

A Review of Research on the Effects of Mindful Exercises on Emotion Regulation and Mental Health Among Adolescents

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Abstract

The rising prevalence of mental health challenges among Chinese adolescents—driven by academic pressure, social change, and post-pandemic psychological stress—has underscored the urgent need for accessible, culturally congruent interventions. Mindful movement practices such as Tai Chi and yoga, which integrate breath regulation, body awareness, and meditative focus, have garnered increasing attention for their capacity to enhance emotional regulation and psychological resilience during adolescence. This review synthesizes current empirical research on the psychological and neurocognitive effects of Tai Chi and yoga among adolescents in China, with an emphasis on developmental appropriateness, cultural fit, and mechanisms of change. Drawing from systematic reviews, randomized controlled trials, and neurophysiological studies, the paper highlights the cognitive and emotional benefits of these interventions—particularly in modulating stress responses, improving executive functioning, and strengthening prefrontal-limbic connectivity. Tai Chi, rooted in traditional Chinese culture and health philosophy, enjoys institutional support and strong cultural legitimacy, making it highly scalable in school and community contexts. Yoga, while culturally imported, has found increasing acceptance among urban adolescents, especially when adapted to local norms and delivered in secular, wellness-oriented formats. The paper also explores the role of interoception, autonomic regulation, and implicit emotional processing as key pathways for therapeutic benefit. Finally, the review discusses comparative cultural considerations, public health implications, and future research directions, arguing that both practices—especially when thoughtfully adapted—can serve as complementary tools for promoting adolescent mental health in China.

Keywords: Tai Chi, Yoga, emotion regulation, adolescent mental health, mindful movement, Chinese adolescents

1. Introduction

In recent years, there has been a growing concern regarding the mental health of

adolescents in China. With rapid urbanization, increased academic competition, digital overexposure, and changing family dynamics,

Chinese adolescents are experiencing unprecedented levels of psychological stress. Reports indicate rising rates of anxiety, depression, and emotional dysregulation among this age group, with the COVID-19 pandemic further exacerbating these issues. A 2020 national survey by the Chinese National Health Commission estimated that over 30% of Chinese adolescents exhibited signs of emotional or behavioral problems—figures that call for immediate and culturally sensitive mental health interventions.

Conventional mental health treatments, including psychotherapy and pharmacological approaches, are often underutilized among Chinese youth due to factors such as stigma, cost, lack of access, and limited mental health literacy. Against this backdrop, mindful movement-based interventions such as Tai Chi and yoga are gaining increasing attention for their low-cost, non-invasive, and culturally adaptable nature. These practices, deeply rooted in Eastern philosophical traditions, emphasize the integration of mindfulness, controlled breathing, gentle physical movement, and conscious attention to the present moment—elements that align with cognitive-behavioral principles of emotion regulation and stress reduction.

Tai Chi, developed from Taoist and Confucian traditions, is especially embedded in Chinese culture, making it an ideal candidate for mental wellness programs targeting adolescents in mainland China. Meanwhile, yoga—though of Indian origin—shares many conceptual and functional similarities with Tai Chi and has gained popularity among Chinese urban populations due to its association with physical fitness and holistic wellness.

Emerging empirical research suggests that these mindful exercises can enhance emotional awareness, reduce rumination, and improve self-regulation in adolescents. From a neurobiological perspective, engaging in mindful physical activity has been shown to increase functional connectivity in brain regions associated with executive control, attention modulation, and emotion processing, including the prefrontal cortex and amygdala. These findings support the idea that interventions such as yoga and Tai Chi can help buffer the emotional volatility common during adolescence, a developmental stage marked by neuroendocrine shifts and identity formation.

Despite this growing body of evidence, a comprehensive understanding of how such interventions impact Chinese adolescents remains underdeveloped. Most existing studies either focus on adult populations or lack cultural specificity, limiting their generalizability. Therefore, this review aims to critically synthesize recent empirical research on the effects of Tai Chi and yoga on emotion regulation and mental health outcomes in Chinese adolescents. By examining both psychological and physiological mechanisms of action, and considering cultural factors influencing implementation, this paper seeks to clarify the role of mindful exercises as viable, scalable mental health strategies for China's youth.

2. Tai Chi and Mental Health in Chinese Adolescents

2.1 Historical Foundations and Cultural Resonance

Tai Chi, as both a traditional martial art and a health-promoting mind-body practice, holds deep cultural significance in Chinese society. Its philosophical foundations are rooted in Daoism and Confucianism, emphasizing the harmonious integration of *yin* and *yang*, the flow of *qi* (vital energy), and the pursuit of physical, emotional, and spiritual balance. These principles are not only central to Tai Chi but also embedded within Chinese cosmology, medicine, and educational ethics. As a result, Tai Chi carries with it an immediate sense of cultural authenticity and legitimacy. For Chinese adolescents, especially those growing up in increasingly hybrid cultural environments influenced by global digital media and Western educational ideals, Tai Chi offers a reconnection to their cultural identity while simultaneously addressing the demands of modern mental health challenges.

The philosophical teachings that underlie Tai Chi—patience, non-reactivity, inward focus, and adaptive transformation—resonate particularly well with the emotional turbulence of adolescence. In a society where direct emotional expression is often discouraged and self-restraint is culturally valorized, Tai Chi becomes a culturally congruent tool for emotional self-regulation. Its emphasis on controlled, fluid movements and meditative awareness creates a non-verbal, embodied space through which adolescents can process internal tension, reduce psychological distress, and

restore emotional equilibrium without the stigma often associated with clinical mental health services.

2.2 Psychological Outcomes and Clinical Evidence

The psychological benefits of Tai Chi for adolescents have gained increasing empirical support in recent years. Several controlled trials and meta-analyses conducted in China and internationally suggest that Tai Chi can significantly reduce symptoms of anxiety, depression, and general psychological distress in youth populations. A notable example is the 2024 systematic review by Luo et al., which analyzed the impact of various mind-body therapies on adolescent depression. The study found that Tai Chi ranked among the most effective interventions across multiple psychological domains, including emotional stability, resilience, and subjective well-being.

Similarly, Zhang et al. (2018) conducted a randomized controlled trial examining the effects of mindfulness-based Tai Chi Chuan (MTCC) on Chinese adolescents with subthreshold depression. Participants in the MTCC group demonstrated marked improvements in depressive symptoms, self-esteem, and mindfulness scores compared to the control group. What is particularly striking about this study is not only the efficacy of the intervention but its high acceptability among participants. Adolescents reported enjoying the practice and perceiving it as meaningful and culturally appropriate, a crucial consideration for any mental health intervention targeting youth in a non-clinical setting.

Tai Chi also shows promise in mitigating broader aspects of mental distress, such as irritability, sleep disturbances, and psychosomatic symptoms, which are prevalent among Chinese middle and high school students facing intense academic pressure. Because Tai Chi does not rely on verbal disclosure or introspective articulation, it offers a valuable intervention modality for adolescents who may struggle with or resist conventional talk therapy. It becomes a tool for psychological stabilization through movement, grounded in cultural norms and supported by growing clinical evidence.

2.3 Neurocognitive and Emotional Regulation Mechanisms

The benefits of Tai Chi extend beyond subjective well-being into measurable changes in brain function and neurocognitive performance.

Adolescence is characterized by ongoing development of the prefrontal cortex, which governs executive functions such as impulse control, emotional regulation, and goal-directed behavior. Simultaneously, the amygdala, the brain's emotional reactivity center, is hyperactive during this life stage, increasing susceptibility to emotional dysregulation and stress reactivity.

Regular Tai Chi practice has been shown to improve functional connectivity between the prefrontal cortex and the limbic system, promoting top-down control over emotional responses. Wang et al. (2023) found that adolescents practicing Tai Chi demonstrated significant improvements in working memory capacity and inhibitory control. These cognitive capacities are fundamental to self-regulation, allowing adolescents to pause, reflect, and reframe their emotional impulses before acting on them.

Tai Chi also enhances interoceptive awareness, the capacity to perceive internal bodily sensations such as heartbeat, muscle tension, and breath rhythm. This is a crucial mechanism for emotion regulation, as it enables individuals to detect the early signs of emotional arousal and initiate calming strategies before dysregulation escalates. Adolescents, whose emotional self-awareness is still developing, benefit from Tai Chi's structured attentional focus on bodily experience. Through repeated practice, they become more attuned to the subtle signals of stress and anxiety, fostering a proactive and embodied approach to emotional regulation.

Another important pathway of Tai Chi's effect is its regulation of the autonomic nervous system (ANS), especially the balance between the sympathetic nervous system (associated with arousal and stress) and the parasympathetic nervous system (linked to relaxation and restoration). Tai Chi activates the parasympathetic branch via slow, rhythmic movement and deep breathing, increasing heart rate variability (HRV) and promoting physiological calm. These bodily states support emotional regulation not only by reducing cortisol and adrenaline levels but also by increasing vagal tone, which is strongly correlated with emotional flexibility and social engagement capacity.

2.4 School-Based Implementation and Scalability

One of the most promising features of Tai Chi as a mental health intervention is its feasibility for integration into school systems. Unlike specialized clinical therapies that require trained psychologists and private consultation spaces, Tai Chi can be taught by trained physical education teachers, health educators, or certified instructors within the school day. Its scalability is further enhanced by its low cost, minimal equipment requirements, and compatibility with group instruction. For these reasons, Tai Chi is increasingly included in experimental school-based wellness programs across Chinese provinces, particularly in middle and high schools where stress levels are elevated.

Institutional support from the Ministry of Education and local governments has also played a role in the mainstreaming of Tai Chi. National initiatives to promote traditional Chinese culture in education provide ideological and financial backing for integrating Tai Chi into physical education curricula, extracurricular clubs, and morning exercise routines. Some schools in urban centers such as Shanghai, Chengdu, and Guangzhou have begun piloting Tai Chi-based emotional literacy programs that teach students not only the movements but also the philosophical underpinnings of balance, patience, and harmony. These programs have shown high rates of participation and anecdotal success in reducing behavioral issues, enhancing classroom focus, and improving peer relationships.

Tai Chi offers a non-stigmatizing gateway to mental health promotion. In Chinese society, where seeking psychological help can still carry a social stigma, especially among adolescents concerned with peer perception, Tai Chi provides an accessible and socially acceptable pathway for emotional support. It is framed not as therapy, but as health cultivation (*yangsheng*), a practice deeply respected within Chinese culture and valued for its links to traditional wisdom. This framing allows adolescents to engage in emotion regulation and stress management without feeling labeled or pathologized.

2.5 Identity, Belonging, and Intergenerational Connection

Beyond its psychological and neurobiological effects, Tai Chi has the potential to enhance adolescents' cultural identity, intergenerational bonding, and sense of social belonging.

Practicing Tai Chi connects adolescents to a long lineage of Chinese philosophical and martial arts traditions, fostering a sense of cultural pride and continuity. This can be particularly impactful for adolescents in rapidly urbanizing and globalizing environments where traditional values often come into tension with modern pressures.

Tai Chi is commonly practiced by older adults in China, creating opportunities for intergenerational interaction and mutual understanding. In some community-based programs, adolescents are invited to learn from and practice alongside elders, forming reciprocal relationships that challenge age-based stereotypes and promote social cohesion. For adolescents experiencing alienation or disconnection—whether from family, community, or heritage—Tai Chi offers a medium for re-engagement with their cultural roots and collective identity.

The symbolic meaning of Tai Chi as an embodied philosophy of balance and resilience provides adolescents with not only a coping mechanism, but a developmental narrative. Through the repetitive motions and meditative focus of practice, they begin to internalize the notion that strength arises not from control or dominance, but from fluidity, mindfulness, and intentionality. In this way, Tai Chi becomes a narrative of identity formation—a practice that teaches them how to move through inner chaos with grace and composure.

3. Yoga and Mindfulness Integration in Adolescence

3.1 Philosophical Roots and Contemporary Relevance

Yoga, with its ancient origins in Indian philosophical systems such as Vedanta and Samkhya, has transcended its spiritual roots to become a globally recognized wellness practice. Traditionally conceived as an eight-limbed path encompassing ethical disciplines, breath control, physical postures, and meditative absorption, modern yoga has evolved into a multifaceted modality for promoting physical and psychological well-being. Though historically distinct from Chinese cultural traditions, yoga shares deep commonalities with Chinese mind-body practices like Tai Chi and Qigong—particularly in its emphasis on inner balance, breath regulation, and the cultivation of present-moment awareness. These shared elements offer a theoretical bridge that enables

yoga's cross-cultural adaptability and acceptability, particularly in China's increasingly cosmopolitan urban environments.

Adolescence is a period of profound transformation characterized by rapid physical maturation, identity development, and emotional turbulence. During this stage, the prefrontal cortex—which governs executive functions like decision-making, impulse control, and emotional regulation—is still under construction, while the limbic system, particularly the amygdala, is highly reactive. This neurodevelopmental mismatch renders adolescents especially vulnerable to stress, anxiety, and mood disorders. In this context, yoga emerges as a developmentally attuned intervention capable of addressing the biopsychosocial challenges faced by Chinese youth. Its integrative approach—combining movement, breath, and introspective awareness—offers adolescents tools to navigate internal and external stressors in a non-invasive, experiential manner.

3.2 Yoga's Emerging Role in Chinese Adolescent Mental Health

Although the body of research on yoga in adolescent populations is far more established in Western countries, recent years have seen a growing interest in examining its relevance within the Chinese cultural and educational landscape. This interest has been driven by a confluence of factors: increasing rates of adolescent mental health issues in China, growing receptivity to non-pharmacological interventions, and the global wellness movement's influence on Chinese youth culture. In response, researchers and educators have begun to investigate how yoga can be meaningfully adapted to Chinese adolescents' needs without conflicting with local values.

Preliminary studies indicate that yoga-based interventions can yield significant improvements in psychological outcomes such as emotional stability, anxiety reduction, and stress tolerance among Chinese students. While most interventions remain pilot in nature, they suggest that yoga enhances adolescents' self-awareness and body regulation capacities—skills that are foundational to emotional resilience. A recent systematic review by Mei et al. (2024) found that mindfulness-based physical activities, including yoga, were effective in promoting mental

flexibility and adaptive coping strategies, especially among youth dealing with academic pressures and family conflict.

Yoga's non-competitive, introspective nature offers a valuable counterbalance to the performance-oriented ethos that dominates much of Chinese educational culture. Unlike sports that emphasize comparison and external achievement, yoga encourages internal exploration and self-acceptance, helping students cultivate a healthier relationship with their minds and bodies.

3.3 Educational Integration and Institutional Feasibility

One of the most promising frontiers for yoga in China is its integration into school-based wellness programs. In several pilot initiatives across cities like Beijing, Shanghai, and Chengdu, yoga classes have been introduced into middle and high school physical education curricula, as well as after-school extracurricular offerings. These programs typically include 30–60 minute sessions, taught by certified instructors, that focus on gentle postures (asanas), breath control (pranayama), and guided relaxation or meditation.

These school-based programs are particularly significant in a context where clinical mental health resources are often scarce or stigmatized. By embedding yoga into the educational environment, schools can create safe, low-barrier opportunities for students to explore stress management and emotional self-care without the perceived labeling that may accompany traditional therapy. The secular framing of yoga—emphasizing its health, cognitive, and emotional benefits rather than its spiritual lineage—facilitates broader parental and institutional acceptance.

The growing alignment between yoga practices and social-emotional learning initiatives in Chinese schools also deserves attention. As China's Ministry of Education increasingly prioritizes holistic student development, yoga's capacity to foster self-awareness, empathy, and self-regulation aligns closely with national educational reform goals. In this regard, yoga can serve not only as a physical discipline but as a pedagogical tool that cultivates emotional intelligence and interpersonal sensitivity—traits essential for 21st-century citizenship.

3.4 Neuropsychological and Physiological Mechanisms

The therapeutic effects of yoga on adolescent mental health are supported by an expanding body of neuroscience and psychophysiology research. Neuroimaging studies in youth populations, though limited in China, indicate that regular yoga practice can enhance activity in the prefrontal cortex, strengthen connectivity with the anterior cingulate cortex, and modulate activity in the amygdala. These brain changes are associated with improved emotion regulation, attentional control, and reduced reactivity to stressors—key developmental targets during adolescence.

At the physiological level, yoga has been shown to improve autonomic nervous system balance by increasing parasympathetic activity and reducing sympathetic arousal, as reflected in enhanced heart rate variability and lower baseline cortisol levels. These changes translate into a calmer, more regulated nervous system, allowing adolescents to better handle academic demands, peer conflicts, and emotional challenges.

Importantly, yoga also enhances interoceptive awareness, or the capacity to sense internal bodily states. This internal sensitivity helps adolescents recognize early signs of emotional arousal—such as tension, rapid heartbeat, or shallow breathing—and use mindful regulation techniques to intervene before distress escalates. This process represents a form of bottom-up emotional regulation, complementing the top-down cognitive strategies emphasized in traditional therapy.

3.5 Cultural Adaptation and Youth Identity

While yoga is not native to Chinese culture, its global popularity—particularly on digital platforms like Douyin (Chinese TikTok) and Bilibili—has made it increasingly accessible and appealing to younger generations. For many urban Chinese adolescents, yoga is not viewed as a religious or mystical practice but as a symbol of modern wellness, self-care, and even aesthetic identity. This perception is especially pronounced among adolescent girls, who often associate yoga with body confidence, emotional poise, and personal empowerment.

However, to ensure yoga's broader acceptance across diverse cultural and regional contexts in China, thoughtful cultural adaptation is necessary. This includes using Mandarin-language instruction, adapting practices to align with school policies and time

constraints, and training local educators to deliver content in culturally resonant ways. Programs that blend elements of Tai Chi and yoga—such as those explored in Zhang et al. (2018)—may offer a particularly effective strategy, combining the familiar cultural grounding of Tai Chi with the individualized self-exploration of yoga.

Such hybrid approaches allow adolescents to experience the benefits of mindful movement in a form that feels both traditional and contemporary, collective and personal, structured and exploratory. In doing so, yoga becomes not just an imported practice, but a localized tool for inner growth, emotional mastery, and self-cultivation—values deeply aligned with Confucian ideals of personal development and social harmony.

4. Mechanisms of Change: Emotion Regulation and Cognitive Benefits

4.1 Developmental Sensitivity and Neural Plasticity in Adolescence

Adolescence represents a developmental window of immense vulnerability and opportunity. The brain undergoes profound restructuring during this phase, with the prefrontal cortex—the center for executive functions such as inhibitory control, working memory, and emotional regulation—gradually maturing while the limbic system, especially the amygdala, becomes increasingly reactive to emotional stimuli. This developmental mismatch is often implicated in the emotional volatility and heightened risk for anxiety and depression seen in adolescence. Mindful movement practices such as Tai Chi and yoga engage this evolving neurocognitive architecture at precisely the right time, leveraging the brain's plasticity to establish healthier self-regulatory circuits that may have enduring effects into adulthood.

Both Tai Chi and yoga cultivate intentional attention, emotional awareness, and body-based focus, all of which support functional integration between the PFC and emotion-processing regions of the brain. Research using neuroimaging and behavioral paradigms suggests that adolescents who regularly practice these modalities show increased activity in the dorsolateral PFC and reduced amygdala hyperactivity, indicating more effective top-down modulation of emotional responses. These practices thus help

adolescents shift from reflexive, emotionally-driven reactions to more deliberate and reflective forms of engagement with stressors—a developmental transition central to emotional maturity.

4.2 Executive Function and Emotional Regulation as Interdependent Domains

Cognitive neuroscience highlights the deep interdependence of executive function and emotional regulation—a relationship especially salient during adolescence. Executive functions such as cognitive flexibility, attentional control, and inhibitory processing are crucial for reappraising emotional experiences, delaying gratification, and resisting impulsive actions. These functions are not purely cognitive but are deeply embedded in emotion-laden decision-making contexts.

Practices like Tai Chi and yoga demand and develop these skills in real time. Maintaining a pose or flowing through a Tai Chi sequence requires sustained attention, error monitoring, and adjustment of motor responses—all components of executive control. These embodied challenges are paired with emotional introspection and breath regulation, helping adolescents notice and modulate their inner states as they engage physically. Wang et al. (2023) demonstrated that adolescents practicing Tai Chi showed improved working memory and reduced emotional impulsivity, suggesting that these practices scaffold the very executive capacities that buffer against emotional dysregulation.

In effect, these interventions create integrated training grounds for emotional-cognitive resilience, enhancing the ability to focus attention, stay regulated during distress, and reflect before reacting—capacities that are central not only to mental health but also to academic and social success.

4.3 Interoception and Bottom-Up Emotional Regulation

A growing body of evidence underscores the importance of interoception—the awareness of internal bodily signals—as a core mechanism for emotion regulation. Adolescents often struggle to recognize and label their emotional states, a deficit that can lead to overwhelming affect and maladaptive coping strategies such as avoidance, aggression, or emotional suppression. Mind-body practices address this gap by grounding attention in somatic experience,

using movement, posture, and breath to amplify sensitivity to cues such as muscle tension, heart rate, and respiration.

Both yoga and Tai Chi offer structured opportunities to develop this interoceptive awareness. Movements are slow and deliberate, emphasizing the coordination between action and internal sensation. The intentional pacing and rhythmic flow of these practices allow adolescents to observe bodily reactions to stress or challenge without judgment or immediate reaction. Over time, this cultivates a non-reactive stance toward internal discomfort—an essential feature of adaptive emotion regulation.

Interoceptive training enables adolescents to recognize the onset of anxiety or frustration earlier, giving them the chance to apply regulatory strategies such as breath control or attentional redirection before their emotional state becomes unmanageable. This type of bottom-up regulation complements top-down cognitive strategies, forming a dual pathway through which emotion regulation becomes more robust and context-sensitive.

4.4 Implicit Emotion Regulation and Automaticity

While much of psychotherapy and school-based interventions focus on explicit emotion regulation (e.g., teaching coping strategies or cognitive reframing), many of the most powerful regulatory processes in real life occur implicitly, without conscious deliberation. Implicit regulation is especially important in fast-paced or emotionally charged situations where there is little time for reflective thought.

Zhang et al. (2019) found that adolescents participating in a combined mind-body program that included Tai Chi demonstrated enhanced implicit emotion regulation, as measured by reduced emotional interference in cognitive tasks and increased autonomic recovery following stress. These findings suggest that with consistent practice, mind-body interventions can recondition automatic physiological and attentional responses to emotional stimuli, resulting in faster recovery and reduced reactivity.

The cultivation of implicit regulation may be particularly beneficial for adolescents from emotionally dysregulated environments or those with underdeveloped verbal introspection skills. By engaging regulatory mechanisms at the sensorimotor and autonomic levels, yoga and Tai Chi offer accessible and effective pathways

for psychological stabilization, even in the absence of sophisticated cognitive insight.

4.5 Autonomic Nervous System Modulation and Vagal Tone

The autonomic nervous system (ANS)—which governs involuntary physiological functions such as heart rate, respiration, and digestion—plays a central role in emotional experience and regulation. Dysregulation of the ANS, particularly an overactive sympathetic nervous system (SNS) and underactive parasympathetic nervous system (PNS), is commonly observed in adolescents with anxiety, depression, and trauma histories.

Both Tai Chi and yoga have been shown to shift the autonomic balance toward parasympathetic dominance, facilitating calmness, restoration, and social engagement. This is often indexed through heart rate variability (HRV), a biomarker of vagal tone and emotional flexibility. High HRV is associated with greater adaptability to stress, while low HRV predicts emotional rigidity and susceptibility to mood disorders.

Practices such as breath regulation (*pranayama*) in yoga or coordinated breath-movement in Tai Chi stimulate the vagus nerve, enhancing vagal tone and promoting a relaxed yet alert physiological state. These shifts can be felt subjectively as a sense of centeredness, groundedness, or calm confidence—experiential anchors that adolescents can carry into challenging real-world situations. Importantly, these physiological changes are not merely acute but cumulative, with long-term practice yielding greater baseline resilience to environmental stressors.

4.6 Neuroendocrine Regulation and HPA Axis Modulation

The hypothalamic-pituitary-adrenal (HPA) axis, which governs the body's stress hormone response system, is often dysregulated in adolescents experiencing chronic stress or mental illness. Overactivation of this axis results in elevated cortisol levels, which impair memory, exacerbate anxiety, and disturb sleep—further compounding mental health challenges.

Mind-body practices exert a downregulatory effect on the HPA axis, contributing to lower cortisol secretion, improved sleep quality, and more adaptive diurnal rhythms. Clinical studies have documented reduced morning cortisol and

flattened diurnal slopes in adolescents who engaged in sustained yoga or Tai Chi training. These biological changes correspond with subjective improvements in stress tolerance, affect stability, and fatigue reduction.

Through HPA modulation, Tai Chi and yoga offer an effective, non-pharmacological intervention that operates across multiple regulatory systems—central nervous, autonomic, and endocrine—providing adolescents with a whole-body recalibration mechanism in the face of chronic or acute stress.

4.7 Embodied Self-Awareness and Identity Integration

Beyond biological and cognitive effects, Tai Chi and yoga contribute to a deeper embodied sense of self—a psychosocial construct that is especially important during adolescence. As adolescents work to form coherent identities, experiences of fragmentation or alienation from the body—common in this digital and image-saturated age—can undermine mental well-being. Mindful movement fosters sensorimotor integration, helping adolescents inhabit their bodies more fully and develop a stable, coherent self-representation.

This embodied grounding supports the development of an internal locus of control—the belief that one can influence their internal state and behavior through intentional action. In a period of life often marked by perceived external control (e.g., from parents, school, social media), this internal empowerment is both psychologically liberating and protective. Adolescents learn, through repeated experience, that they can shift their state from anxious to calm, from distracted to focused, not through external validation but through their own breath, movement, and attention.

5. Comparative and Cultural Considerations

5.1 Philosophical Parallels and Cultural Divergence

Tai Chi and yoga, though developed in distinct cultural and philosophical milieus—China and India respectively—share many fundamental principles that make them effective mind-body interventions. Both emphasize the unity of mind and body, the cultivation of internal awareness, breath regulation, and the deliberate use of movement to attain physical and emotional balance. These shared underpinnings enable both practices to contribute meaningfully to emotional regulation and mental health.

However, despite these philosophical parallels, their cultural reception in China differs significantly due to historical familiarity, societal perceptions, and national identity constructs.

Tai Chi, as a practice deeply embedded in the fabric of Chinese culture, resonates with core Chinese values such as harmony (*he*), balance (*zhongyong*), and moderation (*jie zhi*). Its roots in Daoist and Confucian philosophy emphasize alignment with natural rhythms and ethical self-cultivation, which are longstanding components of Chinese education and cultural socialization. These values are still reinforced in the moral curriculum of many Chinese schools, making Tai Chi's integration into youth programs not only acceptable but affirming of cultural continuity. In contrast, yoga, though conceptually similar, is often perceived as a cultural import, detached from traditional Chinese paradigms. While yoga's emphasis on inner tranquility and discipline appeals to modern wellness sensibilities, its Indian origin sometimes creates a subtle cultural disconnect, particularly in less cosmopolitan or conservative areas where foreign ideologies are met with skepticism.

This divergence does not imply an outright rejection of yoga in Chinese society, but it does mean that Tai Chi possesses a cultural advantage in terms of perceived legitimacy, historical relevance, and symbolic resonance. Tai Chi aligns with indigenous frameworks of health found in Traditional Chinese Medicine (TCM) and is often viewed as a natural extension of the broader national philosophy of balance between *yin* and *yang*, making it more readily integrated into collective identity and national health strategies.

5.2 Generational Attitudes and Youth Preferences

Cultural acceptance of mind-body practices is not static; it evolves with generational shifts and global influences. In contemporary China, there is a growing divergence between older and younger generations in terms of their engagement with and perceptions of practices like Tai Chi and yoga. Older generations tend to practice Tai Chi routinely in parks and public spaces, seeing it as both a physical exercise and a meditative discipline that aligns with their understanding of longevity and balance. For them, Tai Chi carries cultural familiarity, emotional nostalgia, and community belonging.

Younger generations, however, are often drawn

to newer, globalized forms of wellness culture. Yoga, popularized through social media influencers, fitness apps, and celebrity endorsements, has become symbolic of an international, self-optimized lifestyle. Among urban adolescents, particularly girls, yoga is often associated with body confidence, emotional clarity, and a proactive approach to stress relief. This aspirational framing appeals to adolescents navigating identity formation in an era marked by academic pressure and digital visibility. While Tai Chi may be perceived as slow or “old-fashioned” by some adolescents, yoga is often viewed as modern, aesthetically pleasing, and expressive—qualities that align with youth preferences for novelty and autonomy.

Nonetheless, this generational preference should not be interpreted as a rejection of Tai Chi but rather as a reflection of how practices are framed and communicated. Programs that present Tai Chi as a tool for mindfulness, athleticism, and psychological empowerment—rather than merely as a traditional practice—have shown greater resonance with younger populations. Similarly, yoga programs that strip away cultural exoticism and frame the practice in secular, scientifically grounded terms tend to find wider acceptance in diverse school environments.

5.3 Institutional Endorsement and Policy Alignment

Governmental and institutional endorsement plays a pivotal role in shaping the diffusion and normalization of practices like Tai Chi and yoga within China. Tai Chi benefits from strong institutional support as part of national efforts to promote Traditional Chinese Medicine and indigenous health practices. The General Administration of Sport of China has long included Tai Chi in its national fitness initiatives, and the Ministry of Education has incorporated it into school physical education curricula. Tai Chi's alignment with national health objectives—emphasizing preventive care, self-cultivation, and collective well-being—has secured its legitimacy within educational and clinical policy.

In contrast, yoga's institutional status is less defined. Although yoga studios have proliferated in urban areas and some public schools have experimented with integrating yoga into wellness programs, it remains largely a grassroots movement without formal

governmental backing. The absence of standardized certification, curriculum guidelines, or national-level promotion limits yoga's reach, particularly in rural or under-resourced regions. For yoga to achieve parity with Tai Chi in terms of scalability and sustainability, it would require policy innovation, including the development of culturally adapted yoga training for educators, integration into teacher professional development programs, and evidence-based curriculum models that align with Chinese pedagogical standards.

The national discourse on mental health education provides an important opportunity for both Tai Chi and yoga. With China's recent push for holistic education reforms—emphasizing not only academic performance but also psychological resilience, emotional intelligence, and character development—mind-body practices are increasingly being seen as pedagogical tools, not just physical activities. Tai Chi fits seamlessly into this framework due to its cultural embeddedness, while yoga can complement these efforts by introducing novel techniques for self-regulation and introspection, provided it is delivered in a culturally sensitive manner.

5.4 Social Stratification and Accessibility

While both Tai Chi and yoga hold promise as mental health interventions, their accessibility across socioeconomic strata varies significantly. Tai Chi, due to its low cost, minimal equipment needs, and integration into public health initiatives, is more universally accessible, particularly in rural or economically disadvantaged regions. Public parks, community centers, and schools often offer free or subsidized Tai Chi classes, making it an equitable option for youth from diverse backgrounds.

Yoga, on the other hand, is disproportionately available in wealthier, urban settings. It is often taught in private studios, wellness centers, or extracurricular programs that may carry prohibitive costs for some families. The lack of state-supported yoga teacher training or curriculum standardization limits the availability of qualified instructors outside of urban cores. As a result, yoga in China risks becoming a class-marked practice, associated with elite health culture rather than inclusive public health strategy.

This disparity is not insurmountable. Pilot

programs in urban public schools have demonstrated that yoga can be democratized when delivered by trained educators within the school day, without commercial branding or spiritual framing. These models show that with the right policy and investment, yoga too can become a tool for equity in mental health promotion. Hybrid programs that integrate Tai Chi's cultural familiarity with yoga's contemporary appeal may be particularly effective in bridging class divides and engaging a broader demographic of students.

5.5 Identity Formation and Symbolic Function

Beyond institutional and structural considerations, it is essential to recognize the symbolic function that practices like Tai Chi and yoga play in the lives of adolescents. For many young people, engaging in mind-body practices is not only about health—it is also about identity construction, social signaling, and meaning-making. Tai Chi may offer adolescents a pathway to explore traditional cultural identity, familial continuity, and spiritual grounding. Practicing Tai Chi can evoke a sense of national pride, intergenerational connection, and belonging to a cultural lineage that predates modern stressors.

Yoga, in contrast, may serve as a vehicle for self-expression, global connection, and psychological autonomy. It allows adolescents to experiment with roles and values outside of traditional norms, presenting a flexible identity scaffold that can be molded to suit individual needs. For adolescents navigating the tension between tradition and modernity, conformity and individuality, these two practices offer complementary forms of symbolic resolution—one rooted in heritage, the other in exploration.

In this way, the choice between Tai Chi and yoga is not merely a practical or medical decision—it reflects deeper psychosocial dynamics, including how adolescents see themselves in the world, what values they align with, and what futures they envision. By honoring these symbolic dimensions and offering adolescents the freedom to engage with both practices in meaningful ways, educators and clinicians can support not only mental health but also identity resilience and cultural fluency.

6. Conclusion

The growing body of empirical research affirms the efficacy of mindful movement practices,

particularly Tai Chi and yoga, in promoting emotion regulation, psychological resilience, and overall mental health among adolescents in China. These interventions, rooted in contemplative traditions and increasingly validated through neuroscience and clinical psychology, offer holistic, accessible, and non-stigmatizing avenues for addressing the mental health needs of youth during a formative stage of neurodevelopment and identity formation.

Among these practices, Tai Chi emerges as especially impactful due to its seamless integration with Chinese cultural values, long-standing familiarity across generations, and its inclusion in national health promotion strategies. Evidence from randomized controlled trials and meta-analyses demonstrates its capacity to alleviate symptoms of depression and anxiety, improve executive functioning, and support emotional self-regulation—outcomes that are vital for adolescents navigating academic stress, interpersonal challenges, and psychological vulnerability. Its adaptability for group settings and minimal resource requirements make it especially promising for large-scale, school-based implementation.

Yoga, while culturally non-native, presents its own set of advantages. Its appeal among urban, fitness-conscious, and globally oriented youth suggests that yoga can complement traditional interventions by offering novel, youth-friendly formats for stress reduction and body awareness. Yoga's breathing techniques, mindful postures, and meditative focus intersect with core principles of emotion regulation and have been linked to improvements in vagal tone, cortisol regulation, and attentional control. However, its broader implementation in China will require cultural adaptation, training of culturally competent instructors, and integration into institutional frameworks to ensure accessibility beyond elite or urban populations.

Crucially, the psychological mechanisms underlying both Tai Chi and yoga—such as enhanced prefrontal-limbic connectivity, improved interoception, and autonomic nervous system regulation—provide compelling neurobiological explanations for their effectiveness. These findings underscore the value of mind-body approaches as not merely wellness trends but as evidence-based tools grounded in cognitive neuroscience and developmental psychology. Despite these

promising developments, important gaps remain. Most existing studies are short-term and lack follow-up data on sustained behavioral change or long-term resilience outcomes. There is also a need for more rigorous comparative trials that evaluate Tai Chi and yoga side-by-side, with attention to variables such as gender, socioeconomic background, and regional disparities within China. Integrating such practices into China's educational and public health policy frameworks will require collaboration across sectors—educators, mental health professionals, community leaders, and policymakers alike.

In light of China's ongoing youth mental health crisis and the limitations of conventional clinical interventions, incorporating culturally responsive, developmentally attuned, and cost-effective practices like Tai Chi and yoga into adolescent mental health strategies is both urgent and achievable. These practices do not merely mitigate mental illness—they cultivate emotional intelligence, cognitive clarity, and a sense of inner equilibrium that are essential for the holistic development of future generations.

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