

Effect Of Yoga on ADHD Characteristics of Intellectually Disabled Children

Mukesh Kumar Rundla ^{1*}, Dr. Bharti Vijay ²

ABSTRACT

Yoga intervention is seen as a practical approach in schools to effectively reduce symptoms in children with ADHD (Steiner et al., 2013). Yoga is a discipline that more than 300 million people worldwide actively participate in the term "Yoga" denotes the concept of "union" and signifies a condition of inner consciousness where one perceives everything as an integral part of oneself. The main objective of this research is to know and examine the effectiveness of yoga intervention on the ADHD characteristics of intellectually disabled children. For the present research pre and post-experimental design with the control group was used where the intervention of yoga schedule was the independent variable, whereas ADHD traits inattention, impulsivity and hyperactivity were dependent variables. Incidental purposive sampling technique was used in the present study a sample of 30 mild and moderate intellectually disabled children was selected, age range between 7- 12 years for all subjects with a mean of 9.21 and SD of 2.69. Attention Deficit Hyperactive Disorder scale which was developed by Jain, N. and Gunthey, R, was used for the present study. Results indicated that a positive impact of the yoga intervention has been revealed on ADHD traits inattention, impulsivity and hyperactivity of intellectually disabled children with ADHD in an experimental group whereas insignificant improvement was observed in the control group.

Keywords: *Yoga Intervention, ADHD, Inattention, Impulsivity, Hyperactivity*

Yoga is a discipline that more than 300 million people worldwide actively participate in. The term "Yoga" denotes the concept of "union" and signifies a condition of inner consciousness where one perceives everything as an integral part of oneself. The Yogic method is sometimes misunderstood as a sort of physical exercise, but it is actually a collection of techniques aimed at self-transformation, with the ultimate goal of achieving a state of unity. A Yoga asana refers to a certain bodily posture that has the potential to elevate one's consciousness or enhance one's understanding of life. Contrary to commonly held beliefs, Yoga postures or asanas encompass more than merely the act of stretching and bending the body. According to Sadhgurus, yogasanas should not be seen as mere exercises. These methods include careful manipulation of your energy in a certain direction. It must be accomplished with a specific degree of consciousness. There are several tiers of doing asanas. You can engage in the practice of asanas just on a physical level, or you can go deeper by

¹ Research Scholar, Department of Education, Apex University Jaipur, Rajasthan

² Assistant Professor, Department of Education, Apex University Jaipur, Rajasthan

*Corresponding Author

Received: December 05, 2023; Revision Received: March 14, 2024; Accepted: March 31, 2024

Effect Of Yoga on ADHD Characteristics of Intellectually Disabled Children

cultivating awareness of your breath, sensations, reverberations, and the nadis, while also including suitable mantras. It is possible to do asanas without any limb movement.

Yoga, a type of physical exercise, has been suggested as a possible therapy for children with ADHD in recent studies (Harrison et al., 2004 Peck et al., 2005 Sheela Joice et al., 2018). Regarding the primary scientific evidence on yoga, it has been demonstrated that yoga can alleviate one of the central symptoms of ADHD, attention deficit, by encouraging controlled breathing and meditation (Li et al., 2019). Several scholars have supported this finding through studies that specifically examine the effects of yoga interventions on children with ADHD. Yoga therapy is seen as a practical approach in schools to effectively reduce symptoms in children with ADHD (Steiner et al., 2013). Contrary to typical physical exercise therapies, engaging in yoga enhances performance on tasks that need focus and concentration by including meditation and controlled breathing. Additionally, consistent meditation practice has been linked to increased visual attention processing and sustained attention abilities (Hodgins and Adair, 2010). Moreover, yoga practice serves as a viable therapeutic method that may significantly mitigate distractions and enhance focus (Sheela Joice et al., 2018). Yoga therapies have the capacity to enhance attention deficiencies in children with ADHD.

ADHD is a neurodevelopmental condition that is defined by a diminished ability to focus, excessive levels of activity, and impulsive behaviour (American Psychiatric Association (APA), 2013). ADHD is well recognized as one of the prevalent childhood diseases. The primary symptoms of ADHD encompass hyperactivity (marked by a notably heightened level of activity), inattention (characterized by distractibility, challenges in sustaining attention, adhering to instructions, finishing tasks, and recalling daily routines), and impulsivity (characterized by involvement in risky behaviors, verbal or physical altercations with educators, parents, or peers). In addition to these symptoms, a kid with ADHD exhibits dysfunction in behavioral, cognitive, emotional, and social areas. ADHD has a significant prevalence globally, and the children afflicted by it have varied over time and also vary in how it is assessed. The Diagnostic and Statistical Manual of Mental Disorders-V (DSMV) reported a prevalence rate of 5% (APA, 2013).

Previous research has demonstrated that school-age children who are receiving medication for ADHD experience enhanced attention and improvements in other key symptoms via participating in yoga sessions once or twice a week. Sahaj yoga meditation, when used as a family treatment approach for children with ADHD, not only enhances ADHD symptoms but also brings about positive changes in parents' emotional well-being, reducing stress and improving their ability to handle their child's behaviour. Consequently, this intervention leads to an improvement in the quality of the child-parent relationship (Haffner et al., 2006; Jensen, P. S, Kenny, D. T., 2004 & Grosswald et al., 2008).

Despite a greater occurrence of ADHD in individuals with intellectual impairment, there is still a lack of proper diagnosis and accurate identification of ADHD in this particular group (Perera B., 2015 & Miller J, Perera B, Shankar R. 2020). Multiple things might be postulated as potential causes for this lack of diagnosis. Diagnostic overshadowing, namely the misdiagnosis of 'difficult behavior', can also occur when underlying unrecognized ADHD is present in individuals with intellectual impairment.⁹ Treating ADHD effectively has favorable outcomes in terms of symptom management, alleviation of the fundamental characteristics of ADHD, as well as improvements in quality of life and daily functioning (Perera et al., 2021 & Chang et al., 2019). Individuals with comorbid intellectual impairment and ADHD have lower rates of antipsychotic drug utilization in comparison to their

Effect Of Yoga on ADHD Characteristics of Intellectually Disabled Children

counterparts who do not get treatment for ADHD. The numbers 9, 10, and 12. Therefore, it is crucial to detect ADHD at the earliest opportunity and handle it in an effective manner.

Statement of Problem:

The present research's main aim was to compare the pre and post-test scores of hyperactivity characteristics of intellectually disabled children. The exact problem of the this research is “Effect of Yoga on ADHD Characteristics of Intellectually Disabled Children”

Objectives:

- To know and examine the effectiveness of yoga intervention on the ADHD characteristics of intellectually disabled children.

Hypotheses:

(H₀₁) There will be no significant mean difference in the ADHD traits of inattention, impulsivity and hyperactivity of the intellectually disabled children before and after yoga intervention in the experimental group

(H₀₂) There will be no significant mean difference in the ADHD traits inattention, impulsivity and hyperactivity of the intellectually disabled children before and after without yoga intervention in the control group

Research Design:

For the present research pre and post-experimental design with the control group was used where the intervention of yoga schedule was the independent variable, whereas ADHD traits inattention, impulsivity and hyperactivity were dependent variables. A control strategy was adopted in the present investigation.

For Experimental Group

BEFORE (Pre-test)	The intervention of Yoga employed	AFTER (Post-test)
✓ Inattention ✓ Impulsivity ✓ Hyperactivity	Duration – 8 weeks	✓ Inattention ✓ Impulsivity ✓ Hyperactivity

For Control Group

BEFORE (Pre-test)	The intervention of Yoga not employed	AFTER (Post-test)
✓ Inattention ✓ Impulsivity ✓ Hyperactivity	Duration – 8 weeks	✓ Inattention ✓ Impulsivity ✓ Hyperactivity

Sample:

The present study analyzed the ADHD characteristics of children with intellectual disability who attend special schools in the Nagour district of Rajasthan state. The target population selected for this study includes all the diagnosed cases of intellectually disabled children with ADHD studying in special schools. Incidental purposive sampling technique was used in the present study a sample of 30 mild and moderate intellectually disabled children was selected, age range between 7- 12 years for all subjects with a mean of 9.21 and SD of 2.69. The

Effect Of Yoga on ADHD Characteristics of Intellectually Disabled Children

sample was further randomly subdivided into two categories of 15 each i.e., (experimental group 15 & control group 15). The 15 intellectually disabled children with ADHD were given the intervention of a yoga schedule in an experimental group by the yoga experts.

Tool:

ADHD scale: Attention Deficit Hyperactive Disorder scale was developed by Jain, N. and Gunthey, R, The scale has 3 dimensions namely, inattention, impulsivity and hyperactivity. Scoring for this scale for all three categories are never (0), sometimes (1) and often (2). The scale has high reliability and validity.

Procedure:

The investigator with prior permission of the principal of the special schools and explained the purpose of the research work. The study took place over 7 weeks. The investigator along with experts of yoga had worked with thirty intellectually disabled children with ADHD characteristics. They were placed randomly into two groups. The first group was an experimental group in which a yoga schedule was practised daily at 8 AM (50 minutes) for 8 weeks according to their abilities, position, posture and movements. Each subject was assessed with the help of ADHD scales before intervention. In the second group, which was the control group, the intervention was not produced. After the completion of the 8-week intervention schedule, participants in both the control as well as the experimental group were assessed through the tools used for the pre-assessment process.

Scoring:

For the present research work, scoring of the obtained data was done with help of respective manuals available for the test. The data were arranged in the respective tables according to the statistical test.

Statistical Analysis:

In the present study, to find out the significant mean difference between pre and post-test scores of ADHD characteristics of intellectually disabled children. Statistical tests like paired sample 't' test, Mean and SD were conducted.

RESULTS & DISCUSSION:

Experimental Group

Table 1

Indicates Mean, SD and SEM between pre and post tests scores of intellectually disabled children for ADHD characteristics.

ADHD Characteristics	Groups	N	Mean	SD	SEM
Inattention	Pre-test	15	34.53	6.99	1.80
	Post-test	15	25.33	7.66	1.98
Impulsivity	Pre-test	15	23.20	7.00	1.80
	Post-test	15	14.93	5.56	1.43
Hyperactivity	Pre-test	15	22.80	3.68	.95
	Post-test	15	15.00	4.00	1.03

Table 2

Indicates results of paired sample t-test between pre and post-tests scores of intellectually disabled children for the characteristics of ADHD.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	SD	SEM	95% Confidence Interval of the Difference				
					Lower	Upper			
Inattention	Pre-post test	9.20	6.46	1.66	5.62	12.77	5.51	14	$p < .01$
Impulsivity	Pre-post test	8.26	6.07	1.56	4.90	11.63	5.26	14	$p < .01$
Hyperactivity	Pre-post test	7.80	3.98	1.02	5.59	10.00	7.57	14	$p < .01$

The paired sample t-test were employed in order to know whether there is a significant difference between the pre and post mean scores in ADHD characteristics like inattention, impulsivity and hyperactivity of intellectually disabled children after the presentation of the yoga schedule.

It can be observed from table 1 & 2 that the mean values of pre-test and post-test are $M = 34.53 (\pm 6.99)$ $SEM = 1.80$ and $M = 25.33 (\pm 7.66)$ respectively for ADHD trait inattention of intellectually disabled children. The paired sample t ratio is reported significant $t(14) = 5.51, p < .01$. This significant mean difference suggested that yoga intervention significantly decreases inattention problems among children with intellectual disability.

The t-ratio between pre-test and post-test for ADHD characteristic impulsivity of intellectually disabled children was reported as significant $t(14) = 5.26, p < .01$. The mean values obtained in pre and post test are 23.20, $SD = 7.00$ and 14.93, $SD = 5.56$ respectively. It means yoga intervention has a significant impact on ADHD trait impulsivity of intellectually disabled children.

Similarly, mean values for ADHD characteristic hyperactivity of ID children between pre-test and post-test are 22.80 ($SD = 3.68$) and 15.00 ($SD = 4.00$) respectively. The paired sample 't' ratio is highlighted as significant $t(14) = 7.57, p < .01$. Based on this significant difference conclusively one can say that the yoga intervention schedule has a significant impact on the hyperactivity of the ID children. Hence, H_0 is strongly rejected.

The results of this study demonstrate the beneficial impact of yoga schedule on attention and hyperactivity/impulsivity in intellectually impaired children with ADHD characteristics. These findings align with previous studies on children with ADHD, as reported by Doulou and Drigas (2022) and Fritz and O'Connor (2022). The practice of yoga has a beneficial impact on mental states and attention by engaging in breathing and posture exercises (Chou and Huang, 2017). Additionally, yoga has been found to effectively reduce symptoms of ADHD in children (Ramos et al., 2022).

Effect Of Yoga on ADHD Characteristics of Intellectually Disabled Children

Control Group

Table 3

Indicates Mean, SD and SEM between pre and post-tests scores of intellectually disabled children for ADHD characteristics.

ADHD Characteristics	Groups	N	Mean	SD	SEM
Inattention	Pre-test	15	34.13	7.19	1.85
	Post-test	15	33.80	6.33	1.63
Impulsivity	Pre-test	15	22.80	6.71	1.73
	Post-test	15	22.53	6.69	1.72
Hyperactivity	Pre-test	15	23.26	4.00	1.03
	Post-test	15	22.86	4.05	1.04

Table 4

Indicates results of paired sample t-test between pre and post tests scores of intellectually disabled children for the characteristics of ADHD.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	SD	SEM	95% Confidence Interval of the Difference				
					Lower	Upper			
Inattention	Pre-post test	.33	1.29	.33	-.38	1.04	1.01	14	$p > .05$
Impulsivity	Pre-post test	.26	1.03	.26	-.30	.83	1.03	14	$p > .05$
Hyperactivity	Pre-post test	.40	.82	.21	-.05	.85	1.87	14	$p > .05$

The results can be observed from Tables 3 & 4 that insignificant paired sample t-tests are to be found in control group for ADHD traits so far inattention, impulsivity and hyperactivity. The t value for ADHD characteristic inattention is $t'(14) = 1.01, p > .05$ and for ADHD trait impulsivity it is highlighted $t'(14) = 1.03, p > .05$. Similarly, t-value for ADHD characteristic hyperactivity is observed as non-significant $t'(14) = 1.87, p > .05$. On the basis of the above insignificant t ratios, one can say that insignificant improvement was seen for the ADHD traits inattention, impulsivity and hyperactivity. Thus, H02 is strongly accepted.

CONCLUSION:

The present research assessed the impact of a yoga training program on ADHD characteristics, such as attention, impulsivity, and hyperactivity, in intellectually handicapped children diagnosed with ADHD. The research indicates that the implementation of yoga is a secure and efficient supplementary therapy for intellectually impaired children with comorbid ADHD, and may be incorporated into their daily routine. ADHD is a well-accepted neurodevelopmental condition frequently observed in individuals with intellectual disability. The manifestation of ADHD in individuals with intellectual impairment varies, with difficult behaviour being a prevalent presentation. It is crucial to distinguish between the symptoms and functional limitations resulting from ADHD and those resulting from intellectual disability. In comparison to other conventional therapies, the yoga intervention offers the benefits of being free from side effects, more cost-effective, promoting better health, and being more easily accessible. Therefore, our study suggests that yoga is a safe and superior choice as a supplemental intervention for cognitively impaired children with ADHD. Future study should investigate the specific ways in which the combination of yoga and music therapy might be used to help cognitively impaired youngsters with ADHD.

REFERENCES:

- Chang Z, Ghirardi L, Quinn PD, Asherson P, D'Onofrio BM, Larsson H.(2019) Risks and benefits of ADHD medication on behavioral and neuropsychiatric outcomes: a qualitative review of pharmacoepidemiology studies using linked prescription databases. *Biol Psychiatry*; 86(5): 335–43.
- Chou, C. C., and Huang, C. J. (2017). Effects of an 8-week yoga program on sustained attention and discrimination function in children with attention deficit hyperactivity disorder. *PeerJ*. 5:e2883.
- Doulou, A., and Drigas, A. (2022). ADHD: causes and alternative types of intervention. *Scient. Electr. Arch.* 15, 49–54.
- Fritz, K., and O'Connor, P. J. (2022). Effects of a 6 week yoga intervention on executive functioning in women screening positive for adult ADHD: a pilot study. *Front. Sports Act. Living* 4:746409. doi: 10.3389/fspor.2022.746409
- Grosswald SJ, Stixrud WR, Travis F, Bateh MA. (2008) Use of the transcendental meditation technique to reduce symptoms of attention deficit hyperactivity disorder (ADHD) by reducing stress and anxiety: An exploratory study. *Curr Issues Educ*;10:1–16.
- Haffner J, Roos J, Goldstein N, Parzer P, Resch F.(2006) The effectiveness of body-oriented methods of therapy in the treatment of attention-deficit hyperactivity disorder (ADHD): Results of a controlled pilot study. *Z Kinder Jugendpsychiatr Psychother*;34:37–4.
- Harrison, L. J., Manocha, R., and Rubia, K. (2004). Sahaja yoga meditation as a family treatment programme for children with attention deficit-hyperactivity disorder. *Clin. Child Psychol. Psychiatry* 9, 479–497.
- Hodgins, H. S., and Adair, K. C. (2010). Attentional processes and meditation. *Conscious. Cogn.* 19, 872–878.
- Jain, N. and Gunthey, R. (2012) Manual of Attention Deficit Hyperactive Disorder scale, published by Prasad Psycho Corporation, New Delhi.
- Jensen PS, Kenny DT.(2004) The effects of yoga on the attention and behaviour of boys with attention-deficit/hyperactivity disorder (ADHD) *J Atten Disord*;7:205–16.
- Li, J., Chen, Y., and Xiao, Q. (2019). Application of mindfulness meditation in the intervention of ADHD children. *Psychol. Sci.* 42, 470–476.
- Miller J, Perera B, Shankar R. (2020) Clinical guidance on pharmacotherapy for the treatment of attention-deficit hyperactivity disorder (ADHD) for people with intellectual disability. *Expert Opin Pharmacother*; 21(15): 1897–913.
- Peck, H. L., Kehle, T. J., Bray, M. A., and Theodore, L. A. (2005). Yoga as an intervention for children with attention problems. *School Psychol. Rev.* 34, 415–24.
- Perera B, Chen J, Korb L, Borakati A, Courtenay K, Henley W, et al.(2021) Patterns of comorbidity and psychopharmacology in adults with intellectual disability and attention deficit hyperactivity disorder: an UK national cross-sectional audit. *Expert Opin Pharmacother*; 22(8): 1071–8.
- Perera B.(2015) Diagnosis of attention deficit hyperactivity disorder in adults with intellectual disability: how are we doing with diagnosis and treatment? *Europ Psychiatry*; 30: 862.
- Ramos, M. C., Macphee, F. L., Merrill, B. M., Altszuler, A. R., Raiker, J. S., Gnagy, E. M., et al. (2022). Mindfulness as an adjunct to behavior modification for elementary-aged children with ADHD. *Res. Child Adolesc. Psychopathol.* 50, 1573–1588.
- Sheela Joice, P. P., Manik, K. A., and Sudhir, P. K. (2018). Role of yoga in attention, concentration, and memory of medical students. *Nat. J. Physiol. Pharmac. Pharmacol.* 8, 1526–1528.

Effect Of Yoga on ADHD Characteristics of Intellectually Disabled Children

Steiner, N. J., Sidhu, T. K., Pop, P. G., Frenette, E. C., and Perrin, E. C. (2013). Yoga in an urban school for children with emotional and behavioural disorders: a feasibility study. *J. Child Fam. Stud.* 22, 815–826.

Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: M. Rundla & B. Vijay (2024). Effect Of Yoga on ADHD Characteristics of Intellectually Disabled Children. *International Journal of Indian Psychology*, 12(1), 2708-2715. DIP:18.01.250.20241201, DOI:10.25215/1201.250