

Effectiveness of a Multidisciplinary Therapy Program on Emotional Regulation and Adaptive Behavior in Children with Autism Spectrum Disorder

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Abstract

Background: Children with Autism Spectrum Disorder Level 2 commonly experience significant difficulties in emotional regulation and adaptive behavior, which interfere with learning readiness, daily functioning, and social participation. Single-modality interventions often fail to address the complex and interrelated nature of these challenges.

Objective: This study aimed to evaluate the effectiveness of a multidisciplinary therapy program in improving emotional regulation and adaptive behavior in children with Autism Spectrum Disorder Level 2.

Methods: A descriptive quantitative study with a pre–post intervention design was conducted involving ten children diagnosed with Autism Spectrum Disorder Level 2 who participated in a multidisciplinary therapy program at a child development center. The intervention integrated behavior therapy, sensory motor stimulation, fine motor and cognitive therapy, and oromotor and speech communication therapy. Emotional regulation and adaptive behavior were assessed before and after the intervention using clinical developmental assessments and behavioral observations. Data were analyzed descriptively by comparing pre- and post-intervention outcomes.

Results: Pre-intervention assessments indicated low levels of emotional regulation and adaptive behavior across all participants. Post-intervention results demonstrated consistent improvements, with most participants showing progress from low to moderate levels of functioning. Reductions in tantrum frequency, improved emotional stability, increased compliance, and enhanced adaptive functioning were observed following the multidisciplinary therapy program.

Conclusion: The findings suggest that a multidisciplinary therapy program is effective in improving emotional regulation and adaptive behavior in children with Autism Spectrum Disorder Level 2. Integrated intervention addressing multiple developmental domains may provide meaningful clinical benefits and support functional outcomes in real-world therapy settings.

Keywords: Autism Spectrum Disorder; Multidisciplinary Therapy; Emotional Regulation; Adaptive Behavior; Child Development

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1. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by persistent difficulties in social communication, restricted patterns of behavior, and impairments in emotional regulation and adaptive functioning [1,2]. Children diagnosed with ASD Level 2 require substantial support due to the significant impact of these difficulties on daily functioning across home, school, and social environments [2].

Emotional regulation difficulties are commonly observed in children with ASD and often manifest as tantrums, impulsivity, low frustration tolerance, and difficulty adapting to changes in routine or task demands [3,4]. These challenges interfere with learning readiness and contribute to maladaptive behavior patterns that limit participation in structured activities [5].

In addition to emotional dysregulation, deficits in adaptive behavior are a core feature of ASD. Adaptive behavior encompasses daily living skills, compliance, functional communication, and social participation required for independent functioning [6]. Children with

ASD Level 2 frequently demonstrate delays in self-care, difficulty following instructions, and limited functional independence, which negatively affect long-term developmental outcomes [7,10].

Intervention approaches for ASD often target isolated developmental domains, such as behavior, speech and language, or sensory processing. While such single-modality interventions may lead to improvements in specific skill areas, they often fail to address the interconnected nature of emotional regulation, sensory integration, communication, and adaptive functioning [8,9]. Consequently, gains achieved in therapy may not generalize across settings or be sustained over time [11].

Recent research increasingly supports the use of multidisciplinary therapy models that integrate multiple intervention approaches within a coordinated framework [6,8,12]. Multidisciplinary intervention acknowledges that emotional regulation and adaptive behavior are influenced by overlapping developmental systems, including sensory processing, executive functioning, language development, and environmental structure [13,18].

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Behavior therapy based on Applied Behavior Analysis principles has been shown to improve compliance, reduce maladaptive behaviors, and support functional learning [9,16]. Sensory motor intervention contributes to improved regulation of arousal and attention, which are essential for emotional stability and task engagement [7,18]. Fine motor and cognitive therapy support task persistence, visual attention, and readiness for academic activities, while oromotor and speech communication therapy facilitate functional communication and reduce frustration-related behaviors [10,17].

Despite growing recognition of integrated intervention models, empirical studies examining the combined effects of multidisciplinary therapy programs on emotional regulation and adaptive behavior remain limited, particularly in real-world clinical settings [6,14,19]. Many existing studies focus on controlled experimental designs that may not fully reflect routine clinical practice. Therefore, applied clinical research is needed to evaluate the effectiveness of multidisciplinary therapy programs using assessment data obtained from service-based intervention settings. This study aimed to evaluate the effectiveness of a multidisciplinary therapy program in improving emotional regulation and adaptive behavior in children with Autism Spectrum Disorder Level 2.

2. Methods

2.1 Research Design

This study employed a descriptive quantitative research design using a pre-post intervention approach. The design aimed to examine changes in emotional regulation and adaptive behavior in children with Autism Spectrum Disorder following participation in a multidisciplinary therapy program. Pre-intervention assessments were compared with post-intervention outcomes to evaluate program effectiveness in a clinical service setting.

2.2 Participants

Participants consisted of ten children diagnosed with Autism Spectrum Disorder Level 2. All participants were enrolled in a multidisciplinary therapy program at Yamet Child Development Center.

The inclusion criteria were as follows:

Clinical diagnosis of Autism Spectrum Disorder Level 2.

Age range within early to middle childhood.

Active participation in a structured multidisciplinary therapy program.

Availability of complete pre- and post-intervention assessment data.

Children with severe medical conditions or neurological disorders unrelated to ASD were excluded from the study.

2.3 Diagnostic Criteria

The diagnosis of Autism Spectrum Disorder Level 2 was established based on clinical evaluation using the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR). Diagnostic decisions were supported by comprehensive developmental assessments, behavioral observations, caregiver interviews, and functional behavior assessments conducted by qualified clinicians.

2.4 Multidisciplinary Therapy Program

Participants received a structured multidisciplinary therapy program designed to address emotional regulation, adaptive behavior, sensory processing, communication, and cognitive functioning. The program consisted of the following components:

- Behavior Therapy (ABA-based)

Focused on improving compliance, reducing maladaptive behaviors, increasing task engagement, and promoting functional learning behaviors.

- Sensory Motor Stimulation

Aimed to enhance sensory regulation, attention, and emotional stability through vestibular, proprioceptive, and tactile activities.

- Fine Motor and Cognitive Therapy

Targeted visual attention, motor planning, task completion, and readiness for structured learning activities.

- Oromotor and Speech Communication Therapy

Focused on improving oral motor control, functional communication, and expressive language initiation.

Therapy sessions were conducted multiple times per week according to each child's individualized intervention plan. The duration of the intervention period ranged from several weeks to multiple months, depending on program enrollment and therapy intensity.

2.5 Instruments and Measures

Data were collected using clinical assessment tools routinely employed at Yamet Child Development Center. The assessment framework included:

- Developmental assessments evaluating cognitive, motor, language, and social domains.

- Emotional regulation observation checklists assessing tantrum frequency, emotional control, and response to task demands.

- Adaptive behavior assessments focusing on daily living skills, compliance, functional communication, and independence.

- Functional behavior assessments identifying maladaptive behaviors and their antecedents.

Assessments were conducted prior to the initiation of the multidisciplinary therapy program and repeated following the completion of the intervention period.

2.6 Procedure

Baseline assessments were conducted at the beginning of the therapy program to document each participant's initial level of emotional regulation and adaptive

behavior. Participants then received the multidisciplinary therapy intervention according to their individualized schedules. Post-intervention assessments were conducted using the same assessment framework to ensure consistency and comparability of results.

2.7 Data Analysis

Data analysis was conducted using descriptive statistical methods. Pre- and post-intervention assessment results were compared to identify changes in emotional regulation and adaptive behavior. Outcomes were summarized using frequencies, percentages, and observed clinical improvements across domains. This approach was selected to provide a clear and practical representation of intervention outcomes in a real-world clinical context.

3. Results

3.1 Emotional Regulation Outcomes

Pre-intervention assessment indicated that all participants demonstrated low levels of emotional regulation. Common clinical features included frequent tantrums, limited tolerance to task demands, impulsive emotional responses, and difficulty remaining calm during transitions and structured activities.

Following participation in the multidisciplinary therapy program, post-intervention assessments showed overall improvement in emotional regulation across participants. Most children demonstrated reduced tantrum frequency, improved emotional control during structured tasks, and increased tolerance to therapist instructions. Emotional regulation levels generally increased from low to moderate after the intervention period.

These findings indicate that the multidisciplinary therapy program contributed to meaningful improvements in emotional regulation in children with Autism Spectrum Disorder Level 2.

Table 1. Emotional Regulation Outcomes (Pre–Post Intervention)

Participant	Tantrum Frequency (Pre)	Tantrum Frequency (Post)	Emotional Regulation Level (Pre)	Emotional Regulation Level (Post)
P1	High	Moderate	Low	Moderate
P2	High	Moderate	Low	Moderate
P3	Moderate–High	Moderate	Low	Moderate
P4	High	Moderate	Low	Moderate
P5	Moderate–High	Moderate	Low	Moderate
P6	High	Moderate	Low	Moderate
P7	High	Moderate	Low	Moderate
P8	Moderate–High	Moderate	Low	Moderate
P9	High	Moderate	Low	Moderate
P10	Moderate–High	Moderate	Low	Moderate

3.2 Adaptive Behavior Outcomes

At baseline, all participants showed low adaptive behavior functioning. Difficulties were observed in compliance with instructions, daily living skills, functional communication, and independent task completion. Most children required extensive verbal prompting and physical assistance.

Post-intervention assessments revealed improvements in adaptive behavior across participants. Children demonstrated increased compliance with instructions, improved engagement in structured tasks, and greater independence in basic daily living activities. Adaptive behavior levels increased from low to moderate following the multidisciplinary therapy program.

These results suggest that integrated intervention targeting behavioral, sensory, cognitive, and communication domains effectively supports adaptive functioning in children with Autism Spectrum Disorder Level 2.

Table 2. Adaptive Behavior Outcomes (Pre–Post Intervention)

Participant	Compliance Level (Pre)	Compliance Level (Post)	Adaptive Behavior Level (Pre)	Adaptive Behavior Level (Post)
P1	Low	Moderate	Low	Moderate
P2	Low	Moderate	Low	Moderate
P3	Low	Moderate	Low	Moderate
P4	Low	Moderate	Low	Moderate
P5	Low	Moderate	Low	Moderate
P6	Low	Moderate	Low	Moderate
P7	Low	Moderate	Low	Moderate
P8	Low	Moderate	Low	Moderate

P9	Low	Moderate	Low	Moderate
P10	Low	Moderate	Low	Moderate

3.3 Overall Effectiveness of the Multidisciplinary Therapy Program

Comparison of pre- and post-intervention results demonstrated consistent improvement across emotional regulation and adaptive behavior domains. All participants showed positive changes, with improvements most frequently observed in emotional stability, compliance, and functional engagement during structured activities.

The transition from low to moderate functioning across domains indicates that the multidisciplinary therapy program provided clinically meaningful benefits for children with Autism Spectrum Disorder Level 2 in a real-world clinical setting.

3.4 Summary of Key Findings

Key outcomes observed following the intervention included:

- Reduction in tantrum frequency and emotional outbursts.
- Improved emotional regulation during structured tasks.
- Increased compliance with instructions.
- Enhanced adaptive behavior and functional independence.

4. Discussion

4.1 Interpretation of Findings

The findings of this study indicate that the multidisciplinary therapy program was effective in improving emotional regulation and adaptive behavior in children with Autism Spectrum Disorder Level 2. Participants demonstrated consistent improvements from low to moderate levels of functioning, which aligns with previous research highlighting the benefits of integrated intervention approaches for ASD [6,10,12].

Improvements in emotional regulation, including reduced tantrum frequency and increased tolerance to task demands, are consistent with studies emphasizing the role of behavioral and sensory-based interventions in supporting emotional stability in children with ASD [3,7,18].

4.2 Multidisciplinary Therapy and Emotional Regulation

Emotional regulation difficulties in ASD are strongly associated with sensory processing challenges, limited communication abilities, and reduced behavioral flexibility [3,4]. The multidisciplinary therapy program addressed these interconnected factors by combining behavioral, sensory, cognitive, and communication-focused interventions.

Behavior therapy contributed to improved compliance and reduced maladaptive behaviors through structured routines and consistent reinforcement strategies, as

supported by prior findings [9,16]. Sensory motor stimulation supported regulation of arousal and attention, which is essential for emotional control and engagement in structured tasks [7,18]. These findings reinforce evidence that integrated sensory and behavioral approaches are effective in managing emotional dysregulation in ASD [13,17].

4.3 Adaptive Behavior Improvements Through Integrated Intervention

Adaptive behavior improvements observed in this study are consistent with previous research demonstrating that multidisciplinary intervention positively influences functional independence and daily living skills in children with ASD [10,15]. Increased compliance and task engagement suggest that children were better able to understand expectations and respond appropriately to environmental demands.

Functional communication improvements likely contributed to reduced frustration-driven behaviors, supporting the relationship between communication development and adaptive functioning reported in prior studies [6,8,14].

4.4 Clinical Implications

The results of this study support the implementation of multidisciplinary therapy programs in child development centers as a practical and effective approach for addressing the complex needs of children with Autism Spectrum Disorder Level 2. Integrated intervention models have been shown to promote generalization of skills across settings and enhance functional outcomes in routine clinical practice [6,19,21].

4.5 Limitations and Future Directions

Consistent with prior applied clinical studies, this research employed a descriptive pre-post design without a control group, which limits causal inference [11,19]. Future research should incorporate controlled designs, larger sample sizes, and longitudinal follow-up to strengthen the evidence base for multidisciplinary therapy interventions in ASD [12,22].

5. Conclusion

This study demonstrated that a multidisciplinary therapy program was effective in improving emotional regulation and adaptive behavior in children with Autism Spectrum Disorder Level 2. Following the intervention, participants showed consistent progress from low to moderate levels of functioning across both domains.

Improvements were observed in emotional stability, tolerance to task demands, compliance with instructions, and functional adaptive skills. These findings indicate that addressing behavioral, sensory,

cognitive, and communication domains through an integrated therapy approach supports meaningful clinical outcomes in children requiring substantial support.

The results highlight the practical value of multidisciplinary therapy programs in real-world clinical settings and support their implementation in child development centers as an evidence-informed intervention model for children with Autism Spectrum Disorder Level 2.

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