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The contribution of yoga to children with mental health disabilities: A scoping review

Pantelitsa Eracleous¹, Pantelis Perdikaris^{2,*}, Argiris Ntinopoulos³ and Ioannis Koutelekos⁴

¹ *School of Medicine, Postgraduate Program in "General and Specialized Pediatrics: Clinical Practice and Research" National Kapodestrian University of Athens, Greece.*

² *Department of Nursing School of Health Sciences University of Peloponnese, Greece.*

³ *Department of Medicine, National and Kapodistrian University of Athens, Greece.*

⁴ *Department of Nursing, University of West Attica, Greece.*

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Abstract

Background: Children with mental health difficulties often experience challenges in motor and physical skills, stress, anxiety and emotional difficulties. Yoga can help these children in engaging in social environments providing physical and motor improvements, emotional regulation, cognitive and behavioural control.

Aim: Yoga is an approach that can help children with any occupational challenges and diagnosis. The aim of this scoping review is to explore the contribution of yoga for children with mental health disabilities, to inspire healthcare professionals to determine whether to promote yoga as a beneficial intervention for children with special needs and highlight a beneficial outcome in implementing yoga that can help the parents, caregivers and the children to fulfill their needs.

Methodology: A scoping review of the existing literature was conducted based on databases such as AMED, CINAHL, Academic Search Complete and Google scholar. The studies focusing on the contribution of yoga for children with mental health disabilities were selected by taking into account the inclusion and exclusion criteria, as well as the use of PRISMA guidelines.

Results: The review of the literature retrieved 11 studies for a time period from 2005 to 2024. The studies reviewed provide convincing evidence that yoga is an accessible and effective intervention for populations that have physical, emotional and cognitive difficulties. Significant improvements were highlighted in motor skills, emotional regulation, cognitive and behavioural control. It is also underlined that yoga can be an essential part of therapeutic programs for children with intellectual disabilities. However, the variety in physical outcomes, specifically for children with cerebral palsy that have physical challenges, highlights the need for additional supporting interventions.

Conclusions: The 11 articles reviewed had generally showed that yoga is an effective intervention for children with mental health difficulties. The combination of physical movements, mindfulness and breathing are perfectly suited for multidimensional challenges for children with mental health disabilities. Yoga's effectiveness in a diversity of populations for children with autism, ADHD, children with psychiatric issues show that yoga can be acceptable and has a broad potential as therapy for these children.

Keywords: Yoga; Mental health; Mental disorder; Mental Health Disabilities; Children; Adolescents

* Corresponding author: Pantelis Perdikaris

1. Introduction

Children with mental health disorders often experience several difficulties such as motor skills, physical difficulties, cognitive, emotional challenges and high levels of anxiety and stress from their surroundings [4]. Nowadays, research revealed that yoga can adapt in many ways and forms including empowerment yoga and yoga as therapy; it can be easily adapted into each population's needs and preferences. It is now fully integrated in modern wellness practices including therapeutic related aspects not only in physical development but in cognitive, social emotional growth therapy and mindfulness [12]. The evolution of yoga from spiritual practice to a wellness activity can highlight its adaptation across populations, centuries and cultures. Yoga has emerged to be a powerful intervention activity in enhancing motor and physical skills, cognitive and emotional control and behavioural improvement for young people and children with intellectual disabilities [15]. Across several studies, the holistic approach of yoga allows it to address complex, multidimensional needs, providing both gross motor and cognitive skills for immediate and lasting benefits for a diversity of children with therapeutic needs [4]. However, this multifaceted approach that fosters cognitive and physical growth, makes yoga a valuable component in therapeutic and educational activity for these children. However, the implementation of yoga in learning environments including physical education setting and hospitals may concurrently be a setting where such stressors can be eased and potentially children can engage in stress-reduction activities [4].

The main purpose of the present scoping review is to accomplish an outcome in implementing yoga that can benefit caregivers, professionals and the children to fulfill their needs. The academic scoping review had explored whether yoga is a beneficial activity for the child or not and if there are elements or factors that may change in the implementation of the specific activity that would benefit children with mental health difficulties. Thus, the research question was "is yoga a beneficial activity for children with mental health disabilities and what are the factors that change in the implementation of the specific activity that would benefit children with such difficulties?"

2. Material and methods

A scoping review had been conducted for the present study regarding the contribution of yoga for children with Mental Health Disabilities. The scoping review was carried out in evaluating, identifying and synthesizing previous research in creating a synoptic summary of the previously researched studies of the existing literature that can be used for future evidence-based practice. The following keywords were used for database searching with the use of Boolean operators AND/OR "yoga", "mental health", "mental illness", "mental disorder", "psychiatric illness", "mental retardation", "children", "adolescents", "youth", "child", "teenager". The articles were found from database searches online from AMED, CINAHL, Academic Search Complete and Google scholar which are high quality databases for academic researching. 11 specific articles were selected since they met the inclusion and exclusion criteria. Inclusion criteria consisted of experiences of children undergoing yoga as an activity, all articles had to be primary research articles and complete published in English or Greek language in order to review. All eligible studies had to concern yoga in children with mental health difficulties and had to be published from 2005 until 2024. Exclusion Criteria regarding this scoping review were the duplicate articles, meta-analyses, all kinds of reviews and case studies. Variables selection was based on the PRISMA flow diagram demonstrating the identification process (Figure 1).

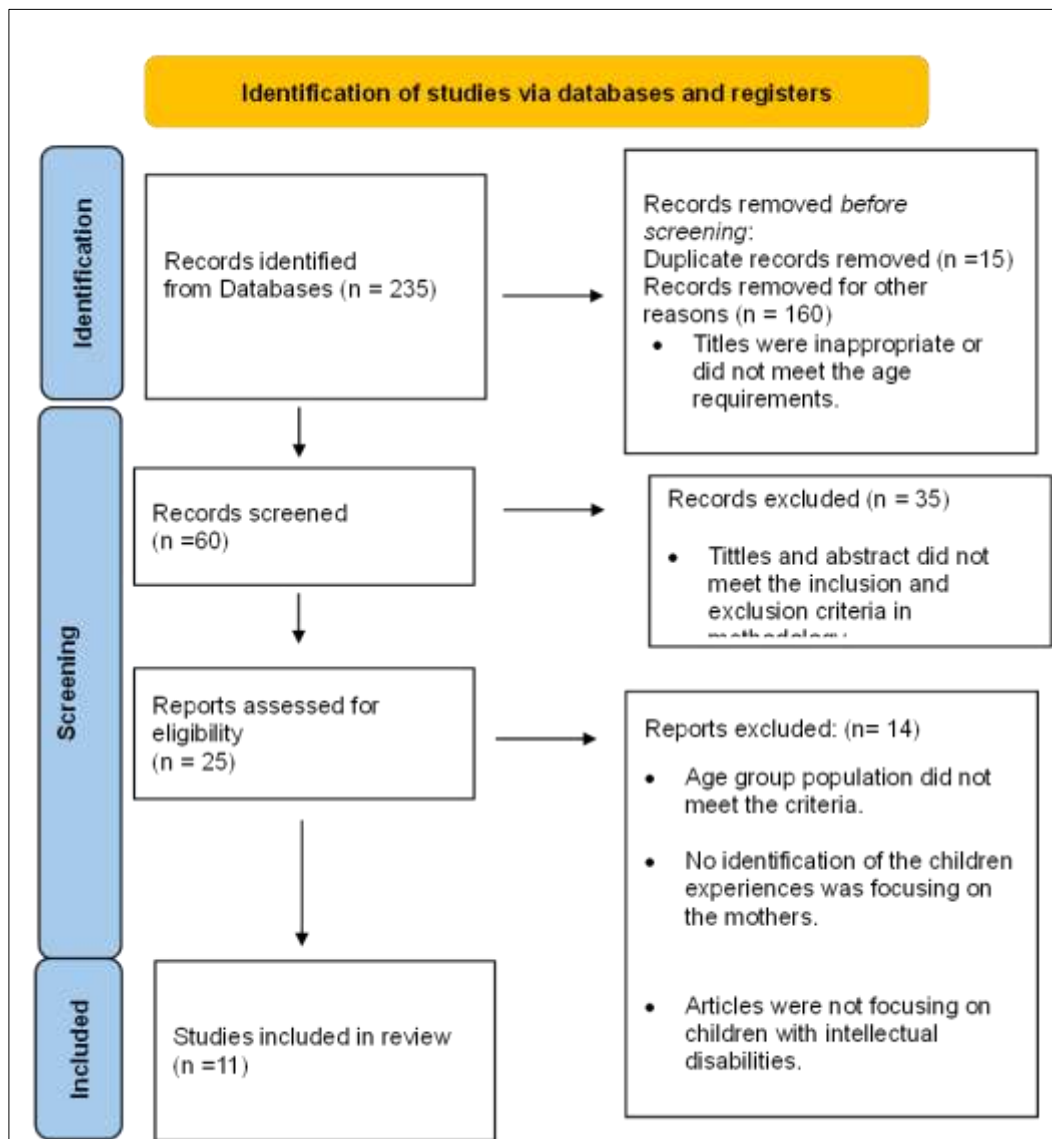


Figure 1 A PRISMA flow diagram demonstrating the articles identification process. [8]

3. Results

Following the review of the existing literature listed in the table below (Table 1), and by using the inclusion and exclusion criteria as well as the keywords, a total of 235 articles were identified from the database search. Duplicates and some other articles were removed as the title and the abstract were inappropriate or they did not meet the age population requirements and the methodology. Based on the abstracts, 35 were excluded with 25 full text articles remaining to be assessed to identify eligibility. 15 articles were excluded for the subsequent reasons: 8 articles were excluded as they didn't include children with any disability, 4 articles were focusing on the experiences of the mothers of children with intellectual disabilities and 3 articles were excluded as the age group population was out of the children's age range. The remaining 11 article studies were eligible to be considered within the review. The strategic study or the literature is presented in the flow diagram (Figure 1). These 11 studies were worldwide ranged, four studied were conducted in the United States, two studies were conducted in Australia, three in India, one in New Zealand and the last one in China. All interventions were focusing on children and adolescents age between 1 and 18 years old. Five articles consisted of quantitative study design, four studies were Randomized control trials (RCT) and two of the consisted of qualitative studies. The selected studies are presented in the table below (Table 1).

Table 1 Summary of articles selected

Author / Title / Country	Summary of Article	Study Design / Sample	Findings
Article 1: (Re et al. 2014) Effects of yoga on patients in an adolescent mental health hospital and the relationship between those effects and the patients' sensory – processing patterns. Illinois, USA	This study analyzed the utilization of yoga as a sensory regulation tool for stress reduction among teenagers in a psychiatric hospital setting. The aim of the study was to examine the relationship of yoga participation in sensory patterns and emotional regulation in psychiatric patients.	Quantitative study design with 75 adolescents participating between the age of 12 and 18 that were either inpatients or in a partial-hospitalization program. All 75 patients had engaged in at least 2 sessions of yoga and data collection was conducted from patient charts, pre/post measures that included pulse rates and distress ratings.	The outcome results had revealed improvements in the participants' pulse rates and self-reported distress levels after the sessions. It is suggested that yoga may assist teenagers in acute psychiatric wards to self soothe, emotional regulation and eased emotional distress.
Article 2: (Mak et al. 2018) Effect of mindfulness yoga programme MiYoga on attention, behaviour and physical outcomes in cerebral palsy: a randomized control trial. Queensland, Australia	The current study explored the impact of a mindfulness – based yoga program called MiYoga on children with cerebral palsy (CP)	Randomized Control Trial involving 42 children with cerebral palsy divided into 2 groups. The program consisted of 6 90-minute sessions undergoing a 6-week schedule in enhancing mindfulness and attention thought movement. The population was assessed attention using the Conners' Continuous Performance Test (CCPT).	The outcome of this study showed that the children demonstrated improved attention, lower impulsivity and consistency. On the other hand, the program did not show significant improvements in physical functioning or psychological well-being.
Article 3: (Cohen et.al 2018) Effects of Yoga on Attention Impulsivity and Hyperactivity in Preschool-Aged Children with Attention-Deficit Hyperactivity Disorder Symptoms. California, US	The research examined the impact of yoga on preschool young children that showed symptoms of attention deficit hyperactivity disorder (ADHD).	Randomized Control Trial that concerned 23 preschool-aged children that were divided into 2 groups who showed 4 or more ADHD symptoms based on an ADHD Rating Scale IV. The children were selected from preschool programs that focused on the children that showed ADHD behaviours. Results were conducted by parent questionnaires.	The overall result of the study was that yoga had led to improvements in attention control and in distractibility. Children that participated in the intervention group showed improvements in task performance and hyperactivity reduction. However, no changes in heart rate variability were identified. It was suggested that yoga can be an advantageous activity for managing impulsivity and attention for children with ADHD symptoms.
Article 4: (Pise et al. 2018) Effect of yoga practices on psycho-motor abilities among intellectual disabled children. India	This article analyzed the impact of yoga program focusing on coordination and motor skills for children with intellectual disabilities.	A quantitative experimental study that involved 70 children with intellectual disabilities divided into two groups: experimental and control group. The experimental group participated in a 12-week yoga training of 1 hour per day whilst the control group did not. Both groups were evaluated in assessments of their psychomotor abilities and the results were analyzed using statistical methods.	The experimental group revealed significant improvements in static balance, eye-hand coordination, agility and improved reaction time whereas the control group did not show any improvements in these areas. Overall, the analysis concluded that yoga was an effective exercise in improving psychomotor abilities in children with intellectual disabilities.

<p>Article 5: (Milton et al. 2019)</p> <p>Yoga and Autism: Students' perspectives on the get ready to learn yoga program.</p> <p>New York, US</p>	<p>The purpose of the study was to comprehend the perspective of students with Autism that participated in a get ready to learn yoga program as part of their physical education classes at school</p>	<p>Qualitative study design in capturing the experiences of 7 male students ages from 10 to 14 with ASD diagnosis. The program consisted in participating in four 45-minute yoga session focusing on postures, relaxation techniques in improving functional and academic behaviour. Information was gathered through interviews in gathering their perspectives.</p>	<p>The outcome of this study was positive behavioural responses and self-efficacy. Students had indicated in feeling calmer and in more control of their actions after the program. They were also able to perform yoga poses indicating improvement in their physique contributing a sense of achievement.</p>
<p>Article 6: (Tanksale et al. 2020)</p> <p>Evaluating the effects of a yoga-based program integrated with third-wave cognitive behavioral therapy components on self-regulation in children on the autism spectrum: A pilot randomized controlled trial.</p> <p>Queensland, Australia</p>	<p>The article examined the significance of a yoga program integrated with cognitive behavioral therapy (CBT) on children with autism spectrum disorder (ASD).</p>	<p>Randomized Control Trial study design that involved 61 children between the age of 8 and 12 divided into 2 groups; one receiving a 6-week yoga program combined with CBT elements focusing on emotional regulation, behaviour and attention improvement whilst the other group were on a waiting list for comparison.</p>	<p>The key findings of the trial showed that children who participated in the intervention indicated significant improvements in function and emotional regulation specifically in managing emotions and feelings communication. Parent reports also state that there was improvement in sleep patterns and overall self-regulation.</p>
<p>Article 7: (Laxman, 2022)</p> <p>Socio-emotional well-being benefits of yoga for atypically developing children.</p> <p>Auckland, New Zealand</p>	<p>This study investigated the impact of yoga on the behaviours and well-being of children who were atypically developed especially on children with ASD in a special needs school in New Zealand.</p>	<p>Qualitative study design on acknowledging the living experiences of children with autism spectrum disorders when participating in yoga sessions. This study consisted of 5 weekly sessions of yoga lasting 15 minutes each which explored on how this intervention affected the children's behaviour and well-being through interviews.</p>	<p>Children that underwent this intervention reported that participating in yoga sessions was engaging leading in improvements in physical health and flexibility. Emotional regulation was also improved through breathing techniques as the kids appeared calmer. The overall study suggestion was the incorporation of yoga into the school curriculum for atypically developing children; in enhancing their well-being.</p>
<p>Article 8: (Helsel et al. 2022)</p> <p>A Remotely delivered Yoga intervention for Adolescents with Autism Spectrum Disorder: Feasibility and Effectiveness for Improving skills Related to Physical Activity.</p> <p>Kansas, USA</p>	<p>The present study evaluated the practicability of delivering yoga remotely in improving physical activity, by focusing on motor skills, balance, strength and flexibility.</p>	<p>Quantitative Feasibility study design focusing on 20 adolescents with autism spectrum disorder (ASD) with average age of 13 that completed a 12-week yoga intervention.</p>	<p>This study demonstrated that remote yoga sessions for children with ASD were feasible and effective as attendance and engagement was high and the whole intervention had shown significant improvements in leg strength, flexibility and dynamic balance.</p>
<p>Article 9: (Shanker & Pradhan, 2022)</p>	<p>The article investigated the impact of yoga for children with Autism Spectrum Disorder (ASD). Exploring the effect of a</p>	<p>Quantitative Quasi-Experimental study design exploring the impact on yoga with 43 young people across 4 special needs schools. The</p>	<p>The main outcome of the article suggests that yoga had a positive impact on gross motor skills (balance and coordination) for children with</p>

Effect of yoga on the motor proficiency on children with autism spectrum disorder and its Feasibility of its inclusion in special school environments. India	group yoga program on motor proficiency and its inclusion in special needs schools.	study population was divided into two groups, the yoga group and the control group. The yoga group completed a yoga program for 12 weeks with 45-minute sessions, while the control group did not participate in the intervention.	autism. It was also suggested that the inclusion of yoga in school-based environments was effective in enhancing motor proficiency in children with Autism.
Article 10: (Tom & Singh, 2023) Effectiveness of Yoga Training as an Adjunct Intervention Alongside Multisensory Teaching in Enhancing Self-esteem and Behavioural Parameters of Children with Learning Disorders. India	This study demonstrated how yoga can be integrated with multisensory teaching for children with Learning Disorders. Evaluating the effects on self-esteem and behavioral parameters.	Quantitative Quasi-Experimental study design that included the pre- and post-intervention assessments to measure the effect of yoga training; examining on how the intervention was affecting behavioural and self-esteem parameters of children with learning disabilities.	The key findings of the article were improved self-esteem and reduction of negative behavioural issues. The young people of this study showed significant improvements in self-esteem especially in their social and academic aspects as well as contributing to their emotional regulation and stress management.
Article 11: (Ju et al. 2024) Effect of Yoga Intervention on Problem Behavior and Motor Coordination in Children with Autism. China	This study was conducted to assess the impact of yoga on children on the Autism Spectrum. Addressing the challenges of problem behaviours and motor coordination difficulties.	Randomized Control Trial that was conducted in an 8-week period. The study population were 17 children with ASD that attended 45–50-minute yoga sessions 3 times per week focusing on breathing exercises, physical postures, negative behaviours and motor coordination.	The outcome of this study showed that the yoga sessions had significantly reduced negative behaviours such as irritability, social withdrawal and had also shown improvements in motor coordination specifically in dynamic and static balance.

4. Discussion

The main purpose of this review was to present an outcome in implementing yoga for children with special needs that can benefit both parents and professionals to fulfill the child's needs. The present academic scoping review explored the following questions to identify and outline any research gaps within the existing literature. This review sought to identify whether yoga was a beneficial activity for the child or not. If there were elements or factors that a change in the implementation of yoga would benefit young patients with special needs.

The scoping review had led to six different analytical themes that were reviewed according to the diagnosis of the participants. Across the huge world of mental health, it had resulted that yoga can impact significantly on children with special needs in a different way for each child and each diagnosis. All articles included in the review emphasized on behavioural, cognitive, psycho-motor and emotional effects of yoga within different populations.

In most of the studies in this review, the results showed that children with special needs, regardless of diagnosis had improved in flexibility, balancing and motor skills. Re et al. (2014) and Pise et al (2018) supported that children had improved in coordination and static balance [9,10], Ju et al. (2024) also revealed improvements in motor coordination for children with autism as well as Shanker and Pradhan (2022) highlighted improvements in gross motor skills balance, coordination and strength, however minimal fine motor skill gains were reported that highlighted the ability of yoga to mostly improve gross muscle activities [3,11]. Helsel (2022) and Pise et al (2018) has also revealed that yoga can effectively help with large-scale motor skills but needs more intervention in fine motor skill functions, however gross motor skill improvements were less vigorous [2,9].

The studies showed the effectiveness in increasing emotional and behavioural regulation for these children. Laxman (2022) highlighted the role of yoga in anxiety and stress reduction, promoting calmness through breathing techniques

[5]. These were also underlined in Re et al. (2014) where yoga had assisted children in the psychiatric hospital to reduce stress [10]. Tanksale (2020) merged yoga with Cognitive Behavioral Therapy (CBT), highlighting improvements in self-regulation and executive functioning with detailed benefits in attention and impulse control which align with Cohen's study in (2018) [1,13]. Furthermore, Ju (2024) revealed significant reductions in social withdrawal, problematic behaviours and irritability alongside with motor improvements that had long term benefits post intervention [3]. Such findings were also supported by Tom and Singh (2023), highlighting enhancements in self-esteem and behaviours [14]. ADHD symptoms were reduced after yoga intervention as per Cohen (2018), that revealed cognitive and behavioural benefits [1].

Yoga revealed significant improvements in emotional regulation, cognitive control and behavioural management for children with mental health difficulties. Studies by Cohen (2018) and Tanksale (2020) underlined improved executive function and self-regulation especially for autism and ADHD [1, 13]. This review also showed that yoga reduced anxiety and emotional stress as per Laxman (2022) and Re et al. (2014) by assisting the young people in managing emotions through mindfulness techniques [5,10]. Emotional stability led to reduction in problematic behaviour in autism and long-lasting improvements which was supported by the studies of Milton (2019), Tom and Singh (2023) and Ju (2024) [7,10,14]. In the study of Re et al. (2024), sensory regulation was improved when providing calming effects such as yoga in psychiatric settings [3]. All in all, physical and emotional improvements were noted in several studies however limited physical improvements for children with cerebral palsy were found as per Mak (2018) which suggested varied efficacy across conditions [6]

5. Conclusion

The conclusive determination of the present scoping review is that yoga is a valuable activity intervention for children with mental health difficulties and developmental disabilities which can improve cognitive, motor, emotional and behavioural aspects of their character. Studies showed the effectiveness of yoga in enhancing motor skills such as balance and coordination especially for children with autism, thus benefits vary for the children with physical disabilities such as cerebral palsy. Improved attention and self-regulation are observed in children with autism and ADHD with more benefits when yoga is merged with other therapies. It is underlined that yoga also reduces anxiety, stress and problematic behaviours which is seen to be beneficial in both educational and hospital settings. Sustained improvements in self-esteem and behaviour following the intervention show yoga's long term therapeutic benefits making it an accessible tool for a diversity of populations with mental health difficulties.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

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