education from the foundational stage	Government of India (2020)	Requires teacher training infrastructure, curricular time allocation, and assessment frameworks

Table 2 highlights that the practical work of integrating yoga into schools extends well beyond demonstrating health benefits in controlled trials. Even where an evidence base for benefit exists, translating that evidence into a workable school program

requires trained teachers, age-appropriate curricular materials, and a means of allocating time within an already demanding academic schedule. India's NEP 2020 represents an ambitious attempt to address this implementation gap at a systemic level by mandating yoga's inclusion, but the policy analysis literature suggests that realizing this mandate in practice will depend heavily on teacher training capacity and the availability of standardized, developmentally appropriate curricular materials, concerns echoed in the broader school-yoga research literature's calls for standardization (Khunti et al., 2023).

FINDINGS

The reviewed literature supports several key findings regarding yoga integration in school education. School-based yoga programs are consistently associated with improvements in attention, executive function, and, in some studies, academic engagement, with benefits documented among both typically developing and neurodiverse student populations. Yoga interventions are also consistently associated with reductions in stress, anxiety, and hyperactivity, alongside improvements in self-esteem and resilience, across a range of study designs including randomized controlled trials. These benefits appear achievable even with modest-dose interventions delivered within existing school schedules, as demonstrated by twice-weekly, short-duration programs producing detectable effects within a single academic term. Despite this generally favourable evidence base, methodological limitations, including inconsistent intervention protocols, variable dosage and duration, and a continued scarcity of large, high-quality randomized trials, constrain the strength of conclusions that can currently be drawn. Finally, India's NEP 2020 represents a distinctive and ambitious policy commitment to yoga integration at the national curricular level, one that will require substantial investment in teacher training and standardized curricular design if it is to be implemented effectively at scale.

CONCLUSION

This paper set out to review the empirical and policy evidence surrounding the integration of yoga into school education. The evidence reviewed indicates that yoga holds genuine promise as a feasible, low-cost, school-embedded intervention capable of supporting students' attention, emotional regulation, and overall well-being, with benefits documented across a range of student populations including those with additional support needs. India's National Education Policy 2020 has translated this research interest into formal policy commitment, positioning yoga as a mandated component of holistic education from the foundational stage of schooling onward. However, realizing the full potential of this integration, both in India and in other school systems considering similar initiatives, will require addressing persistent gaps in intervention standardization, expanding the evidence base

through larger and more rigorously designed trials, and investing in the teacher training infrastructure necessary to deliver yoga programs consistently and safely across diverse classroom contexts. Treated as a genuinely integrated curricular component rather than an occasional extracurricular activity, yoga has the potential to make a meaningful and lasting contribution to the holistic development that contemporary education policy increasingly demands.

LIMITATIONS AND FUTURE SCOPE

As a narrative rather than systematic review, this paper does not employ formal meta-analytic techniques or an exhaustive systematic search protocol, and its conclusions should be read as a synthesis of representative peer-reviewed evidence rather than an exhaustive account of the entire school-yoga literature. Much of the underlying empirical research originates from Western school systems, and further research is needed to build a comparably rigorous evidence base within the Indian context, where NEP 2020's mandate creates both an opportunity and an urgent need for locally grounded outcome studies. Future research should prioritize the development of standardized protocols for describing school-based yoga interventions, including consistent reporting of session duration, frequency, and content, to enable more reliable comparison across studies. Additionally, future work should examine the specific implementation challenges of scaling yoga integration under policy mandates such as NEP 2020, including teacher training models, curricular time allocation, and mechanisms for assessing program fidelity and student outcomes at a system-wide level.

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