

Development of Yoga Intervention Module for Children and Adolescents with Major Depressive Disorder

Abstract

Introduction: Mental health problems constitute around 7.5% of the global burden of disease. Worldwide, depression has been expected to be the second-leading cause of disability by 2020. Child and adolescent depression are associated with decreased school attendance, poor performance at school, use of drugs and alcohol, violence, and suicidal behavior. In recent times, various complementary and alternative medicines (CAMs) such as mindfulness and meditation intervention, acupuncture, nutraceuticals, and physical exercise have also gained interest with encouraging results. One such CAM intervention is Yoga. The current paper focused on the development and validation of yoga therapy. **Materials and Methods:** A yoga module was developed in three steps. The first step was the development of a yoga module where traditional texts, research papers were extensively reviewed. Based on that existing literature, a module was outlined. In the second step, the detailed module was validated by the experts in the field of yoga. In the third step, a pilot study was carried out on five participants and they were administered on depression scale for children. Moreover caregivers were also assessed on variables like depression, stress and anxiety at baseline and postassessment. **Results:** It was found that yoga therapy was acceptable among children and adolescents with major depressive disorder. There was high compliance among participants. They reported overall satisfaction and found a reduction in depression scores on the measures used. **Discussion:** Yoga therapy should be recommended by professionals in out-patient clinics. Moreover, this is a pilot-tested study and hence comment on the efficacy of the present study could not be made.

Keywords: Adolescents, depression, validation, yoga

Introduction

Mental health problems tend to pose a huge burden on our society. It has become a priority area of research as per the National Health Policy. Moreover, depression has been expected to be the second cause of disability worldwide. It has a high prevalence among children and adolescents' population. Depression has bio-psycho-socio-cultural causation. As a result, it disturbs the daily functioning of adolescents. The common complaints reported by their parents are low school attendance, poor academic performance, no participation in extra-curriculum activities, less or no interaction with peers or teachers, increased bodily complaints.^[1]

In recent times, complementary and alternative medicines have been found to be beneficial for treating psychological issues. One such intervention is Yoga. Various yoga practices such as relaxations, breathing

exercises, stretching, and asanas have been used in outpatient settings among psychiatric patients.^[2] As yoga-based interventions focus on the mind-body connection, alleviating negative emotions, improving self-regulation and improving cognitive functions such as attention, concentration, and memory.^[3]

A study done in a hospital-based setting found those children and adolescents diagnosed with adjustment or depression disorder found a reduction in self-reported anxiety and anxious behaviors after yoga-based relaxation therapies.^[4] A meta-analysis of meditation, yoga and mindfulness on depression, anxiety and stress in tertiary education students found the effect sizes for depression to be moderate.^[5] A qualitative study on yoga among high schools found positive reports including a greater kinesthetic awareness, greater respect for the body, improved self-image, manage negative emotions, and more optimism.^[6] In another

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study, 32 adolescent girls from an orphanage, diagnosed with anxiety and depression, delivered 8-week yoga intervention. The validated yoga intervention module for anxiety and depression was comprised of Asana (yogic postures) and Bhajan sessions. The results found a significant reduction in anxiety and depression symptoms measured by the Hospital Anxiety and Depression Scale.^[7]

Previous studies done with children and adolescents are described in Table 1. The rationale for the current study was that depression had adverse effects on physical and mental health. To manage these effects, pharmacotherapeutic agents along with nonpharmacological interventions have been recommended by the professionals. One such complementary and alternative therapy is Yoga. It is well-accepted in the Indian context. However, the effect of yoga on depression among the child population has not studied in India. Therefore, the present study aims to develop a yoga module for this age group and pilot-test the same. The study was approved by the Institute's Ethics Committee, AIIMS, New Delhi.

Materials and Methods

Yoga therapy module development

Stage 1: Development of yoga module

Ancient texts such as Patanjali Yoga Sutra, *Hath Yoga Pradipika*, *Gheranda Samhita*, *Upanishads*, *Hatharatnavali*, *Asana Pranayama Mudra Bandha* and *Sukshmayayama* by Swami Dharendra Brahmachari were reviewed.^[18] Along with previous research articles where randomized controlled trials were done, as evident in Table 1. Particular yoga practices were selected based on the clinical symptoms of depression among children and adolescents. As per previous studies, yoga practices which were found to be directly or indirectly reducing depressive symptoms were included in the module.

Stage 2: Validation of yoga module

The yoga therapy module was developed by the researcher (M.A. in yoga studies) with experience in yoga therapy. The validation was performed by experts in yoga studies. The eligibility criteria for experts are as follows: (a) a minimum 5 years of field experience in clinical yoga and (b) actively involved in treating health conditions by yoga intervention, (c) minimum qualification was Bachelor of Naturopathy and Yogic Sciences (B.N.Y.S.) or Ph.D. in field of clinical yoga. Academicians and nonclinical yoga practitioners were excluded. 34 potential experts were approached, out of 20 responded and were evaluated according to the eligibility criteria. 18 of these experts were found to be eligible and 10 shared their opinion on the yoga module. A total of 18 yoga practices were analyzed. Yoga experts had to rank the practices as "Useful" (1) and "Not Useful" (0). Minimum acceptance value was 0.60. Hence 10 practices were retained out of 18 mentioned above. Eventually the researcher made changes as suggested by experts. A final yoga module was

developed by incorporating the suggestions given by 10 experts. The final module is evident in Table 2.

Stage 3: Pilot study

Since it was a pilot-tested, the sample of five participants was recruited. It is small in size and results could not be generalised but it will help us to assess the acceptability of the module among participants. All participants signed an assent form along with their parents' consent form. The aim of this study was to test the feasibility of a yoga therapy module in outpatients with depression. Five outpatients who had a diagnosis of major depression according to the Diagnostic and Statistical Manual of Mental disorders-IV^[19] consented to the study. Their diagnosis was confirmed by qualified psychiatrist who also excluded mental retardation and comorbid disorders. Patients were aged between 8 and 18 years. They had scored 15 or more on the Clinical Epidemiological Depression Scale (CEDS).^[20] Their parents were also assessed on Depression, Anxiety and Stress (DASS 21).^[21] Those five patients completed 1 month training as well as practice at home for 1 month. CEDS and Global Functioning Scale (GFS)^[22] was administered at baseline, end of 1 month and 2 months. At this point, they completed the feedback form that included the degree of improvement from depression and the degree of satisfaction of learning the module on a survey that was designed by the researcher of the current study. Parents were also assessed on Depression, Anxiety and Stress (DASS-21).^[21] Paired sample *t*-test was used to compare CEDS scores at baseline, 1 month, and 2 months of yoga practice and qualitative analysis was to analyze feedback form.

Assessments

Semi-structured interview schedule

A semi-structured interview schedule was prepared for the study. Part one was sociodemographic profile. It consists of the patient's name, age, sex, marital status, education, occupation, religion, and residential address. Part two was the clinical profile. It consists of details about childhood history, academic history, and physical and systemic examination.

Center for epidemiological studies depression scale for children

It is a 20-item self-report depression inventory with possible scores ranging from 0 to 60. Each response to an item is scored from 0 to 3 on a Likert scale from "not at all" to "a lot." This measure assesses both depressive symptoms as well as symptom improvement in a wide range of children and adolescents, ages 6–17. Higher Centre for Epidemiological Studies Depression Scale for Children scores indicates increasing levels of depression. Scores over 15 can be indicative of significant levels of depressive symptoms.

Depression Anxiety and Stress Scale (DASS)

It is a 21-item self-report questionnaire designed to measure the severity of a range of symptoms common to depression,

Table 1: Studies on depression and yoga therapy among children and adolescents

Author & Year	Sample	Yoga Group	Control	Duration of Yoga	Variables/scales	Results
Seddigh, <i>et al.</i> , 2023 ^[8]	Females with T1D, aged 12-17 years, score more than 10 on Children's depression inventory. Sample size of 62.	31 participants were in yoga group.	Other 31 participants were in control group.	60 min sessions for 8 week. Yogic practices include warm-up exercises, sun salutation, Asana, Pranayama, meditation, relaxation	1.Children depression inventory (CDI) 2.Beck Depression Inventory	Depression total score was significantly lower in the experimental group in comparison to control group. There was a reduction in scores from baseline to the trial end in the experimental arm
Uebelacker, <i>et al.</i> , 2023 ^[9]	42 adolescents, elevated depressive symptoms	42 adolescents enrolled in yoga group	None	12 week, group-based yoga sessions.	1.Depression 2.Anxiety 3.Impairment 4. Sleep Disturbance	Intervention found to be acceptable and feasible, decreased depression symptoms and increased self-compassion
Madhavan & Priyadarsha, 2023 ^[10]	Adolescents aged 14-18 years, moderate to severe depression, sample size was 92 participants	41 participants were randomly assigned in experimental group	41 participants were randomly assigned in experimental group	10 weeks, 3 session per week, 30 min Suryanamaskar asana, anulom vilom, pranayama and cognitive behavior therapy	1.Beck depression inventory	Psycho-yogic package found to be effective intervention for the management of depression
Uebelacker, <i>et al.</i> , 2022 ^[11]	Elevated depressive symptoms, 13-18 years	11 participants were recruited for the study	None	12 week, 45-min yoga class. Consist of warm-ups, rhythmic practices, asanas, pranayama, relaxation	1.Systematic assessment of treatment-emergent events-general inquiry 2.Credibility expectancy questionnaire 3.Mini international neuropsychiatric interview for children and adolescents	The results found acceptable levels of feasibility
Wamboldt, <i>et al.</i> , 2019 ^[12]	Depression, age range 12-18 years	42 adolescents, females, weekly	None	Weekly, 2.5 hour sessions -yoga, relaxation, breathing and meditation	1.functional disability inventory 2.behavioural assessment system for children 3.perceived stress scale 4.Readiness to change	Results found significant improvement in stress, depression, functionality
Pamela, <i>et al.</i> , 2014 ^[13]	Depression, age range 12-18 years	75 participants were enrolled in yoga sessions	None	50 min class consist of breathing, balancing postures, stretching, meditation	1.Subjective Units of Disturbance Scale 2.Adolescent Sensory Profile	Results found improved pulse and self-reported distress ratings regardless of gender/sensory profile
Fredeberg, <i>et al.</i> , 2017 ^[14]	Depression, mean age of 14.8 years	46 participants were enrolled	None	6 sessions consist of breathing, postures, meditation, & imagery for 1.5hours, for 6 weeks	1.Anxiety/depression 2.Social Support	Improved anxiety/depression scores. Psychosocial techniques were effective

Contd...

Table 1: Contd...

Author & Year	Sample	Yoga Group	Control	Duration of Yoga	Variables/scales	Results
Velasquez, <i>et al.</i> , 2015 ^[15]	Depression, 125 enrolled for yoga workshop	68 were assigned in yoga group	57 were assigned in control group	24 sessions for 2 hour sessions each for 5 groups. Consist of postures, breathing, relaxation, & meditation	1.Strengths and Difficulties Questionnaire 2.Agression 3.Socio-emotional competencies 4.Perceived benefits	Yoga program reduced children anxiety problem
Khalsa, <i>et al.</i> , 2012 ^[16]	Adolescents of 7 th to 12th class, Depression of 15-19 years	74 enrolled in yoga group	Rest of the participants were enrolled in physical education class	Breathing, postures, & visualization 30-40 min, 2/week, 23-32 sessions for 11 weeks	1.Self-report of personality 2.Profile of mood states 3.Resilience scale 4.Perceived stress scale 5.Inventory of positive psychological attitudes	Minimal or slight improvement in yoga group whereas pattern of worsening in control group
Noggle, <i>et al.</i> , 2012 ^[17]	Adolescents of class 11 or 12, having depression	51 students enrolled in yoga group	None	2-3 times a week for 10 weeks consist if postures, relaxation, meditation and breathing exercises	1.Profile of mood states 2.perecived stress scale 3.Inventory of positive psychological attitudes 4.Resilience scale 5.State trait anger expression inventory 6.Child acceptance mindfulness	Yoga students showed improvement in mood, stress, resilience, anger

T1D: Type 1 diabetes

anxiety, and stress (DAS). This scale will be used only for the parents. There are four possible answers in terms of severity or frequency, organized in a scale from 0 to 3. The result is obtained by adding up the scores of the items for each of the three subscales. Higher score corresponds to more severe psychological disorder. Hindi version of this scale will be used.

Global assessment of functioning

It measures the overall doing of the patient in psychological, social and occupational domains. It is measured as a single score from 0 to 100 scoring. It is the clinician-rated scale and different clinicians can assign different scores. This scale provides good progress over time to the clinician and the patient.

Measures of feasibility

- Recruitment Rate: Patients were recruited on a weekly basis from the outpatient clinic. It took 1 month to recruit all 5 participants who were willing to give their consent for the intervention
- Attendance: Yoga therapist marked the attendance of

the participants for five face-to-face sessions and rest 10 online sessions. Rest parents filled their daily log book for home practice at home with the participants

- Implementation safety: It was assessed by the yoga therapist based on participant's clinical history and initial intervention during the 1st session. Moreover, participants were delivered yoga sessions along with their parents and nursing staff for any emergency
- Adverse events: Participants with severe mental illness or locomotor disability were excluded from the study. Moreover, yoga intervention does not report to cause any adverse events among participants. To ensure their safety, all sessions were delivered under the supervision of the yoga therapist and their parents.

Procedure

The present study aims to examine the feasibility of yoga therapy on children and adolescents with major depressive disorder. The study received the approval from Institute Ethics Committee. Based on inclusion-exclusion criteria, patients were recruited in outpatient clinics. Five patients gave their assent along with consent from their parents.

Table 2: Final yoga module for children and adolescents with major depressive symptoms

Particulars	Rounds	Duration
Yogic Sukshma & Sathul Vyayama (Micro & Macro Exercises)	1 round each (10 counts)	10 minutes
1.Samarna Shakti Vikasaka		
2.Bhujha Bandha		
3.Purna Bhujha		
4.Kati Shakti Vikasaka (forward-backward bending)		
5.Kati Shakti Vikasaka (side bending)		
6.Kati Shakti Vikasaka (side twisting)		
7.Jangha Shakati Vikasaka		
8.Hridya Gati (jogging)		
Loosening Practices	10 rounds each	4-minute
1.Hand Stretch breathing		
2.Tiger breathing		
Dynamic Surya Namaskara	5 rounds	5 minutes
Instant Relaxation Technique	1 round	1-minute
Tadasana	1 round	1-minute
Ardha Chakrasana	1 round	1 minute
Ushtrasana	1 round	2 minute
Viparita Karani	1 round	2-minute
Bhastrika Pranayama	3 rounds	2-minute
Bhramari Pranayama	5 rounds	2-minutes
Guided Relaxation	1 round	10-minutes

The socio-demographic details of the participants and parents were documented using the semi-structured pro forma. The participants were assessed on the depression scale for children and parents were assessed on the depression, anxiety, and stress scale. They were used at the post assessment as well.

In the current study, yoga therapy was developed and validated by the experts in the field and necessary changes were made before the delivery of the intervention. Sessions were delivered to participants by the yoga therapist along with parents who showed interested as well. The first session was about 30 min and focused on brief history-taking and assessing the suitability for the yoga exercises. From the second session, yoga therapists delivered yoga therapy which consisted of loosening practices for 5 min followed by yogic *sukshma and sathul vyayama* for 10 min, then dynamic Surya namaskar for 5 min with 1 min instant relaxation, 4-minute asanas and 5 min for pranayama with 10 min of guided relaxation. The detailed description is given in Table 2. After 5 days of offline sessions, 15 online classes were delivered to participants. Finally, they were provided with a pictorial softcopy as a guide to practice yoga therapy at home. To ensure compliance, a logbook was provided the participants which was filled under the supervision of their parents and submitted to the researcher during postassessment.

Results

Development and validation of the final yoga module

In the present study review of literature was done to identify the most suitable yoga practices to reduce depressive symptoms. The module was developed and it was further validated by the experts. All 10 experts gave their suggestions over Google Forms. The final yoga module retained those practices that scored eight or above by all who completed their rating. Table 3 shows the final module developed by researchers and ratings given by experts. Further, we modified the module based on two aspects: (a) if all experts gave a rating of seven or less for a yoga practice were removed and (b) suggestions given by the experts were reviewed and incorporated. Based on the ratings provided, five practices were deleted and the other 10 were retained. All experts gave remarks to module as easy to teach, learn, and practice. Table 4 shows the deleted/removed yoga practices by the expert panel.

Delivery of the intervention

To maintain compliance to the intervention, we provided five face-to-face, daily sessions with yoga therapist along with their caretaker in the 1st week. From 2nd week to 6th week, the following ten sessions were online, twice a week with a yoga therapist along with their caretaker. It was given to maintain regularity with outpatient's subject. From week 6 to 12, home-based yoga practiced took place under the supervision of family members only. They were provided with a pictorial manual of yoga practices to be followed at home.

As per the suggestions given by experts, the practices were done dynamically due to the age and energy levels present in children and adolescents. Moreover, to avoid boredom dynamic practices were used with the participants.

The sequence of each yoga practice was to start with breathing exercises and *sukshma* kriyas which synchronize the body and breath preparing for *surya namaskar*. Instant relaxation technique after *surya namaskar* allows the practitioner to relax and observe changes in the body. Pranayama enhances breath control, calms the nervous system and uplifts mood. The session concluded with guided relaxation, integrating the practice's benefits, encouraging deep rest and promoting a positive mental state.

Suggestions given by the team during the construction of the yoga module were to reduce the time from 60 min to 40 min for the children, keep dynamic practices to avoid boredom and keep their eyes open during relaxation to avoid darkness and anxiety.

Pilot study

Five patients completed the pilot study, as evident in Table 5. All the patients had a drop in depression scores. There was an improvement in global functioning scores from 40 to 84, twice of baseline as evident in Table 6.

Table 3: Yoga practices retained by experts

Yoga Practices/Experts	Expert's Score										No of Expert said useful	CVR (Calculated)	Remark
	1	2	3	4	5	6	7	8	9	10			
Hand stretch breathing	1	1	1	1	1	1	1	1	1	1	10	1	Retain
Tiger breathing	1	1	1	1	1	1	1	1	1	1	10	1	Retain
Jogging	1	1	1	1	1	1	1	1	0	1	9	0.8	Retain
Spinal twisting	1	1	1	1	1	0	1	1	0	1	8	0.6	Retain
Surya namaskar	1	1	1	1	1	1	1	1	1	1	10	1	Retain
Instant Relaxation Technique	1	1	1	1	1	1	1	1	1	1	10	1	Retain
Tadasana	1	1	1	1	1	1	1	1	1	1	10	1	Retain
Ardha Chakrasana	0	1	1	1	1	1	0	1	1	1	8	0.6	Retain
Ushtrasana	0	1	1	1	1	1	0	1	1	1	8	0.6	Retain
Viparita Karani	1	1	0	1	1	0	1	1	1	1	8	0.6	Retain
Kapalabhati	1	1	1	0	1	1	1	1	1	1	9	0.8	Retain
Bhastrika	1	1	1	0	1	1	1	1	1	1	9	0.8	Retain
Bhramari	1	1	1	1	1	0	1	1	1	1	9	0.8	Retain

Table 4: Yoga practices deleted by experts

Yoga Practices	Score of each experts										No of Expert said useful	CVR (Calculated)	Remark
	1	2	3	4	5	6	7	8	9	10			
Mukha Dhauti	0	0	1	0	1	0	1	1	1	1	6	0.2	Remove
Alternate toe touching	0	1	0		0	0	1	1	1	1	5	0	Remove
Pawanamuktasana	1	0	0	1	1	0	1	1	1	1	7	0.4	Remove
Ujjayi	0	1	0	0	0	0	0	1	1	1	4	-0.2	Remove
Nadhanusandhana	0	1	1	1	1	0	1	1	1	0	7	0.4	Remove

Participant's demographics

We had enrolled five adolescents, three participants identified themselves as female and two as males. The mean age was 14.6 years. All participants reported to live with their parents and 3 of them reported to be average performers in academics. 3 of the participants had acknowledged that they are facing stressor, about four of them had psychiatric comorbidity such as dissociation and obsessive-compulsive disorder. Therefore they are taking medications as prescribed by the psychiatrist.

Feasibility of research procedures

Recruitment and enrolment occurred on a rolling basis for 3 months that is 2.5 per month were recruited. We also met our goal for retention for assessments, with 5/5 (100%) of participants completing the 6-week and 12-week assessment.

Class attendance and adherence to home practice

All five participants attended the face-to-face class 5 days daily. Then, they used to come twice a week along with their parents. About 70% of them completed the home-based practice. The rest were inconsistent with their practice. It was because of homework, assignments and examinations.

Qualitative feedback

We conducted qualitative interviews during the pilot study to assess participants' level of satisfaction and experience

Table 5: Socio-demographic details of patients with depression (n=5)

Variables		Frequency
Age (Mean, SD)		14.6±1.14
Class (Mean, SD)		9.2±1.92
Sex (%)	Male	2
	Females	3
Religion (%)	Hindu	3
	Islam	1
	Sikh	1
	Nuclear	3
Family (%)	Joint	2
	With parents	5
	Not with parents	0
Academic Achievement (%)	Average	3
	Good	1
	Excellent	1
Stressor (%)	No	2
	Yes	3
Psychiatric co-morbidity (%)	No	1
	Yes	4
Medication status (%)	Drug naïve	1
	On treatment	4

about the yoga module. The participants reported that most liked yoga practice were “*surya namaskar, tightening and relaxing muscles, camel pose, Tadasana.*” Two participants reported that “*lying pose (guided relaxation) made them*

Table 6: Clinical details of patients with depression (n=5)

Variable (M±SD)	Baseline	6-week	12-week
Depression	25.4±10.73	15.8±5.97	9.4±9.04
Global functioning	40±12.24	72±4.47	84±5.47

uncomfortable, their mind would wonder here and there, became more aware of bodily sensations and hence it caused anxiety-like feeling.” The compliance rate was good throughout the yoga sessions. The participants reported “*achi lagti hai yoga class,*” “*I had faith in the practice and that I would get better if I continue,*” “*environment was peaceful, yoga instructor was good,*” “*mann shant rehtha tha.*” All participants reported “feeling better” after yoga class, would do it “daily at home.” Only one female participant reported that due to period cramps and boredom, she would do it sometimes. Further participants reported that they found yoga to be helpful, has alleviated positive emotions, was safe while doing it, and did not experience any new psychological problems. Rather two of the participants reported that “*mai apne gusse ko feel karne laga day to day life mai,*” “*headache feel hua.*” Overall participants felt satisfied after yoga and therefore, they would like to come back to yoga therapy if required and will suggest to other peers as well.

Discussion

In this study, we had developed a yoga module for children and adolescents diagnosed with major depressive disorders. Specific yoga practices were chosen from previous research articles, and traditional literature to design target specific symptoms of depression. The module was further validated by experts in yoga sciences. It was further modified as per the suggestions given by them. We had retained those yoga practices which were retained by experts and got the score of 8 or above in “useful” category. We had included practices which included dynamic manner due to age and energy levels present in children and adolescents.

The qualitative feedback has highlighted that yoga practice was helpful, safe, and satisfying for them. Moreover, it has increased the awareness of one’s body and helps in recognizing the emotions experienced in day-to-day life. A review study has analyzed data from more than 1000 children and adolescents aged 5–19 years and found that yoga interventions have shown positive results such as alleviating psychiatric conditions, strengthened self-control and behavioral changes, improved cognitive functioning and enhanced well-being.^[23]

The pilot study found that the yoga module was well received by patients. They all reported an overall improvement in their well-being. They are satisfied with the module. The measures of depression resulted in a lowering of scores suggestive of the benefits of yoga therapy. No injury or side effects occurred during or after

yoga. A similar study also found high engagement with yoga therapy along with decreased depressive symptoms and increased self-compassion over time.^[19]

To our knowledge, this is one of the target-specific yoga modules being developed for children and adolescents in the Indian context. It was based on previous research studies.^[1-10] This is in contrast to the modules used by previous studies. Initially, the plan was to provide 6 weeks, face-to-face sessions. However, it was changed into five face-to-face daily sessions and then twice a week, online sessions so that children can practice after school hours and does not had to commute for long hours daily. Experts opined to add instant relaxation after exercises so that they can notice changes in their body functions. Home-based practised was recommended for 6 weeks and a yoga therapist used to follow up with the patient online. It was done to ensure compliance, regularity and dropout due to their psychiatric condition.

A recent study has highlighted that the experimental group had lower scores on depression after yoga therapy than the control group. Moreover, virtual sessions were potentially effective in reducing depressive symptoms.^[24-26] Studies have shown that at least an 8-week yoga class is sufficient enough to show clinically significant results among adolescents.^[27] Moreover, yoga tends to stabilized one’s pulse rate, and heart beat and reduce anxiety among children and adolescents.^[1]

In the pilot study, the patient had completed the 3-month yoga therapy and reported overall satisfaction and relaxation. There was not only improvement in the depression scale but also in the global functioning of the patient. None of the five participants reported any side effects from yoga therapy.

This module needs to be tested in comparison with existing therapies and/or against a placebo group or diverse group of population to further assess the external validity of the study. Biological correlates of the effects of yoga module in depression should be studied in future. Moreover, future studies should look into the long-term effects of yoga on the patients. The present study did not provide any booster sessions after the completion of intervention. Hence, future studies could inquire into the effect of booster sessions for a continuous effect on daily life. Future studies should also include control group to conclude that yoga intervention caused the improvements.

Limitations

The current study could not comment upon the efficacy of the study due to small sample size. Therefore, we could not comment upon the efficacy of the present study. The duration of yoga therapy was about 2 months and therefore, outstation participants did not give their consent due to commuting/traveling issues. To ensure adherence to home-based practice remained challenging

and its impact with the outcome measures could not be examined in the current study. Moreover, better statistical methods like confidence intervals or effect sizes could not be used due to the small sample size. The potential biases from self-reported measures such as parental anxiety, depression and stress scale had impacted the results. Finally, the lack of a control group had limited the scope of the study to assess yoga-based improvements among patients.

Conclusion

This is one of the target-specific yoga modules that were developed for children and adolescents in the Indian context. This pilot-tested study has demonstrated acceptable levels of the yoga therapy, a higher adherence rate, higher participant satisfaction and alleviated parental distress. This 12-week yoga therapy had fostered self-awareness about one's bodily sensations, feelings, and thoughts along with tolerance building to stressors being faced in daily life.

Ethical statement

The study is part of DST funded study. The study got approval from AIIMS Institute Ethics Committee with approval number: IEC-410/06.05.2022, RP-19/2022.

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Conflicts of interest

There are no conflicts of interest.

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