



International Journal of Autism

E-ISSN: 2710-3927

P-ISSN: 2710-3919

IJRSE 2024; 4(1): 20-23

© 2024 IJA

www.rehabilitationjournals.com

Received: 13-11-2023

Accepted: 16-12-2023

Dr. Pooja Kaushik

Associate Professor,
Department of Occupational
Therapy, MGM Allied Health
& Sciences Institute, Indore,
Madhya Pradesh, India

Dr. Savita Chouhan

Assistant Professor,
Department of Occupational
Therapy, MGM Allied Health
& Sciences Institute, Indore,
Madhya Pradesh, India

Nishi Jain

Research Scholar, Department
of Occupational Therapy,
MGM Allied Health & Sciences
Institute, Indore, Madhya
Pradesh, India

Correspondence

Dr. Pooja Kaushik

Associate Professor,
Department of Occupational
Therapy, MGM Allied Health
& Sciences Institute, Indore,
Madhya Pradesh, India

Investigating the impact of sensory integration therapy on autism spectrum disorder: A case study

Dr. Pooja Kaushik, Dr. Savita Chouhan and Nishi Jain

Abstract

The aim of this study is to assess the influence of sensory integration therapy on daily task and sensory behaviour of a child with Autism Spectrum Disorder. Autism spectrum disorder (ASD) is the most common variety of developmental disorder which is characterized of impaired verbal and nonverbal communication, and appearance of repetitive stereotypical activities, behavior, and interest leads to limitations from mild-to-severe for independent living in a social situation.

Methodology: A 3 year old child with mild autism was taken in the study, the pre-test score was taken using WEE-FIM scale and Indian Scale for Assessment of Autism (ISAA), after that he underwent 8 weeks of intervention at Occupational Therapy Department of Maharaja Yashwant Rao Hospital, Indore. The potential impact of program was re assessed on post-test. Summary of results: Significant positive changes were seen in score of WEE FIM scale and Indian Scale for Assessment of Autism (ISAA).

Conclusion: This study shows that Sensory integration therapy is an effective intervention to improve daily task activity and sensory behaviour in children with Autism Spectrum Disorder.

Keywords: Autism, occupational, sensory, child, ASD, ISAA, WEE FIM scale

Introduction

Autistic disorder is classified as one of the pervasive developmental disorders, also called as autistic spectrum disorders, a cluster of syndromes that share marked abnormalities in the development of social and communicative skills [1]. Self-care is a major part of independent living, which is the care taken by individuals toward their health and well-being and includes the care extended to their children, family, friends, and others in the neighbourhood and local communities which seems concrete and self-explanatory. (UK Department of health steering group. joining up self-care in NHS 2003) [2-5]. ASD children may also have a problem in integrating appropriate sensory input which can disturb the independent functioning but through the use of sensory integration therapy (SIT) it is possible to make the child organized for the upcoming challenges [6-8]. Hence, this study is done to test the eligibility of sensory integration therapy to increase somatosensory system such as proprioception, vestibular and tactile that ultimately facilitate self-care activities.

Autism Spectrum Disorder (ASD) is a multifaceted neurodevelopmental condition characterized by challenges in social interaction, communication, and repetitive behaviours. Its prevalence, affecting 1 in 44 children in the United States according to the CDC, underscores the necessity for effective interventions. Sensory Integration Therapy (SIT) has emerged as a promising approach to managing sensory processing difficulties associated with ASD. SIT aims to improve sensory processing abilities through structured sensory experiences, leveraging the brain's neuroplasticity to promote adaptive responses to sensory stimuli. While the exact mechanisms underlying sensory processing difficulties in ASD remain elusive, theories suggest abnormalities in neural connectivity and neurotransmitter systems may play a role. Numerous studies have investigated the impact of SIT on individuals with ASD, with findings ranging from modest effects to significant improvements in sensory processing and behavioural outcomes. Despite mixed findings, SIT continues to be widely utilized in clinical practice, highlighting its relevance in addressing sensory challenges in ASD. Moving forward, future research should focus on addressing methodological limitations and exploring the underlying mechanisms of sensory processing difficulties to optimize intervention strategies and enhance outcomes for individuals with ASD. Through continued investigation and refinement of intervention approaches. We can better support individuals with ASD in achieving their full potential.

Need of the Study

The need for studying the impact of Sensory Integration Therapy (SIT) on Autism Spectrum Disorder (ASD) is paramount due to the prevalence of ASD and the challenges individuals with this condition face, particularly in sensory processing. Given the heterogeneous nature of ASD and the varying responses to interventions, understanding the effectiveness of SIT can guide clinicians and therapists in providing evidence-based interventions tailored to individual needs. Additionally, with SIT being a widely utilized approach in clinical practice, there is a critical need to examine its efficacy, address existing gaps in research, and inform best practices for intervention. By investigating the impact of SIT on sensory processing difficulties in ASD, this study aims to contribute to the body of knowledge surrounding effective interventions for individuals with ASD and ultimately improve their quality of life.

The Green Electronics Council offers EPEAT (Electronic Product Environmental Assessment Tool) to assist in the purchase of "greener" computing systems. The Council evaluates computing equipment on 51 criteria that measure a product's efficiency and sustainability attributes. Products are rated Gold, Silver, or Bronze. On 2007-01-24, President George W. Bush issued Executive Order to all United States Federal agencies to use EPEAT when purchasing computer systems.

Methods

A 3 year old child with mild autism was taken in the study, the pre-test score was taken using Indian Scale for Assessment of Autism (ISAA) and WEE-FIM scale, after

that he underwent 8 weeks of intervention at Occupational Therapy Department of Maharaja Yashwantrao Hospital, Indore. The potential impact of program was re assessed on post-test.

Procedure

The participant was screened by ISAA and formal consent was obtained from the parents after explaining the treatment protocol. Pre-test data for self-care were measured using Wee-FIM. The child received the intervention protocol for 1 h per day and 5 days per week for 8 weeks.

In this study, sensory integration therapy included 7 activities that worked on sensory system such as body compression, crunches, quadruped, squatting, prone on hand, rolling and brushing on sole. The activities were also introduced to parents and a schedule was prepared for home as well. Post score data was taken after completion of 8 weeks.

Results

After completion of the post-treatment evaluation, data was collected and analyzed. The raw score of pre-intervention and post-intervention of ISAA scale and wee firm scale was compared. After the data were analyzed, the results were shown in the following tables. Table 1 shows comparison between pre-test and post-test of sub components of ISAA in where higher score denotes severity of the patient. Table 2 shows comparison between pre-test and post-test of sub components of WEE FIM Scale where higher score denotes increase in independence while performing the task.

Table 1: Comparison between pre-test and post-test of sub components of ISAA

Component	Social Relationship	Emotional responsiveness	Speech, Language & communication	Behavioral pattern	Sensory aspect	Cognitive component
Pretest score	22	11	19	19	17	12
Post test score	10	9	14	9	10	8

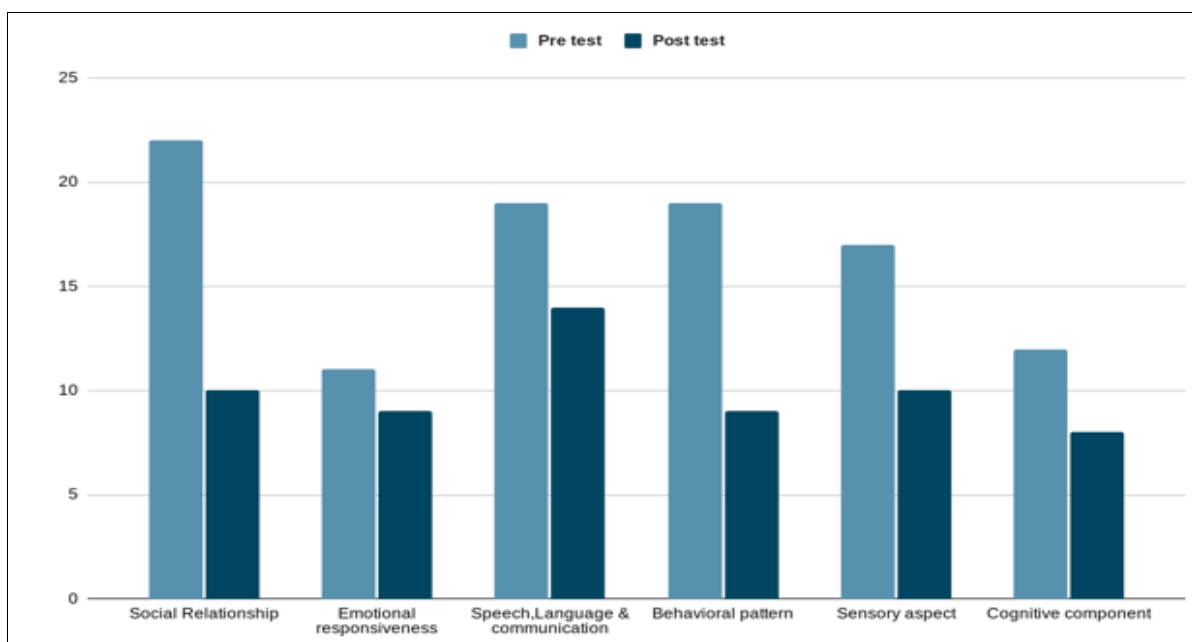
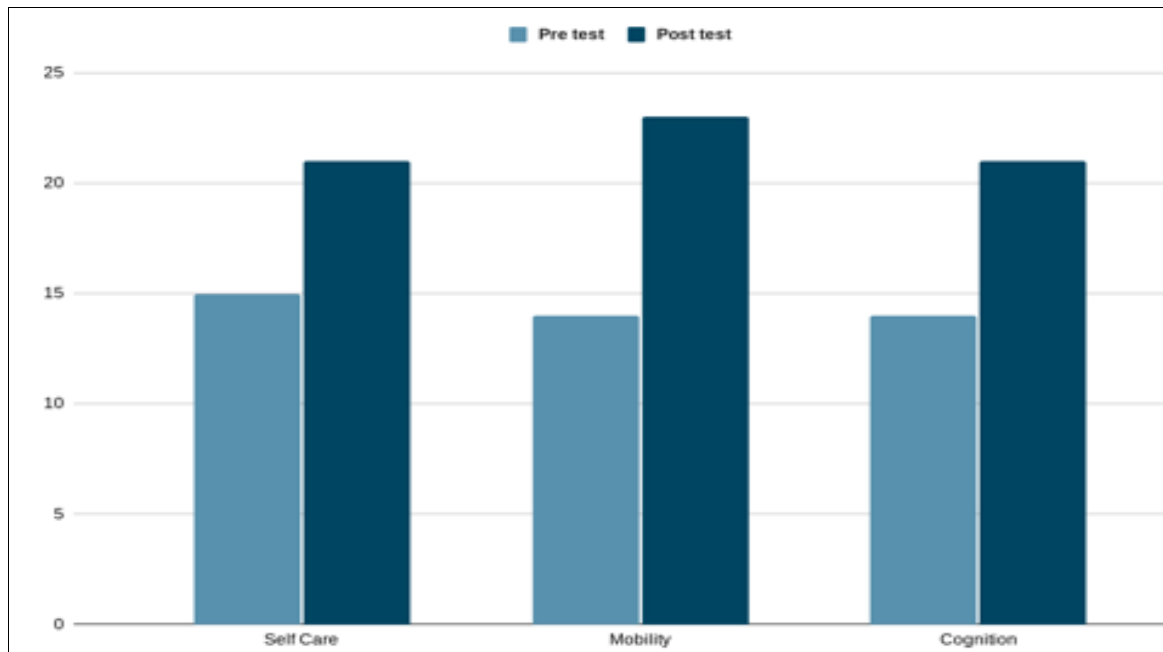


Table 2: Comparison between pre-test and post-test of sub components of WEE FIM Scale

Component	Self-care	Mobility	Cognition
Pretest score	15	14	14
Post test score	21	23	21



Discussion

The present study is aimed at knowing the effectiveness of the SIT increasing self-care in children with autism.

The results show that there is an overall improvement in Self-care and behavioural aspects after 8 weeks of intervention as shown in the graph of ISAA and Wee-FIM. Most significant changes were seen in behaviour pattern according to ISAA Scale and in Cognition according to Weefim scale.

Sailendri Dash and Anurupa Senapati (2018) ^[9] emphasized the effect of visual schedule along with SIT in developing self-care in children with autism. The experimental group had better improvement than the control group in self-care development in autistic children. The difference in the result may be due to the application of visual schedule in the experimental group.

YesimFazlioglu and GulenBaran (2008) ^[10] emphasised the effect of a sensory integration therapy program on sensory problems of children with autism. This program has 68 activities to achieve 13 target behaviors. In this study, after a sensory integration program the sensory problems of children with autism improved as has previously been noted with various sensory training for children with sensory problems.

Case-Smith and Brayn (1999) ^[11] studied five boys over a 3-wk. baseline phase and a 10-wk. intervention which consisted of a combination of classical sensory integration treatment and consultation with teachers. For only one boy were significant improvements evident in interaction with adults, and none changed in amount of peer interaction.

Dawson and Watling ^[12] reviewed evidence regarding the prevalence of sensory and motor abnormalities from sensory integration therapy, traditional occupational therapy, and auditory integration training. Researchers noted that sensory integration therapy positively affected development of motor skills. For this reason, play skills should be supported by a sensory integration approach.

Stagnitti, Raison, and Ryan ^[13] described a 5-yr.-old boy with severe sensory defensiveness who underwent a treatment program consisting of brushing followed by joining sessions of three to five times daily for two weeks. The program included integration of appropriate sensory

activities interspersed throughout the child's daily activities and routines and was carried out by the parents at home under the supervision of a therapist trained in these methods.

Sensory dysfunction in children interrupts their behaviour pattern due to lack of stability, motor praxis and attention as they are facilitated by the somatosensory system (Vestibular, Proprioception and Tactile) and other senses.

Common problems include over or under responsiveness towards touch, movement, sounds, odors, and tastes, any of which may create discomfort, avoidance, distractibility, and anxiety. Sensory integration therapy stimulates the brain and improves sensory modulation so that sensory and motor skills can function fully.

Conclusion

This study provides preliminary support for using SI interventions in children with ASD. Significant changes in behaviour and self-care is seen. Results identified significant progress toward individualized goals and a decrease in tantrums and dependence after SI interventions, although this study has small sample size and suggests implementation of SIT on larger sample size.

References

1. Lang R, O'Reilly M, Healy O, Rispoli M, Lydon H, Streusand W, *et al.* Sensory integration therapy for autism spectrum disorders: A systematic review. *Res Autism Spectr Disord.* 2012;6(3):1004-1018.
2. Pfeiffer BA, Koenig K, Kinnealey M, Sheppard M, Henderson L. Effectiveness of sensory integration interventions in children with autism spectrum disorders: A pilot study. *Am J Occup Ther.* 2011;65(1):76-85.
3. Maenner MJ, Smith LE, Hong J, Makuch R, Greenberg JS, Mailick MR, *et al.* Evaluation of an activities of daily living scale for adolescents and adults with developmental disabilities. *Disabil Health J.* 2013;6:8-17.
4. Bryan LC, Gast DL. Teaching on-task and on-schedule behaviors to high-functioning children with autism via picture activity schedules. *J Autism Dev Disord.*

- 2000;30:553-567.
5. Kern P, Wakeford L, Aldridge D. Improving the performance of a young child with autism during self-care tasks using embedded song intervention: A case study. *Music Ther Perspect*. 2007;25:43-51.
 6. Bundy AC, Lane SJ, Murry EA. *Sensory Integration Theory and Practice*. 2nd Ed. Philadelphia: FA Davis; c2002. p. 4-5.
 7. Kuhaneck HM. *Autism: A comprehensive Occupational Therapy Approach*. 2nd Ed. Bethesda: AOTA Press; 2004. p. 5-10.
 8. Schaaf RC, Miller LJ. Occupational therapy using a sensory integrative approach for children with developmental disabilities. *Ment Retard Dev Disabil Res Rev*. 2005;11:143-148.
 9. Dash S, Senapati A. Effectiveness of visual schedule in combination with sensory-integration therapy for developing self-care in children with Autism; c2018.
 10. Fazlioglu Y, Baran G. A sensory integration therapy program on sensory problems for children with autism. *Percept Mot Skills*. 2008;106:415-422.
 11. Smith CJ, Brayn. Effects of occupational therapy with sensory integration emphasis on preschool aged children with autism. *Am J Occup Ther*. 1999;53:489-497.
 12. Dawson G, Watling R. Intervention to facilitate auditory, visual, and motor integration in autism: A review of the evidence. *J Autism Dev Disord*. 2000;30:415-425.
 13. Stagnitti K, Raison P, Ryan I. Sensory defensiveness syndrome: A pediatric perspective and case study. *Aust Occup Ther J*. 1999;46:175-187.
 14. Watling R, Hauer S. Effectiveness of ayres sensory integration® and sensory-based interventions for people with autism spectrum disorder: A systematic review. *Am J Occup Ther*. 2015;69(5):6905180030p1-6905180030p12.
 15. Xu W, Yao J, Liu W. Intervention effect of sensory integration training on the behaviors and quality of life of children with autism. *Psychiatr Danub*. 2019;31(3):340-346.
 16. Randell E, Wright M, Milosevic S, Gillespie D, Howell BL, Morris BM, *et al*. Sensory integration therapy for children with autism and sensory processing difficulties: The SENITA RCT. *Health Technol Assess*. 2022;26(29).
 17. Suarez MA. Sensory processing in children with autism spectrum disorders and impact on functioning. *Pediatr Clin*. 2012;59(1):203-214.