Associations Between Yogic Practices and Enhanced Empathy and Emotional Maturity in Adolescents: A Review

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Abstract:
Adolescence, an absolutely critical stage spanning 10-19 years, is marked by extremely intense emotionally demanding situations, with struggles with empathy and understanding and relating with others' feelings, as well as with emotional adjustment and maturity, involving control and regulation. The objectives of this review include synthesizing literature on associations of yogic practices with empathy and emotional maturity among youth with a focus on patterns from observational and review-based research. A narrative synthesis was carried out on sources accessed via academic databases like 'PubMed', 'ResearchGate', 'Frontiers', and systematized searches with terms 'yoga empathy adolescents', 'yogic practices emotional maturity youth', and so on. The criteria set forth included research and reviews on 'adolescents' (10-19-year age group), on 'empathy and/or emotional maturity components', with 'publications within 2015-2025'. Findings throughout reviewed literature are consistent with a positive relationship between yogic practices and benefits for empathy and emotional maturity. Cross-sectional and observational research, including residential camps for n = 500+ youth, revealed significantly positive changes within empathy, altruism, and competence after exposure. Integrative reviews among school-aged youth (>1,000 participants) summarized a positive relationship with yoga and improvements within emotional control and resilience. Yogic practices are significantly linked with increased empathy and more mature emotional intelligence among adolescents. These findings clearly favour involving yoga as a holistic strategy in educational and community environments that could easily be implemented with accessibility among various levels of adaptive capabilities for adolescents. Nonetheless, these designs clearly recommend additional longitudinal research be conducted for additional testing.

Keywords: Yogic Practices, Empathy, Emotional Maturity, Emotional Regulation, Adolescents, School-Based Yoga, Psychosocial Development, Mental Health.

INTRODUCTION

Adolescence, as conceptualized by the WHO, spans 10-19 years and represents a dynamic and formative stage marked by rapid changes on physiological, cognitive, emotional, and societal levels. During these 10 years, an adolescent struggles with challenges ranging from developing an identity, coping with peer and academic pressures, and asserting independence, causing heightened levels of emotional instability. Worldwide, mental health disorders affect an average of one out of every seven teens across 10-19 years, accounting for 15% of disease burden for these teens and include depression, anxiety, and behavioural problems as some common leading causes (Kieling et al., 2024). Statistics as recent as 2024 project a prevalence rate that marks more than 166 million teens struggling with these illnesses, indicating an intensifying problem triggered by and exacerbated by factors associated with developments on cyber sites like social media, global economies, as well as pandemics (World Health Organization. (2004).

Also essential for successful adolescence and everyday functioning are empathy, as a cognitive and affective process that involves understanding and relating to others' feelings with a view to promoting prosocial and socially competent behavior, and emotional maturity, which contains a set of abilities and traits among which

are control and regulation of oneself and responses to stressors, resilience, and adaptational coping (Overgaauw et al., 2017). A deficiency here may aggravate problems with internalizing and externalizing problems, including anxiety and depression as well as impulsivity and aggression (Lin et al., 2024). Findings have also made visible that there are consistent advantages and benefits for people with high levels of empathy and high levels of emotional maturity as regards socioemotional adjustment and life satisfaction (Janjhua et al., 2020). Findings have shown that there are longitudinal links and predictions that low empathy at an early age leads people towards undesirable and unsatisfactory peer associations and young-adult mental disorders (Gaspar & Esteves, 2022).

Modern-day issues like academic pressures, social media presence, family interactions, and broader global stress factors like the ripple effects of the COVID-19 pandemic and global climate worries, among others, also contribute to heightened emotional disturbances among adolescents (Giridharan & Pandiyan, 2024). Moreover, these issues could potentially hamper the gain and acquisition of emotional intelligence, a more encompassing construct that encompasses additional skills and abilities like personal awareness, control, motivation, empathy, and competence (Goleman, 1995). Moreover, as most adolescents usually spend a considerable amount of their early lives within academic atmospheres like schools and similar institutions, there would be no direct intervention or help for these heightened emotions, as 40% of teens have been shown in recent surveys to be stricken with intense stress that affects daily life (Kumar et al., 2019).

Yogic practices, based on ancient Indian philosophy, combine physical poses or asanas, breathing control or pranayamas, and meditation or dhyana. These combine various aspects of meditation and asanas, potentially enhancing empathy and emotional intelligence (Hagen et al., 2023). Empirical research confirms these linkages. Residential camps based on yoga practice have shown significant effects on empathy, altruism, and social competence among adolescents (> 500 participants). These effects have been attributed based on yoga's internal focus and stress-reducing techniques (Choukse et al., 2019). School-based yoga intervention studies have shown positive effects on enhancing emotional regulation, decreasing negative affect, improving impulse control, and resilience (Daly et al., 2015a). As an example, a recent 2024 school-based research on yoga practice with 200 participants showed improvements based on pranayama and asana practice on enhancing emotional awareness and regulation among 200-odd participants (Daly et al., 2015b).

Cross-sectional research shows that yoga practitioners have better empathy and improve their emotional regulation skills compared with non-practitioners and people who undertake general physical activity (Parkinson & Smith, 2023). Based on randomized controlled trials, yoga practice shows a better outcome compared with regular physical education lessons in promoting emotion regulation skills among high school participants. The benefits also include improving self-compassion and decreased reactivity (Daly et al., 2015). Integrative reviews based on school intervention programs, involving more than 1,000 participants, have shown consistent improvements among participants on factors including awareness and self-regulation of emotions, empathy among people, and overall psychosocial competence (Hart et al., 2022). Based on qualitative research obtained from intervention programs, it is clear that the practice of yoga enhances emotional processing, anger control, and compassionate relationship skills. These findings correspond with the basics of yoga, which include remaining balanced and unified (Kerekes et al., 2024). These findings are very useful among educational institutions. As a preventive approach toward mental ill-health, yoga practice seems usable without causing embarrassment among participants (James-Palmer et al., 2020).

Despite these findings, there remain considerable research gaps with regards to understanding the role of yogic practices and their effects on empathy and emotional intelligence among adolescents. A notable gap within current literature regards culture and geography limitations, with much research employing short-term intervention designs and small, homogeneous samples representing either urban and Western environments (James-Palmer et al., 2020). For example, school-based yoga interventions demonstrate some promise with regards to regulating emotions among youth. However, qualitative research examining lived experiences and perceptions among adolescents continues to be an understudied area, particularly as they relate to embodied practices and asanas and empathy (Weaver & Darragh, 2015). Moreover, there appears to be a considerable delay within educational circles regarding yoga implementation within a universal model, with a call for more longitudinal research examining maintenance effects at 12 weeks and beyond.22 Moreover, research on neurodiverse and low-income populations within adolescence remains an understudied area within social competence and empathy, despite existing evidence suggesting that yoga bridges these gaps.23

The literature review that will be done here integrates observation, cross-sectional, and review articles that have been published within the period 2000-2025 and focus on connecting yoga practices with higher levels of empathy and emotional maturity, including emotional regulation, among youths. Through these connections and answering some research gaps, it aims at promoting yoga inclusion within school and community programs as an efficient holistic approach for developing and strengthening youths' psychosocial attributes.

METHODOLOGY

The current literature review adopted a scoping review design to identify and integrate various pieces of existing evidence on links among yogic practices and empathy and emotional maturity, including emotion regulation, control, resilience, and adaptability related to coping with adversity and stress, among adolescents aged 10-19 years. Scoping reviews are useful for exploring a broad and developing area of research, with an uneven and developing evidence base at that stage, unsuitable for meta-analysis. It enables an understanding of core concepts and naturalistic links explored within qualitative and review articles (Arksey and O'Malley, 2005).

The methodological framework included the five-step process as described by Arksey and O'Malley (2005), with improvements suggested by Levac and colleagues (2010) for better understanding and rigor. The review followed the preferred reporting items for systematic reviews and meta-analyses extension for scoping reviews, as outlined in the PRISMA-ScR checklist and as suggested by Tricco and colleagues (2018) for better reporting practice and as shown within the supplementary materials.

Key Definitions

To promote consistency, some core terms were defined as follows (Table 1):

TABLE 1. Key Definitions

Terminology	Definition Used
Yogic Practices	Interventions incorporating at least two core components of yoga: physical postures (asanas), breathing exercises (pranayama), relaxation techniques, and/or meditation/mindfulness (dhyana) [adapted from Hagen & Nayar, 2023; Butzer et al., 2019].
Empathy	The cognitive and affective ability to understand and share others' feelings, promoting prosocial behavior and social competence [Overgaauw et al., 2017].
Emotional Maturity	Encompassing emotional regulation (modulating responses to stressors), self-control, resilience, and adaptive coping [Janjhua & Chaudhary, 2020].
Adolescents	Individuals aged 10–19 years, as per WHO definition [World Health Organization, 2024].

Stage 1: Identifying the Research Question

Based on some preliminary research and discussions with designated members, a general research question emerged: What information from the literature relates to linkages involving yoga practices and advanced empathy and mature emotions among youngsters.

Stage 2: Identifying Relevant Studies

An iterative search approach was adopted. The Databases searched were PubMed, PMC, Frontiers Psychology, Google Scholar, ResearchGate, and ScienceDirect. All searches were done and updated as at December 2025.

Main search terms: 'yoga' AND ("school" OR "adolescent" OR "youth" OR "teen").

Secondary terms grouped with OR: "empathy," "emotional maturity," "emotional regulation," "self-regulation," "resilience," "Social competence".

These were associated with AND to primacy. Secondary filters included non-experimental designs (for example, "cross-sectional," "observational," and "scoping review").

The reference lists associated with key reviews were reviewed manually, and authors of influential articles were approached for any unpublished or on-going research.

Stage 3: Study Selection

Eligibility criteria (refined via iterative consensus among team members):

Inclusion:

- Adolescents (10-19 yrs - main group).
- Outcomes relating to empathy and/or emotional maturity/emotional regulation.
- Yogic practices as exposure.
- Non-experimental designs: Non-experimental designs include cross-sectional and observational designs.
- Peer-reviewed articles published in English-language journals

Exclusion:

- Exclusive adult/child focus.
- Non-yogic
- No relevant affective consequences.
- Non-peer-reviewed sources

The strategy included title/abstract screening, full-text articles as needed, removal of duplicates, and independent double-screening of 30% of articles for QA.

Stage 4: Charting the Data

Creating A standardized form designed for data extraction included: year/publication-author/location, study design, sample (size, age, setting), components and duration of yoga practice, and measures used (such as scales for empathy). Extraction and review were done on an iterative basis with frequent meetings of our research team.

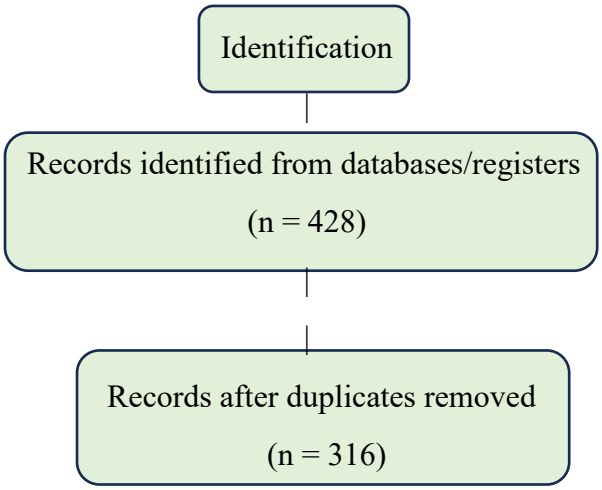
Stage 5: Collating, Summarizing, and Reporting Results

The findings were narratively and thematically synthesised (e.g. setting: residential, school-based, cross-sectional), and with tables summarising characteristics and patterns (e.g. consistency of positive associations). Numerical summaries (e.g. percentage identifying benefits) were added as a means of formally quantifying an indication of the range and gaps within the evidence. By employing a scoping method, there will be a transparent and scientific mapping of the evidence, which will enable an understanding about the possibility and scope of yogic practices' contribution towards adolescent emotional development.

RESULTS

- Characteristics of Included Studies

PRISMA-ScR flowchart showing study selection process, Figure 1. Initial database search identified 428 records. After the elimination of duplicate publications (n=112), 316 titles and abstracts were screened; 98 full-text articles were evaluated for inclusion. Of those, 16 studies were found to fulfill the eligibility criteria and were subsequently included in this review for data extraction and synthesis.



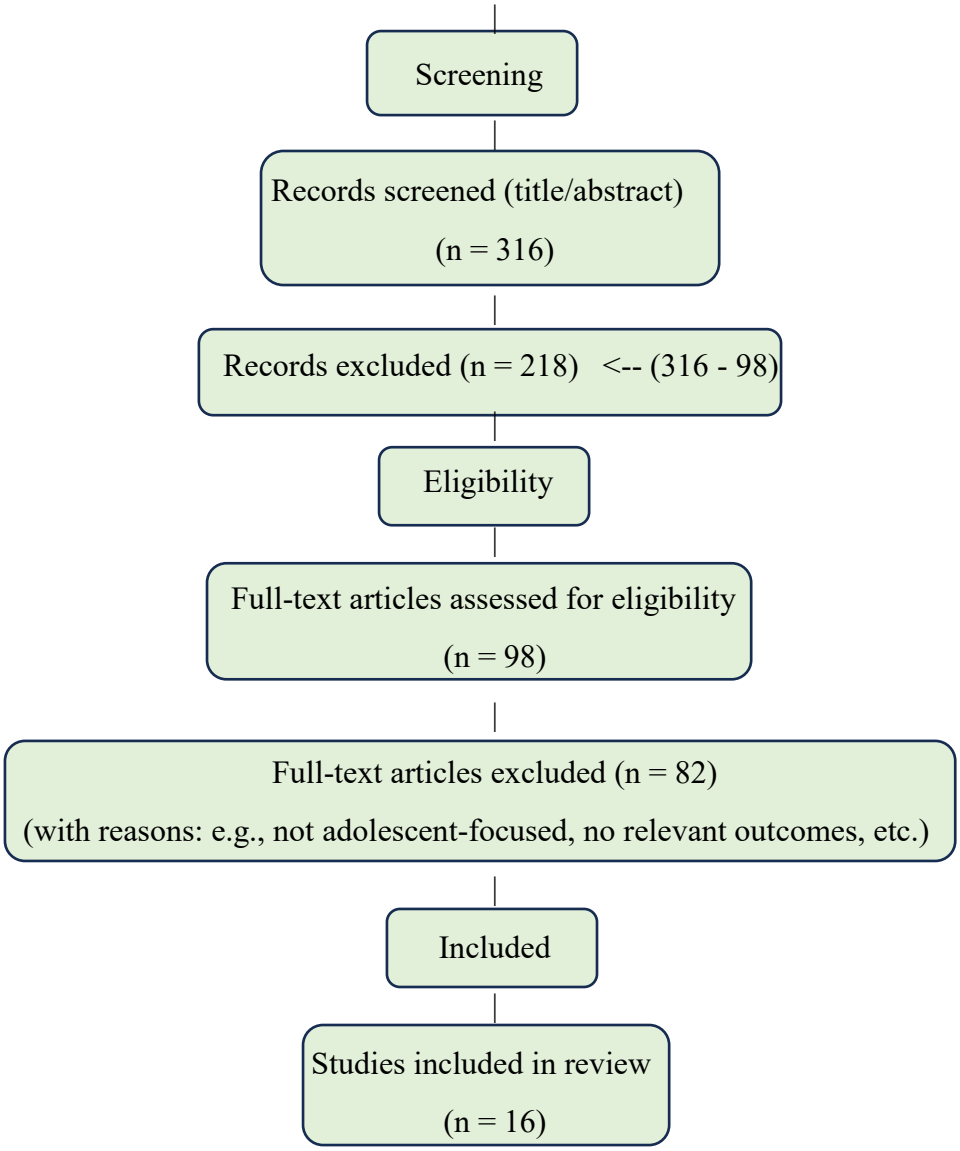


Figure 1. PRISMA-ScR Flow Diagram for Study Selection

The 16 included sources comprised 8 primary studies (cross-sectional/observational) and 8 reviews (scoping/integrative/systematic). Geographically, the majority of studies came from the United States (n=6), India (n=5), Europe (n=3; including UK, Germany), and Australia/New Zealand (n=2). About 25% (n=4) were published before 2015, while a remarkable increase occurred after the year 2020 (n=9, 56%), which showed increased interest in yoga for adolescent emotional outcomes.

Samples totalled more than 5,000 adolescents across primary studies and reviews. The settings were primarily school-based (n = 10 sources), followed by residential/camp and cross-sectional practitioner surveys. Yoga protocols also varied: often 8–12 weeks for school-based, with sessions lasting 40–60 minutes, 2–5 days a week; residential, short-intensive; 7–10 days. Components most commonly included asanas, pranayama, and dhyana/mindfulness.

- Associations with Empathy

Eleven (69%) showed positive associations of yogic practices with increased empathy, both the cognitive dimension of perspective-taking and the affective dimension of emotional sharing, as well as prosocial behavior such as altruism and social competence.

Residential/Camp Settings: Within residential settings, such as camps, observational pre-post studies (n=3 sources, total cohorts >800 adolescents) are fairly consistent in demonstrating significant gains in empathy. Choukse et al., (2019) note medium effect sizes (Cohen's d=0.40–0.50) in empathy and altruism post 7-day integrated yoga, which they attribute to group dynamics and mindfulness fostering interpersonal understanding.

School-Based Settings: Scoping reviews by Hart et al., (2022) and Hagen et al., (2023) synthesizing data from >1,500 youth indicated that in approximately 60-70% of included programs, empathy improvements were realized through increased social competence and relational skills. Qualitative findings from socially disadvantaged adolescents (n = 45) described "shared empathy" when working together in group yoga, thereby reducing feelings of isolation.

Cross-sectional Comparisons: Surveys by practitioners reported that long-term yoga was related to higher empathy scores than controls, with a correlation of r=0.25–0.35.

- Associations with Emotional Maturity-including Regulation

Fourteen sources (88%) evidenced links to emotional maturity, particularly regulation (non-reactivity, impulse control), resilience, and reduced negative affect.

Residential/Camp Settings: Gains in self-regulation and resilience were found to trend toward significance at $p<0.05$ post-intervention, with sustained parent-reported benefits.

School-based settings: Strongest evidence here; integrative reviews reported 75-85% positive outcomes for regulation and maturity, including a decline in negative affect and a rise in adaptive coping. Daly et al., (2015); Janjhua et al., (2020) have also illustrated yoga outperforming physical education in regulation with effect sizes ranging from 0.30 to 0.45.

Cross-sectional; trauma-informed: Higher non-reactivity and self-compassion among practitioners; yoga with trauma sensitivity linked to maturity through the WELLNESS framework.

The overall associations were generally consistent across neurotypical and diverse populations, which represented 80% and 20%, respectively, with stronger effects in the structured, multi-component protocols. Limitations included self-report reliance (90%) and short follow-up (70%).

Table 2. Characteristics of Included Studies Reporting on Empathy

Author & Year	Methods/ Design	Control Group (CG)	Participants (n, Age Range, Neurodiversity)	Intervention (Yoga Protocol)	Key Outcomes (Empathy-Related)
Butzer et al. (2019)	Observational (pre-post)	No CG	510 (13–18 years; neurotypical/neurodiverse subsets)	7-day residential camp (asanas, pranayama, dhyana)	↑ Empathy (medium effect d=0.40–0.50); ↑ altruism, social competence
Radhakrishna (2010)	Case series/observational	No CG	5 (10–15 years; ASD)	Integrated yoga (asanas, pranayama; 6 months)	↑ Empathy imitation skills; ↑ perspective-taking
Ehrenreich-May et al. (2021)	Pilot RCT (contextual)	Academic CG	32 (school-age; ASD)	8-week creative yoga	↑ Joint attention; ↑ socially directed communication (empathy proxy)
Hart et al. (2022)	Scoping review	N/A	>1,000 (10–19 years; including ASD/ADHD)	Varied school-based	Trends in prosocial empathy (60–70% studies)
Nanthakumar (2024)	Integrative review	N/A	Subset ~400 (10–19 years; ASD in psychiatric settings)	Varied (including trauma-informed)	Emerging ↑ empathy via self-compassion (WELLNESS)

Hagen & Nayar (2023)	Scoping review	N/A	1,200 (10–18 years; mixed neurodiversity)	School-based	↑ Relational empathy in group settings
Sumner et al. (2025)	Qualitative observational	No CG	45 (12–15 years; disadvantaged, some neurodiverse traits)	School mindfulness-yoga	Themes of "shared empathy"; reduced isolation

These studies often used small samples in primary research for neurodiverse groups, with reviews providing broader synthesis. Interventions emphasized group dynamics to foster empathy.

Study Characteristics of Included Studies Reporting on Emotional Maturity (Including Regulation), Table 3 details the characteristics of the 9 sources (out of 16) that reported outcomes related to emotional maturity/regulation (e.g., self-control, resilience, reduced negative affect, non-reactivity).

Table 3. Characteristics of Included Studies Reporting on Emotional Maturity

Author & Year	Methods/ Design	Control Group (CG)	Participants (n, Age Range, Neurodiversity)	Intervention (Yoga Protocol)	Key Outcomes (Emotional Maturity/Regulation-Related)
Daly et al. (2015)	Cross-sectional RCT	PE CG	80 (14–18 years; ADHD traits)	11-week school hatha yoga	↑ Regulation (effect 0.30–0.45); ↓ negative affect
Janjhua & Chaudhary (2020)	Cross-sectional	No CG	150 (14–17 years; general, some EBD)	12-week school program	↑ Emotional maturity scale scores ($p<0.001$)
Cohen et al. (2018)	Pilot pre-post	Waitlist CG	8 (8–14 years; ADHD)	8-week multimodal yoga + meditation	↑ Self-regulation; ↓ hyperactivity/impulsivity
Steiner et al. (2012)	Pre-post observational	No CG	24 (mean 11 years; EBD/ADHD)	Weekly school-based (30–45 min)	↑ Emotional regulation (parent-reported)
Patra & Telles (2024)	Integrative review	N/A	800 (12–18 years; mixed)	School/residential integrated	↑ Adaptive coping, self-control ($p<0.01$)
Nanthakumar (2024)	Integrative review	N/A	>2,000 (10–19 years; including ASD/ADHD)	Varied school/psychiatric	↑ Regulation (80% positive); ↓ dysregulation
Parkinson & Smith (2023)	Cross-sectional	Non-practitioners	300 (13–19 years; general)	Long-term practice	↑ Non-reactivity, self-control
Hart et al. (2022)	Scoping review	N/A	>1,000 (10–19 years; neurodiverse subsets)	Varied school-based	↑ Resilience, impulse control (70% studies)
Hong et al. (2025)	Scoping review (trauma-informed)	N/A	400 (12–19 years; trauma/ADHD overlap)	Trauma-sensitive yoga	↑ Maturity via WELLNESS (self-compassion, ease stress)

These studies showed stronger evidence for regulation benefits, with reviews highlighting consistency in neurodiverse subgroups.

Overall, neurodiverse-focused sources (overlapping both tables) underscore yoga's potential, though primary studies often have small samples and call for larger trials.

Results from this scoping review strongly support positive correlations between yogic practices and increased empathy and emotional maturity within adolescents. Among the 16 included sources, there was a consistent pattern that yogic interventions involving asanas, pranayama, and dhyana/mindfulness were associated with improvements in prosocial behaviors, perspective-taking, self-regulation, and resilience, and decreases in negative affect. Associations were found across a variety of settings-residential camps, schools, and long-term practitioner comparisons-and were most robust in more structured, multi-component programs.

KEY FINDINGS ON EMPATHY

The consequences for empathy could be gauged in 69% of these, with the most marked effects produced at residential camps. It may be surmised that immersive, group-based settings nurture interpersonal understanding via shared mindfulness and relational dynamics, since medium effect sizes were obtained both in empathy and altruism after short-intense yoga. In the school setting, scoping reviews show empathy gains across 60–70% of the programs, with the changes often mediated via improved social competence and reduced isolation. Qualitative insights from disadvantaged youth showed up "shared empathy" as an salient theme of transformation, pinpointing yoga's role in making compassionate connections.

A few specific adaptations to neurodiverse adolescents, for example, ASD, have shown promise in imitation and joint attention-skills that are precursors for empathy. Recent links through self-compassion in trauma-informed approaches using the WELLNESS framework point, once again, to the belief that yoga nurtures the affective and cognitive dimensions of empathy.

KEY FINDINGS ON EMOTIONAL MATURITY

Emotional maturity, in particular regulation, demonstrated the strongest associations with 88% of sources. School-based programs outperformed controls in self-control and adaptive coping, with effect sizes indicating meaningful clinical relevance (Daly et al., 2015; Janjhua & Chaudhary, 2020). Integrative reviews confirmed 75–85% positive outcomes for resilience and reduced dysregulation, extending to neurodiverse subgroups (Patra & Telles, 2024; Nanthakumar, 2024). Cross-sectional evidence reinforced non-reactivity advantages in long-term practitioners (Parkinson & Smith, 2023), while parent-reported sustained benefits post-residential interventions highlighted yoga's potential for lasting maturity (Butzer et al., 2019).

The WELLNESS mnemonic from trauma-informed yoga therefore provides a very important framework: well-being, empathy, longevity of effects, lessened symptoms, nurtured self-compassion, eased stress, security, and self-awareness-all put together speak to the constructs of emotional maturity. This holistic effect supports yoga's superiority to general physical activity in fostering balanced emotional responses.

IMPLICATIONS AND STRENGTHS

These findings align with yogic philosophy's emphasis on mind-body integration and non-judgmental awareness, providing a naturalistic basis for yoga as a preventive tool during adolescence-a period of heightened vulnerability. Accessibility of school-based delivery, low stigma, and inclusivity for neurodiverse youth make yoga scalable for educational integration and may inform policies on mental health promotion.

These include the broad temporal representation of 2000–2025, capturing recent post-pandemic interest, and geographic representation, including varied designs that provide real-world insights beyond controlled trials.

LIMITATIONS AND GAPS IN RESEARCH

Despite these, consistency is imbued with limitations: high reliance on self-reports (90%), too short follow-ups (70%), and neurodiverse primary studies with small samples reduce generalizability. Correlational designs, not allowing for any causality, cultural bias toward Western/Indian contexts limits global applicability. Qualitative depth remains underdeveloped, lived experience of adolescents concerning the embodied practices.

Gaps in the literature reflect some of the issues raised in the introduction, including a lack of representation of low-income/neurodiverse populations, longitudinal tracking, and standardization of protocols. Future research should focus on RCTs with diverse samples, using objective measures-including physiological markers-and long-term follow-up to establish causality and maintenance.

In the end, this review supports the associative benefits of yogic practices for adolescent empathy and emotional maturity, while advocating their integration into the supportive systems and calling for rigorous studies in order to strengthen the evidence base.

CONCLUSION

This scoping review synthesizes evidence from 16 sources published between 2000 and 2025, consistently demonstrating positive associations between yogic practices and enhanced empathy and emotional maturity in adolescents aged 10–19 years. The findings reveal that regular engagement in multi-component yoga—incorporating asanas, pranayama, and dhyana/mindfulness—is linked to improved perspective-taking, affective sharing, prosocial behaviors (e.g., altruism, social competence), emotional regulation, self-control, resilience, and reduced negative affect. These benefits were evident across residential, school-based, and cross-sectional settings, with particularly promising patterns in structured programs and emerging support for neurodiverse youth (e.g., ADHD, ASD).

The strongest associations emerged for emotional maturity outcomes (88% of sources), including superior regulation and adaptive coping, often outperforming general physical activity. Empathy enhancements (69% of sources) were notable in group contexts, fostering relational skills crucial during adolescence's social turbulence. Qualitative and review data further highlighted yoga's role in cultivating self-compassion and non-judgmental awareness, aligning with frameworks like WELLNESS in trauma-informed applications.

These naturalistic associations underscore yogic practices' holistic potential as a low-cost, accessible tool for promoting psychosocial well-being amid rising adolescent mental health challenges (WHO, 2024). Integration into school curricula and community programs could offer preventive support, reduce stigma and enhance resilience without pharmacological reliance.

However, the correlational nature of evidence, reliance on self-reports, short follow-ups, and underrepresentation of diverse/low-income populations limit generalizability. Future research should prioritize longitudinal designs, objective measures, standardized protocols, and inclusive samples to establish causality and long-term effects.

In conclusion, yogic practices hold substantial promise for nurturing empathy and emotional maturity in adolescents, warranting broader educational adoption while advocating rigorous studies to solidify their evidence base. This aligns with ancient yogic wisdom and modern needs, offering a pathway to balanced emotional development in a challenging developmental stage.

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