

## SCOPE OF TELE-YOGA FOR CHILDREN AND ADOLESCENTS DURING COVID-19 PANDEMIC: A NARRATIVE REVIEW

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### ABSTRACT

**Background:** While studies on the impact of the COVID-19 pandemic on adolescent health are emerging, holistic approaches such as yoga could potentially help tackle the issues faced by them. Accruing evidence shows that mindfulness-based yoga practices at the school level can help schoolers lead a better quality of life.

**Aim:** This review explores health issues faced by adolescents at the physical and mental levels, especially due to the COVID-19 pandemic. The role of yoga to cope with these issues is further delved upon. The scope of implementing yoga in schools and face-to-face yoga versus tele-yoga is also discerned as part of the review. While understanding the scope of tele-yoga in handling the present issues, the overall study aims at seeking continued and cost-effective measures in yoga for handling health and well-being of children & adolescents.

**Method:** A literature search using broad terms such as adolescent health and yoga was carried out by specifically targeting published evidence in tele-yoga for the management of pivotal issues faced by children and adolescents especially due to the pandemic.



**Findings:** There is dearth in evidence pointing out the effectiveness of tele-yoga to potentially mitigate adolescent issues as compared to face-to face yoga. A hypothetical model of school-based yoga implementation at the grass-root level has been proposed involving both face-to face and tele-yoga which may benefit children and adolescents. This review proposes that yoga education could possibly be taken advantage for the betterment of children and adolescent health affected due to the COVID-19 pandemic.

**Keywords:** Adolescent, children, yoga, tele-yoga, online yoga, school-based yoga

#### **HIGHLIGHTS:**

- Tele-yoga might potentially be implicated for handling physical and mental issues of schoolers impacted as a result of the COVID-19 pandemic.
- School-based yoga can be taken as advantage for improving the after-effects of the pandemic; its implementation from grass root level is discussed.
- Comparing tele-yoga versus face-to-face yoga in various aspects, group tele-yoga sessions was onerous from all formats of practices.

## **1. INTRODUCTION**

The COVID-19 pandemic resulted in a global upheaval in all sectors of life [1-4]. To avoid the spread of the COVID-19 virus, education institutions were closed completely affecting nearly 1000 million students worldwide according to UNESCO [5]. Interestingly, though children and adolescents are usually at a much lower risk for severity of illness, they are more stressed and have fewer resources for coping and assistance as compared to the rest of the population [6,7]. A survey on public university students showcased the need to boost efforts for the management of psychological and emotional aspects of youth, especially during the COVID-19 pandemic [8]. Nevertheless, the current pandemic has substantially impacted the academic and non-academic competencies of school children. Apart from conventional management, holistic modalities such as Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) geared up during the pandemic with the government of India issuing separate COVID protocols for each system of healing alongside the mainstream line of treatment [9]. The purpose of this review is to compile relevant literature on children and adolescents affected as a result of the pandemic and explore whether yoga might help in mitigating those issues.

### **1.1 Yoga and COVID-19 Pandemic**

Yoga is a mind-body discipline that has gained popularity in improving physical and mental health along with spiritual progress [10]. It includes physical postures, breathing methods, and meditation, along with other mind-body practices. The Integrated Approach to Yoga Therapy (IAYT) is based on the Panchakosha concept, which can be interpreted as a comprehensive model that uses numerous yogic components to rectify imbalances on physical, mental, and emotional levels [11,12]. The impact of IAYT on children has revealed that both the practice and philosophy are geared at assisting the child in reaching their highest potential for a fulfilling life [13].

There has been emerging evidence showing the beneficial effects of yoga in handling the COVID-19 disease. A review study by Sharma et al recommended yoga practices for reducing the risk of comorbid conditions and strengthening the immune system [14]. A pan-India cross-sectional survey study showed that those practicing yoga during the lockdown had fared better in terms of improved coping strategies, lifestyle, and mental health than the non-yoga group [15]. Apart from clinicopathological implications, yoga has been also recommended for children in coping with stress and anxiety [16]. Apart from psychological wellness, yoga has also been shown to improve cognition, mindfulness, and health awareness in children [17].

The role played by tele-yoga has been highlighted during the COVID-19 pandemic especially considering the various social and operational barriers that have been imposed as a result of the lockdown. Tele-yoga has made an advancement in the couple of years where reviews, guidelines, and clinical trials have contributed to this ever-growing dimension of yoga [18-20]. While the necessity of yoga has been emphasized in schoolers, there is paucity in terms of studies on tele-yoga for children and adolescents. Lockdown, physical separation, and overworked healthcare systems have hampered the implementation of yoga in schools, especially during times of increased risk of psychological anguish and mental problems [21]. This narrative review intends to throw light on the potential role of tele-yoga, in dealing with some major health issues faced by adolescents especially as a result of the COVID-19 pandemic. Moreover, the scope of implementation of school-based yoga is also scrutinized briefly.

## **2. METHODOLOGY**

The authors of the study searched the electronic bases of PubMed and Google scholar for literature containing information on adolescent health and yoga as this was a narrative review. Relevant literature published between 2021 and 2022 regarding adolescent health related to the COVID-19 pandemic was also explored. Broad search terms such as “adolescent health”, “children health”, “yoga”, “tele-yoga”, and “online yoga” were used for this purpose. To assemble the boundaries of the review, we focused on summarising recent literature on tele-yoga and present current pandemic-based effect upon adolescents and is not meant to be exhaustive.

## **3. RESULTS**

The review of literature reflects evidence regarding the negative impacts of the pandemic on the adolescent population which have targeted their physical as well as mental health. With a plethora of health issues at various levels affecting youngsters as a result of the COVID-19 pandemic, this article attempts to explore them and how yoga as a holistic science might play a role in the management of physical, mental and relevant issues.

### **3.1 Physical health**

The pandemic has had detrimental effects on adolescents in terms of socializing changes and inadequate physical activity. Social isolation due to COVID-19 can cause, affect or worsen obesity and its comorbidities in children and adolescents. Factors such as changed dietary habits, surplus intake of food along with unhealthy food choices were seen during the COVID-19 pandemic. Sedentary lifestyles as a result of social restrictions along with long screen time were major causes of concern for weight gain and eye-sight issues in children and adolescents during the present pandemic situation [21-23]. Decreased physical activity and increased sedentary behaviour have also been linked to compromised muscular and cardiorespiratory fitness, also affecting psychosocial and scholastic achievements in children [24].

Practices such as yoga have shown the potential to lower oxidative stress, maintain low body weight, improved hormonal action and quality of life as well as reduce the risk of over-eating and promote healthy eating patterns in children [25-27]. Virtual sessions have been shown to consistently promote physical activity participation and engagement in children and young people with obesity [28]. The potentiality of using the virtual platform as an effective medium for delivering health promotion is promising [29]. When switching over to online yoga for adolescents, different aspects such as yoga-based diet, and a series of dynamic practices like sun salutation and relaxation could be considered as part of the program. As in face-to-face yoga, tele-yoga sessions must be tailored to have a combination of stimulation and relaxation practices along with yoga-based counseling. This would help

to regain normal functioning of the internal body systems as well as to adhere to a healthy lifestyle [21]. The use of online platforms for yoga in children is steadily emerging with positive feedback from both children as well as parents in terms of enhancing physical health and boosting immunity [30].

### **3.2 Mental Health**

The mental impact of the pandemic deserves as much importance as its physical counterpart. Apart from the COVID-19 virus, studies have pointed out that adolescents have a tendency to be depressed, with diminished life satisfaction over the government restrictions rather than the infection itself [31]. Problems like depression, post-traumatic stress disorder, nervousness, irritability as well as major changes in lifestyle habits were considerably disturbing especially for the younger population during the pandemic due to their inability to readily respond to emergencies [32].

Yogic practices have revealed a protective and preventive role in maintaining mental health in school adolescents with viable findings indicating physical and mental wellness. The various benefits of yoga practices range from better sleep, attention, self-esteem, empowerment, and self-regulation making schoolers more conducive social beings [33,34]. A systematic review has shown online yoga to be a feasible, cheaper, and non-invasive intervention for various mental and physical disorders supporting it to be part of routine clinical care [35]. It is evident that the impact of online-based mindfulness practices would be based on their duration, intensity, and frequency [36]. Ultimately, evidence points toward the dire need for mindfulness-based practices like yoga to address mental health issues among students throughout their formative years [37].

Apart from mental issues, smartphone addiction is yet another cause of concern for the youth. The breakout of COVID-19 has exacerbated it, posing harm to their physical and mental health mainly displacing more active leisure behaviour and hindering them from spending time outdoors. Various programs have been initiated to introduce yoga to help deal with technology de-addiction. For example, an integrative program comprising yogic practices and counseling to help manage excessive use of smartphones was found to have a beneficial role by reducing physical discomforts and inducing a positive lifestyle change [38]. The use of yoga-based mobile apps has also shown to be used for the treatment of smartphone addiction [39,40]. Scientific evidences overall point out that with yoga's global acceptance and ability to harmonize the body-mind complex, yoga may offer a solution to plethora of ailments

### **3.3 Tele-yoga- Need of the hour**

While there has been an exponential rise in the use of telehealth in India, there is scarce knowledge on the effects of various online physical interventions on mental health [41]. Virtual interventions are showing promising results for attenuating emotional distress, and mental distress and promoting well-being [42]. Online mode of learning yoga or similar health activities need not only be viewed in terms of avoidance of face-to-face interactions for the fear of the virus. Internet-based learning has shown to have far-reaching implications in terms of better learning opportunities with multiple options being open for the learner. With the ability to connect with different parts of the world, the possibility of upgrading learning through various online collaborations can help improve our approach to health management [43]. In an online study done on school children, improvements were noted in various domains like peer issues, prosocial behaviour, and hyperactivity. The same study also pointed out positive feedback from the parents of the children who took part in tele-yoga in terms of overall well-being, strongly recommending it as part of the online school curriculum [44]. A qualitative examination of published articles on

yoga supplied via digital form shows favourable evidence for opting for virtual mode for yoga delivery, highlighting the benefits and drawbacks such as cost savings and technological constraints [18-20,45]. Wadhen et al. found that online yoga has significant improvements in perceived stress, mental wellness, depression, and coping self-efficacy, along with physical and mental advantages in individuals working from home during the COVID 19 pandemic [46].

The advent of online yoga has helped interested individuals not to lose track of their practice routine while ensuring access to ‘low-risk’ activities like yoga even to those in remote areas. These findings concur with studies that have classified yoga as a domicile well-being promoter [26,47,48]. Nonetheless, an increase in screen time is an unavoidable factor in tele-yoga and might instigate addiction in adolescents due to the added screen time. Handling technical issues can be another hindrance in tele-yoga, especially during the initial stages. More studies are warranted towards the safe and effective usage of teleyoga amongst different sections of society. As part of this review, the authors deemed it necessary to understand the relevance of face-to-face (F2F) yoga and tele-yoga in the current scenario. Based on experiences shared by the yoga teachers who have been in the field in both offline and online modes, a comparative table was constructed (Table 1) which can be considered relevant across all age groups. This table has been further divided into individual and group sessions in both F2F and tele-yoga groups for better in-depth clarity.

Table 1: Face-to-face yoga versus tele-yoga in current scenario

	Face-to-face yoga		Tele-yoga	
	Individual	Group	Individual	Group
<b>Acceptability</b>	Widely acceptable	Widely acceptable	Acceptable	Less acceptable
<b>Feasibility</b>	Feasible and prominent format	Feasible and prominent format	Feasibility being considered	Least feasible
<b>Logistics (Space, Time, Technology)</b>	<u>Space</u> - Optimum, <u>Time</u> - Least time-consuming <u>Technology</u> - Minimal	<u>Space</u> - Maximum <u>Time</u> - More time-consuming <u>Technology</u> - Moderate	<u>Space</u> - Least & scattered <u>Time</u> - Least time-consuming <u>Technology</u> - Moderate to high	<u>Space</u> - Scattered <u>Time</u> - Most time consuming <u>Technology</u> - Maximum use of technology
<b>Effectiveness</b>	Already established	Already established	Yet to establish	Yet to establish
<b>Ease of practice (Both trainer &amp; trainee)</b>	Easy to practice	Moderate difficulty	Moderate difficulty	Difficult
<b>Interaction</b>	Highest	Moderate	Normal	Minimal

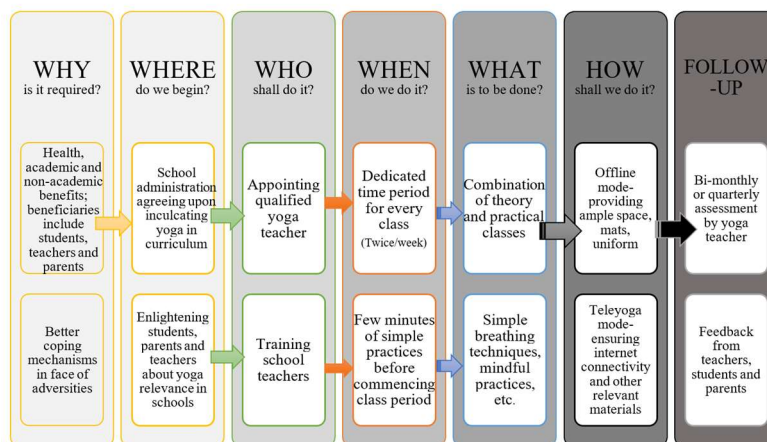
<b>Cost-effective</b>	Least	Moderate	Moderate	Most
<b>Ambience</b>	Minimal effort needed	Moderate efforts needed	Moderate efforts needed	Maximum efforts needed

In terms of acceptability, from all four formats, the acceptability of individual F2F yoga sessions derived maximum acceptability, especially from a therapeutic viewpoint. Acceptability might be considered poor in group tele-yoga settings due to factors such as two-dimensional view, difficulties in understanding as well as corrections, and poor technical skills. The same applies to feasibility too. With respect to logistics in relation to time, space, and technology usage, though group F2F required maximum space, group tele-yoga sessions were most difficult to implement considering the need for flawless technology and scattered participants. Time consumption though might be greater for F2F yoga with regard to traveling to the place of practice, tele-yoga sessions might require additional time in learning the practices. Tele-yoga teaching requires more verbal communication and increased attention from the trainer and trainee respectively. Also, group tele-yoga sessions are shown to have the least level of interaction from a trainer-trainee viewpoint. Maintaining the session discipline (including technology etiquette) is another aspect that could be a cause of concern, especially in group tele-yoga sessions. It can be encapsulated that even though tele-yoga sessions may be considered an agreeable modality for yoga deliverance; group tele-yoga sessions would need to endeavour more for sustaining the yoga community. Nonetheless, the use of technology on a larger scale would also probably help in mitigating the various drawbacks of tele-yoga in the coming future.

### 3.4 Yoga Implementation in Schools

School based-yoga interventions can be considered important due to high prevalence of adverse psychological conditions in children and adolescents in the present educational system [49]. It should be however remembered that not all schools may have the resources or climate necessary for effective program implementation. Dariotis et al., in their study, have suggested conducting a readiness assessment involving potential stakeholders such as teachers, administrators, students, and parents so as to understand the framework before taking the yoga program forward [50]. While, many schools dolefully misrepresent yoga and club yoga under the ‘games period’ [30], there are also those that meticulously try to inculcate various yogic practices within their curricula.

**Figure 1: School Yoga Implementation Model**



where the school administration's unfeigned decision in this direction is considered imperative. In this proposed model, employing a professional yoga teacher as well as training teachers needs to be considered as teaching yoga should not be considered just as a single class period affair. Mind-body awareness practices are to be taught to school teachers and instructed to be implemented in their classes. Such methods can help mindfulness to go beyond the yoga mat, making the overall process enjoyable and motivating for both students and teachers. Both face-to-face and tele-yoga can be flexibly incorporated as per the need. A constant review and feedback conducted by the yoga teacher would be invariably necessary as it can help track the progress of the program.

#### **4. FUTURE DIRECTIONS**

Tele-yoga can be said to be in its nascency in terms of research. Published literature on tele-yoga has mentioned the need of reinforcing more extensive clinical trials with robust methodologies for inculcating yoga practices in school children. Standardized yoga modules created specifically for different grades need to come up. Teleyoga, needs to be specially delineated in terms of practice, guidelines, and mode of delivery along with high-quality randomized controlled trials. Future research should inspect the feasibility of conducting yoga programs in schools in rural and government sectors in India, as well as for vulnerable populations where schools might be inaccessible. Finally, long-term novel methods of reinforcement of mindful practices in schools need to be looked at for robust implementation of the program amongst children and adolescents.

#### **5. STRENGTHS AND LIMITATIONS OF THE STUDY**

This study has taken a step forward in exploring various insights regarding the role played by yoga in light of the COVID-19 pandemic for children and adolescents. Though studies on school-based yoga are present, there has been no working model as to how it can be implemented as a part of the school curricula. This has been hypothesised in this study where a judicious combination of F2F yoga and tele-yoga is put forward. This review has two main limitations. The PRISMA guidelines was not followed for reporting studies due to scanty literature. Also, only two databases were searched for obtaining literature. We anticipated that detailed search of various databases might be beyond its scope since this was a narrative review. However, also because tele-yoga has potential benefits, the findings of this study offer new, potentially useful information for children and adolescent population.

#### **6. CONCLUSION**

Yoga can offer solutions to a wide range of growing problems in adolescents, both online and offline. During pandemic times when the fight against the spread of infection is ongoing, stress and lifestyle disorders are still the leading causes of morbidity and mortality. Approaches like tele-yoga can be seen as a salient modern-day contribution to helping children and adolescents to tackle the predicaments of ongoing as well as future pandemics. Incorporating mindfulness-based practices like yoga in schools is particularly important and currently relevant given the pandemic and post-pandemic circumstances impacting the lives of children and adolescents and those associated with them.

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