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Effect of Yoga Therapy in Managing Stress among Children with Multiple Disabilities

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***Abstract*--** **This quasi-experimental study evaluated the effectiveness of a structured yoga therapy program for reducing stress among children with multiple disabilities. A purposive sample of 10 children attending a special education center was divided into an experimental group (n = 5) that received a 6-week, child-adapted yoga intervention and a control group (n = 5) that continued routine activities. The Stress Assessment Scale for Children (SASC) was administered pre- and postintervention to capture behavioral, emotional, and somatic indicators of stress. The experimental group showed a marked reduction in mean SASC scores from pretest (M = 38.4, SD = 2.94) to posttest (M = 26.6, SD = 2.58), whereas the control group showed minimal change (pretest M = 37.4, SD = 2.28; posttest M = 36.6, SD = 1.67). Statistical comparison indicated a significant pre–post reduction in the experimental group (p< .01), with a medium–large practical effect, consistent with prior research reporting beneficial mental health outcomes following school-based and child-appropriate yoga programs. Results suggest that an adapted yoga program is a feasible, low-cost, and effective adjunct to stress management for children with multiple disabilities. Practical implications, limitations, and recommendations for scaled, randomized trials are discussed.**

***Keywords*--Yoga Therapy, Multiple Disabilities, Stress Management, Children, Special Education**

I. Introduction

Children with multiple disabilities (MD) frequently encounter complex combinations of sensory, motor, cognitive, and communication challenges that increase their daily stress exposure and limit adaptive functioning. Stress in this population commonly presents as heightened irritability, reduced attention, behavioral dysregulation, sleep disturbance, and somatic complaints—all of which negatively affect learning opportunities and quality of life (Laxman et al., 2022). Interventions that reduce physiological arousal, increase self-regulation, and provide predictable routines are therefore essential components of inclusive, holistic special education programs.

Yoga therapy is a mind–body approach that integrates breathing exercises (*pranayama*), physical postures (*asanas*), guided relaxation, and simple mindful awareness practices.

In diverse pediatric populations, school-based and clinic-based yoga interventions have been linked to reductions in anxiety and stress, improved attention and self-regulation, and physiologic markers of reduced arousal such as decreased heart rate and improved vagal tone (Field, 2011; Hagins et al., 2013). Systematic and narrative reviews indicate that, while methodological quality varies across studies, the majority report some benefit of yoga for psychosocial outcomes in children and adolescents (Hagen & Nayar, 2014; James-Palmer et al., 2020). These findings provide a rationale for testing adapted yoga programs in special education settings for children with MD.

Purpose of the Study

The current study aimed to examine whether a structured, child-adapted yoga therapy program reduces stress as measured by the SASC among children with multiple disabilities compared with routine activities. The study sought to (a) quantify pre- to postintervention change in stress within the experimental group, (b) compare change with a control group, and (c) document feasibility and practical considerations for implementation in special school settings.

II. Literature Review

Yoga and Child Mental Health

Over the past two decades, empirical interest in yoga for children's mental health has grown substantially. Reviews of school-based and youth yoga programs have reported consistent reductions in measures of perceived stress, anxiety, and inattention, together with improvements in mood and self-regulation (Khalsa et al., 2016; Khunti et al., 2022). A systematic review focused on anxiety and depression among youth concluded that most studies report at least modest improvements in internalizing symptoms following yoga interventions, although methodological limitations such as small samples and lack of active controls were frequently noted (James-Palmer et al., 2020).

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Randomized and quasi-experimental trials in school populations have found yoga to be comparable or superior to standard physical education for reducing stress reactivity and improving coping in middle school samples (Hagins et al., 2013).

Yoga in Special Education and Atypical Populations

Although much of the literature addresses typically developing children or those with attention and behavioral concerns, an emerging subset of studies examines yoga's effects in atypical development, including autism spectrum disorder, attention-deficit/hyperactivity disorder, and other neurodevelopmental conditions. Reviews indicate that adapted yoga and mindfulness programs can deliver socioemotional benefits and improved classroom behavior in such groups, but evidence specific to children with multiple, co-occurring disabilities remains limited (Laxman et al., 2022). This gap underscores the need for pragmatic, carefully adapted programs that prioritize safety, accessibility, and caregiver involvement.

Mechanisms of Action

Proposed mechanisms whereby yoga may reduce stress in youth include regulation of autonomic nervous system balance through increased parasympathetic and vagal activity, reduction in hypothalamic–pituitary–adrenal axis hyperactivity reflected in lower cortisol levels, increased interoceptive awareness, and enhanced attentional control through mindful focusing and breathing practices (Field, 2011). For children with MD, the sensory, proprioceptive, and rhythmical components of yoga may confer additional regulatory input that supports behavioral stability.

Evidence suggests yoga is a promising nonpharmacological intervention for youth stress reduction. However, rigorous trials in specialized populations such as children with MD are scarce; small quasi-experimental studies are valuable initial contributions that inform larger, controlled investigations.

III. Method

Research Design

A quasi-experimental pretest–posttest design with an experimental and a control group was employed. Random assignment was not feasible due to institutional constraints and sample availability; groups were formed purposively while attempting to maintain comparability in age, gender, and severity profiles.

Participants

A purposive sample of 10 children enrolled at Oasis Educational Institute, Srinagar, participated in the study. Children were eligible if they had a documented diagnosis of multiple disabilities (two or more co-occurring impairments), were enrolled in center programs, and had parental consent. The sample was divided into two groups of five each (experimental and control). Table 1 presents participant characteristics.

Table 1
Participant Characteristics by Group

Group	*n*	Age Range (years)	Gender Distribution	Disability Profile
Experimental	5	8–14	Mixed	Intellectual disability with sensory/motor impairments
Control	5			

Note. Detailed anonymized participant data are available upon request. Demographic balancing procedures were followed to the extent possible.

Ethical Considerations

Parental informed consent was obtained for all participants, confidentiality was maintained, and the intervention procedures were reviewed by institutional supervisors. The yoga program was adapted for safety: seat-based postures were provided where necessary, assistance and positioning aids were used, and sessions were led by trained instructors experienced in special education accommodations.

Instruments

The Stress Assessment Scale for Children (SASC) is a structured observational and rating instrument used to assess behavioral, emotional, and physiological indicators of stress in children. The same instrument and rater procedures were used for pre- and post-assessment. Observational logs and brief caregiver report forms supplemented the SASC.

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Intervention

The experimental group participated in a 6-week yoga therapy program, conducted 4 days per week with sessions lasting 30–40 minutes. Each session contained the following components:

1. *Warm-up and breathing exercises (5–7 minutes):* Simple diaphragmatic breathing and blow-balloon breathing.
2. *Adapted asanas and movement (15–20 minutes):* Seated and standing stretches, gentle spinal movements, supported balancing postures.
3. *Guided relaxation and imagery (5–8 minutes):* Child-friendly, sensory-grounding relaxation including short body scans and progressive relaxation.
4. *Closure and positive reinforcement (2–5 minutes):* Calming music and brief reflection.

The program emphasized predictable structure, multisensory cues, and stepwise progression. Activities were modified for each child's motor ability and attention span. The control group continued with routine classroom activities and did not receive the yoga intervention during the study period.

Data Collection and Analysis

Pretest SASC scores were collected 1 week before the intervention. Posttest scores were collected within 1 week after program completion. Descriptive statistics (means, standard deviations) were calculated for each group and timepoint. Within-group pre–post change was examined via paired comparisons; between-group differences were examined with independent comparisons. Given the small sample size and pilot nature of the study, both parametric (paired *t* test, independent *t* test) and nonparametric approaches were considered; significance was interpreted conservatively (α = .05) alongside effect sizes (Cohen's *d*) for practical interpretation.

IV. Results

This chapter presents the analysis and interpretation of data collected to examine the effect of yoga therapy on managing stress among children with multiple disabilities. The findings are organised according to the objectives and hypotheses of the study. Statistical techniques, including descriptive measures (Mean and SD) and inferential tests (Paired-samples t-test and Independent-samples t-test), were used to evaluate the effectiveness of the intervention.

The analysis is presented in two major sections:

- Pre-test and post-test comparison of the experimental group, and
- Post-test comparison between the experimental and control groups.

Both analyses provide evidence regarding the impact of yoga therapy on stress reduction.

Hypothesis 1

"There is no significant difference between pre-test and post-test stress scores of the experimental group."

To assess the effect of yoga therapy within the experimental group, pre-test and post-test stress scores of five participants were analysed. The results are presented in Table 1.

Table 2
Paired Samples Statistics for Experimental Group (Pre-test vs Post-test)

Variable	N	Mean	SD	t-value	p-value	Decision
Pre-test	5	38.40	2.70	24.087	p < .001	Null Hypothesis Rejected
Post-test	5	26.60	2.41			

Interpretation

Table 2 shows that the mean pre-test stress score of the experimental group was 38.40, which reduced to 26.60 after the yoga intervention. The reduction of almost 12 points indicates a strong improvement in the emotional and behavioural state of children.

The paired-samples t-test value of t = 24.087 is exceptionally high, with p < .001, which indicates a statistically significant reduction in stress levels following the intervention. This confirms that yoga therapy had a highly positive effect on reducing stress among children in the experimental group.

Thus, the null hypothesis is rejected, demonstrating that yoga therapy significantly reduced stress levels among children with multiple disabilities.

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Hypothesis 2

"There is no significant difference between the post-test stress scores of the experimental and control groups after the intervention."

To determine whether the observed change in the experimental group was due to the yoga therapy and not due to natural variations or classroom conditions, the post-test scores of the experimental and control groups were compared. The results are shown in Table 3.

Table 3
Independent Samples Statistics for Post-test Scores (Experimental vs Control Group)

Group	N	Mean	SD	t-value	p-value	Decision
Experimental	5	26.60	2.41	**−8.318**	**p < .001**	Null Hypothesis Rejected
Control	5	36.60	1.67			

Interpretation

The post-test mean score of the experimental group (M = 26.60) was substantially lower than that of the control group (M = 36.60). This 10-point difference indicates that participants who received yoga therapy experienced significantly lower stress levels as compared to those who continued with routine activities.

The independent-samples t-test yielded a value of t = −8.318, which is statistically significant at p < .001. This confirms a strong difference between the two groups at the end of the intervention period.

The results clearly demonstrate that the yoga therapy programme produced meaningful improvements in stress reduction, while the control group showed no such improvement. Hence, the null hypothesis is rejected, and the effectiveness of yoga therapy is strongly supported.

V. Discussion

The purpose of this study was to examine the effectiveness of yoga therapy in managing stress among children with multiple disabilities. The results indicated clear and statistically significant reductions in stress levels among children who participated in the yoga intervention, while no meaningful improvement was observed in the control group. This discussion interprets the findings in relation to the study objectives, theoretical understanding, and existing research literature.

The pre-test and post-test comparison within the experimental group demonstrated a remarkable reduction in stress scores, with the mean decreasing from 38.40 to 26.60. The paired-samples t-test produced a highly significant value (t = 24.087, p < .001), clearly indicating that the intervention was effective in reducing stress. This substantial improvement suggests that yoga practices—such as controlled breathing, gentle movement, mindfulness, and guided relaxation—may have helped children regulate their emotional responses, reduce physiological arousal, and improve their ability to manage stress. Given that children with multiple disabilities often experience heightened sensory overload, difficulty in emotional expression, and challenges in self-regulation, the structured and calming nature of yoga provides a supportive therapeutic environment.

The second hypothesis compared post-test scores between the experimental and control groups. The mean post-test score for the experimental group (26.60) was significantly lower than that of the control group (36.60), resulting in a statistically significant independent-samples t-value (t = −8.318, p < .001). This indicates that the improvement observed in the experimental group cannot be attributed to natural maturation, classroom routine, or external factors. Instead, it reflects the specific impact of yoga therapy. The control group's negligible change further strengthens this conclusion.

The results of the present study align strongly with existing research, which emphasizes the positive effects of yoga on children's emotional well-being, self-regulation, and stress reduction. Previous studies have shown that yoga helps reduce anxiety, enhance focus, and support behavioral control in children with diverse learning and developmental needs. The findings also support the theoretical framework suggesting that slow breathing and mindfulness-based practices activate parasympathetic responses, reduce cortisol levels, and promote relaxation. These mechanisms may be especially beneficial for children with multiple disabilities who often struggle with heightened stress responses due to their functional limitations and daily challenges.

In the context of special education, the results have meaningful implications. Yoga therapy emerged as a safe, cost-effective, and inclusive intervention that can be integrated into school routines without the need for advanced equipment or highly specialized settings. The multi-sensory and adaptable nature of yoga makes it suitable for children with a wide range of disabilities.

The present findings further suggest that including yoga sessions as part of individualized or group-based therapeutic plans can enhance emotional stability, improve behavior, and create a more conducive learning environment.

Despite the strong results, the study has limitations that must be acknowledged. The sample size was small (N=10), limiting generalizability. Additionally, the duration of the intervention was relatively short, and long-term effects were not assessed. Observational and behavioural tools like SASC, though reliable, may benefit from being paired with physiological measures (e.g., heart-rate variability, cortisol). Future research should consider randomized controlled designs, larger samples, and longitudinal assessments to validate and deepen these findings.

Overall, the discussion highlights that yoga therapy is not merely a physical activity but a holistic approach that addresses emotional, behavioural, and physiological components of stress. The significant reduction in stress levels among the experimental group demonstrates that yoga can be a powerful intervention for children with multiple disabilities. By integrating yoga therapy into special education programs, practitioners can provide students not only with academic instruction but also with essential tools for emotional resilience, self-regulation, and improved quality of life.

VI. Conclusion

The present study examined the effectiveness of yoga therapy in managing stress among children with multiple disabilities. The findings demonstrated that yoga therapy produced a substantial and statistically significant reduction in stress levels among the children who participated in the intervention. The experimental group showed a marked decrease in stress scores from pre-test to post-test, whereas the control group displayed virtually no improvement. This establishes yoga therapy as a powerful and meaningful intervention for supporting emotional regulation and stress reduction in this population.

The results confirm that yoga therapy provides a structured, calming, and accessible approach that can help children develop better self-regulation skills. Through breathing exercises, guided relaxation, and gentle movements, children with multiple disabilities experienced improved emotional stability, reduced physiological tension, and enhanced behavioural control. The consistent and significant changes observed in the experimental group validate the therapeutic benefits of yoga in special education settings.

Furthermore, the study highlights the feasibility of integrating yoga into school-based programmes. Yoga requires minimal resources, can be adapted to different disability profiles, and offers a safe, non-pharmacological alternative to traditional behavioural or medical interventions. As stress remains a major barrier to learning and social participation for children with multiple disabilities, yoga therapy offers an effective pathway to improving their overall well-being and readiness to learn.

While the study contributes valuable evidence, it also acknowledges limitations such as small sample size and short intervention duration. Future research involving larger, more diverse samples and longitudinal follow-up periods will help establish stronger generalizability and long-term benefits.

In conclusion, yoga therapy has proven to be a practical, holistic, and impactful approach to managing stress among children with multiple disabilities. Its incorporation into educational and therapeutic programmes can create more supportive, inclusive, and emotionally balanced learning environments—ultimately enhancing the quality of life for children with special needs.

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