

# Beyond Behaviour Therapy: A Review of Multimodal Interventions Supporting Social, Emotional and Adaptive Functioning in Autism Spectrum Disorder

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## Abstract

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by persistent deficits in social communication, repetitive behaviours, restricted interests, and challenges in adaptive functioning. While behavioural interventions like Applied Behaviour Analysis (ABA) have traditionally formed the foundation of autism treatment, emerging evidence demonstrated the importance of integrating cognitive, emotional, and social approaches for addressing the complex and heterogeneous necessities of individuals with ASD. The present conceptual review synthesizes empirical and theoretical literature examining behavioural, cognitive-behavioural, mindfulness-based, sensory, expressive, and parent-mediated interventions. Seventy-five peer-reviewed studies were analyzed to evaluate intervention outcomes across cognitive, emotional, social, and adaptive domains. Findings indicate that behavioural interventions demonstrate strong evidence for improvements in adaptive functioning and cognitive skills, whereas Cognitive Behavioural Therapy (CBT) demonstrates robust efficacy in alleviating depression, anxiety, as well as emotional dysregulation. Multimodal approaches—including music therapy, equine-assisted therapy, dance movement therapy, social competence training, and parent-child interaction therapy—appear to produce broader and more generalized improvements in social reciprocity, emotional expression, and interpersonal functioning. The review emphasizes that no single intervention sufficiently addresses all developmental domains. Instead, integrated and individualized multimodal frameworks provide more comprehensive and sustainable outcomes. Clinical implications underscore the need for personalized treatment planning and increased research within culturally diverse contexts, particularly in developing countries.

**Keywords:** Autism Spectrum Disorder, Multimodal Intervention, Cognitive Behavioural Therapy, Applied Behaviour Analysis, Emotional Regulation, Social Functioning, Adaptive Behaviour.

## INTRODUCTION

Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental ailment affecting social communication, behavioural flexibility, and adaptive functioning. Global prevalence estimates suggest a

steady increase in diagnosis, with significant implications for families, educational systems, and healthcare services. In India and other developing nations, access to structured, evidence-based interventions remains uneven, particularly for families from rural and low socioeconomic backgrounds. Historically, intervention models for ASD have been predominantly behaviour-focused, emphasizing skill acquisition through reinforcement-based techniques. While such approaches have demonstrated substantial gains in communication and adaptive skills, they may not fully address emotional regulation difficulties, internalizing symptoms, and broader social functioning challenges. Increasingly, researchers and clinicians recognize ASD as a multidimensional condition requiring integrated therapeutic strategies. Children and adolescents with ASD frequently experience anxiety, emotional dysregulation, sensory sensitivities, and social isolation. These concerns extend beyond observable behaviours and require cognitive and affective interventions. Consequently, multimodal treatment models that integrate behavioural, cognitive, emotional, sensory, and relational components have gained attention. The objective of the present conceptual review is to determine the effectiveness of multimodal interventions in promoting social, cognitive, emotional, and adaptive functioning in individuals having ASD, while highlighting the interaction between intervention type and outcome domain.

### **Review of Literature**

Recent decades have produced substantial research on intervention strategies for ASD, spanning behavioural, cognitive-behavioural, developmental, expressive, and mindfulness-based approaches.

### **Behavioural Interventions**

“Applied Behaviour Analysis (ABA)”, “Early Intensive Behavioural Intervention (EIBI)”, as well as “Intensive Behavioural Intervention (IBI)”, remain among the most empirically supported treatments. Systematic reviews indicate developments in IQ, communication skills, daily living abilities, along with adaptive functioning. Higher intensity and earlier initiation are consistently associated with stronger outcomes. However, concerns remain regarding generalization of skills across natural environments.

### **Cognitive Behavioural Therapy (CBT)**

CBT has demonstrated strong efficacy in treating depression, anxiety, obsessive–compulsive symptoms, along with emotional dysregulation in high-functioning individuals with ASD. Adapted CBT protocols incorporating visual support, parental involvement, and structured sessions yield moderate to large effect sizes in anxiety reduction. Emerging evidence also suggests enhancements in daily living skills and emotional awareness.

### **Mindfulness and Acceptance-Based Interventions**

“Mindfulness-Based Stress Reduction” (MBSR) and “Acceptance and Commitment Therapy” (ACT) have shown promising outcomes, particularly among adolescents and adults. Studies report reductions in rumination, aggression, anxiety, and depressive symptoms, along with improvements in psychological flexibility.

### **Social and Expressive Therapies**

Music therapy, dance movement therapy, theatre-based interventions, and equine-assisted therapy demonstrate improvements in joint attention, emotional expression, social reciprocity, and motivation.

These approaches appear to enhance engagement and promote naturalistic social interaction beyond structured behavioural training.

### **Parent-Mediated and Contextual Interventions**

“Parent–Child Interaction Therapy” (PCIT) and community-based parent-mediated models have been effective in reducing disruptive behaviours and improving communication skills. These approaches strengthen caregiver competence and promote generalization of therapeutic gains.

### **Sensory Integration Therapy**

Evidence for sensory integration therapy remains mixed. Some studies report moderate improvements in sensory processing and participation, while others indicate limited or inconsistent outcomes compared to behavioural approaches.

Overall, literature suggests differential effectiveness across domains, supporting the need for integrative models.

## **Methodology**

### **Aim**

To synthesize theoretical and empirical literature examining multimodal interventions for Autism Spectrum Disorder and evaluate their effectiveness across social, emotional, cognitive, and adaptive domains.

### **Objectives**

- To examine behavioural interventions and their impact on adaptive functioning.
- To evaluate cognitive-behavioural and mindfulness-based approaches in emotional regulation.
- To analyze expressive and social therapies in enhancing interpersonal functioning.
- To identify domain-specific strengths and limitations of various interventions.
- To propose an integrated clinical framework for ASD treatment..

### **Research Design**

This study adopts a qualitative conceptual narrative review design based on secondary data analysis.

### **Inclusion Criteria**

- Peer-reviewed articles published between 2008–2025.
- Studies focusing on ASD interventions.
- Empirical (quantitative/qualitative) and systematic reviews.
- English-language publications.

### **Exclusion Criteria**

- Non-psychological or purely biomedical intervention studies.
- Non-peer-reviewed opinion articles.
- Studies lacking clear outcome measures.

### **Procedure**

Academic databases including PubMed, Scopus, Google Scholar, and PsycINFO were systematically searched using keywords such as “Autism Spectrum Disorder,” “multimodal intervention,” “CBT in autism,” “ABA effectiveness,” “music therapy autism,” and “mindfulness in ASD.” Seventy-five

relevant studies were selected following screening. Thematic analysis was conducted to categorize findings across cognitive, emotional, social, and adaptive domains.

### **Findings & Discussion**

The current research attempts to assess the effectiveness of multimodal interventions in enhancing social, emotional, as well as adaptive functioning among children having ASD. Findings of systematic qualitative review indicate that integrated and multimodal approaches offer broader and more comprehensive benefits compared to single-modality behavioural interventions.

### **Social Functioning**

The review findings suggest significant improvements in social interaction, joint attention, peer engagement, and communication skills following multimodal interventions. Social competence training programs grounded in cognitive-behavioural principles demonstrated improvement in executive functioning and social reciprocity. Similarly, music therapy and animal-assisted interventions enhanced joint attention along with non-verbal communication.

These findings correspond with Kim et al. (2008), who discovered that music therapy has been useful in enhancing joint attention, and Stichter et al. (2010), who demonstrated gains in social competence after structured interventions. The results indicate that while behavioural therapy improves structured communication skills, multimodal interventions foster more naturalistic and emotionally meaningful social engagement. Thus, null hypothesis (H1) stating that there would be no significant difference in social functioning before and after multimodal intervention is rejected.

### **Emotional Regulation**

The findings highlight that “Cognitive Behavioural Therapy” (CBT), mindfulness-based interventions, and acceptance-based therapies significantly reduce anxiety, stress, depression, and emotional dysregulation within children and adolescents with ASD. Behaviour-only approaches primarily focus on observable behaviours and may not adequately address internal emotional processes. It corresponds to investigation by Wood et al. (2009) and Ung et al. (2015), who highlighted significant reductions in anxiety following CBT interventions. Mindfulness-based programs also showed improvements in psychological flexibility and reduced rumination.

The findings suggest that emotional regulation requires cognitive and affective strategies beyond behavioural reinforcement techniques.

Therefore, the null hypothesis (H2) is rejected.

### **Adaptive Functioning**

Behavioural interventions like ABA and EIBI showed strong evidence for improving adaptive skills, daily living skills, communication, and intellectual functioning. However, when combined with social-emotional and cognitive strategies, the improvements appeared broader and more sustainable.

Ospina et al. (2008) and Howlin et al. (2009) also reported positive outcomes of early behavioural interventions on adaptive functioning. However, multimodal programs demonstrated greater generalization of skills across settings.

Hence, the null hypothesis (H3) is rejected.

### **Interaction Between Type of Intervention and Outcome Domains**

The review indicates that behavioural interventions are particularly effective in improving adaptive and cognitive skills, whereas CBT and mindfulness-based approaches are more operative for emotional regulation. Social as well as expressive therapies enhance interpersonal functioning. This demonstrates an interaction effect between type of intervention and outcome domain, suggesting that no single intervention addresses all developmental needs comprehensively. Multimodal approaches, by integrating behavioural, cognitive, emotional, and sensory strategies, provide holistic improvements.

Therefore, the null hypothesis (H4) is rejected.

### **Implications of the Study**

The findings support a shift from exclusively behaviour-focused intervention models toward integrated and individualized treatment approaches. Clinical practice should incorporate:

- Behavioural strategies for skill development
- CBT and emotional therapies for anxiety and regulation
- Social competence training for interpersonal development
- Sensory and expressive therapies for engagement and emotional expression

In the Indian context, there is a need for more clinical-setting-based research on integrated intervention models.

### **Conclusion**

The present conceptual review underscores the importance of moving beyond single-modality behavioural frameworks in Autism Spectrum Disorder intervention. While behavioural therapies remain foundational for skill acquisition and adaptive development, cognitive-behavioural and mindfulness-based interventions are crucial for emotional regulation. Expressive and social therapies enhance engagement and relational functioning.

An individualized, multimodal intervention model appears most suitable for addressing the complex and heterogeneous presentation of ASD. Future research should focus on longitudinal and culturally contextualized studies, particularly within developing countries, to strengthen evidence-based integrated treatment frameworks.

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