



MULTIDISCIPLINARY TEAM REHABILITATION FOR CHILDREN WITH AUTISM SPECTRUM DISORDER: A NARRATIVE REVIEW

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Abstract:

Autism Spectrum Disorder (ASD) is a lifelong heterogeneous neurodevelopmental condition affecting the social communication skills of an individual. Another hallmark feature of the condition is repetitive behavior and/or activities. Some individuals with ASD also have sensory processing disorders and comorbidity inclusive of language difficulties, epilepsy and attention deficits, among others. Because these domains interact in a diverse manner, single-discipline intervention models often provide fragmented support and may fail to address the full developmental profile of children with ASD. This narrative review examines the effectiveness of multidisciplinary rehabilitation as a coordinated framework for improving outcomes among children with ASD, with particular attention to communication, adaptive behavior, educational participation, family-centered care, and service delivery in African and Kenyan contexts. The review synthesizes contemporary diagnostic, theoretical, and intervention literature, including evidence related to DSM-5-TR conceptualization, comorbidities and multiple disabilities, the International Classification of Functioning, Disability and Health, ecological and biopsychosocial models, interprofessional collaboration, and participation-based rehabilitation. Evidence from systematic reviews, meta-analyses, and practice guidelines indicates that coordinated multidisciplinary intervention improves communication development, adaptive functioning, social participation, educational engagement, caregiver confidence, and quality of life when strategies are implemented consistently across home, school, clinical, and community settings. Effective teams include

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pediatricians, psychologists, speech-language pathologists, occupational therapists, physiotherapists, special needs educators, behavior specialists, social workers, nutritionists, caregivers, and community partners, each contributing complementary expertise toward shared functional goals. The review also identifies persistent implementation barriers, including workforce shortages, fragmented systems, limited financing, weak referral pathways, and inequitable access in low-resource settings. The article concludes that multidisciplinary rehabilitation is the most comprehensive and ethically responsive framework for supporting children with ASD because it integrates clinical, educational, family, and community priorities while promoting participation, inclusion, independence, and long-term developmental outcomes.

Keywords: Autism Spectrum Disorder, multidisciplinary rehabilitation, interprofessional collaboration, speech-language pathology, occupational therapy, inclusive education, family-centered care, participation, Kenya

1. Introduction

Autism Spectrum Disorder (ASD) is among the most extensively studied yet complex neurodevelopmental conditions affecting children worldwide. Characterized by persistent differences in social communication and social interaction, together with restricted and repetitive patterns of behavior, interests, or activities, ASD presents significant variability in its clinical manifestations, developmental trajectories, and support needs (American Psychiatric Association [APA], 2022; Lord *et al.*, 2020). Contemporary perspectives increasingly recognize autism as a heterogeneous spectrum rather than a singular condition, with substantial differences in language abilities, cognitive functioning, sensory processing, adaptive behavior, emotional regulation, motor development, and social participation. This diversity necessitates individualized intervention approaches that acknowledge the unique strengths, challenges, and developmental profiles of each child.

The global significance of ASD has increased considerably over the past two decades. Improvements in awareness, screening, diagnostic criteria, and surveillance systems have contributed to rising identification rates across many countries. Recent surveillance data from the United States indicate that approximately 1 in 31 children aged eight years meets criteria for ASD, reflecting a substantial increase compared to previous decades (Centers for Disease Control and Prevention [CDC], 2025; Shaw *et al.*, 2025). Globally, the World Health Organization estimates that approximately 1 in 127 individuals had autism in 2021, although prevalence figures vary considerably due to differences in diagnostic practices, healthcare infrastructure, cultural perceptions, and research methodologies (World Health Organization [WHO], 2025; Zeidan *et al.*, 2022). In many low- and middle-income countries, including numerous African nations, prevalence remains difficult to determine because of limited diagnostic capacity, inadequate surveillance systems, and persistent barriers to service access.

The impact of ASD extends beyond the individual child to influence family functioning, educational participation, healthcare systems, and broader societal structures. Children with ASD frequently experience challenges in communication, social interaction, adaptive behavior, self-care, academic engagement, emotional regulation, and participation in everyday activities. Furthermore, autism commonly co-occurs with additional developmental, medical, and psychological conditions, including intellectual disability, attention-deficit/hyperactivity disorder, anxiety disorders, epilepsy, feeding difficulties, sleep disturbances, gastrointestinal disorders, and motor impairments (Guinchat *et al.*, 2020; Lai *et al.*, 2019; Lord *et al.*, 2020). These co-occurring conditions often interact in complex ways, increasing the need for comprehensive assessment and coordinated intervention.

Families of children with ASD frequently encounter substantial emotional, social, and financial challenges. Parents may experience heightened caregiver stress, uncertainty regarding intervention options, difficulties accessing services, and concerns about their child's long-term outcomes (DaWalt *et al.*, 2021; Leadbitter *et al.*, 2021). Educational systems may struggle to provide adequate accommodations, while healthcare services often remain fragmented across multiple providers and disciplines. Such complexities highlight the limitations of isolated intervention approaches and underscore the necessity of coordinated systems of support.

Historically, autism interventions were frequently delivered through discipline-specific models in which professionals worked independently within their respective areas of expertise. While these approaches contributed valuable knowledge and therapeutic techniques, they often resulted in fragmented service delivery, inconsistent intervention goals, duplication of effort, and limited communication among professionals. As understanding of autism has evolved, increasing recognition has been given to the interconnected nature of developmental domains and the importance of collaborative intervention models. Consequently, multidisciplinary rehabilitation has emerged as a preferred framework for supporting autistic children and their families.

Multidisciplinary rehabilitation refers to a coordinated model of service delivery in which professionals from diverse disciplines collaborate to assess, plan, implement, and evaluate interventions. Team members may include developmental pediatricians, neurologists, psychiatrists, psychologists, speech-language pathologists, occupational therapists, physiotherapists, special educators, behavior analysts, social workers, nurses, nutritionists, and family members. Each professional contributes specialized expertise while working toward shared goals that promote the child's participation, independence, communication, learning, and overall quality of life (Bowman *et al.*, 2021; LaFrance *et al.*, 2019). It mainly depends on the needs of the individual with ASD. Individuals with ASD are rarely alike, and as the saying goes, if you meet one child with ASD, you have met exactly that.

The rationale for multidisciplinary rehabilitation is supported by contemporary theoretical frameworks, including the International Classification of Functioning, Disability and Health (ICF), ecological systems theory, and the biopsychosocial model.

These frameworks emphasize that developmental outcomes are shaped not only by individual characteristics but also by interactions among environmental, educational, familial, social, and healthcare systems (WHO, 2001). Consequently, effective intervention requires coordinated efforts that address multiple domains of functioning simultaneously rather than focusing on isolated symptoms or deficits.

Evidence increasingly suggests that multidisciplinary approaches improve diagnostic accuracy, communication development, adaptive functioning, educational participation, behavioral regulation, caregiver confidence, and quality of life among autistic children (Hume *et al.*, 2021; Lord *et al.*, 2022; Sandbank *et al.*, 2020, 2023). Collaborative intervention facilitates consistency across home, school, clinical, and community environments, thereby enhancing the generalization and maintenance of acquired skills. Family-centered practice, shared decision-making, and culturally responsive service delivery further strengthen the effectiveness of multidisciplinary models.

Despite growing support for multidisciplinary rehabilitation, significant challenges remain. Workforce shortages, limited access to specialist services, financial constraints, fragmented service systems, and inequitable distribution of resources continue to hinder implementation in many regions of the world. These challenges are particularly pronounced in low-resource settings where specialist services may be concentrated in urban centers and inaccessible to many families. Addressing these barriers requires policy reform, workforce development, interprofessional education, and innovative service-delivery models that can expand access while maintaining quality.

The purpose of this review is to critically examine the effectiveness of multidisciplinary rehabilitation for children with Autism Spectrum Disorder. Specifically, the paper explores the theoretical foundations of multidisciplinary practice, the evolution of autism diagnosis, the influence of comorbidities and multiple disabilities, the roles and contributions of multidisciplinary team members, principles of interprofessional collaboration, evidence supporting coordinated intervention, barriers to implementation, and future directions for practice, research, and policy. Particular emphasis is placed on African and Kenyan contexts, where strengthening multidisciplinary systems represents an important opportunity to improve developmental outcomes, educational participation, family support, and social inclusion for autistic children.

The central argument advanced throughout this review is that multidisciplinary rehabilitation is not merely one intervention option among many but rather the most comprehensive and evidence-based framework currently available for addressing the diverse and interconnected needs of autistic children. By integrating expertise across disciplines while maintaining a focus on participation, inclusion, family empowerment, and quality of life, multidisciplinary rehabilitation offers the strongest foundation for supporting autistic children to achieve meaningful and sustainable developmental outcomes.

2. Understanding Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental condition characterized by persistent differences in social communication and social interaction, together with restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association [APA], 2022). Although these diagnostic features provide the foundation for clinical identification, contemporary understanding of autism extends far beyond diagnostic criteria alone. The condition is increasingly recognized as a highly heterogeneous condition encompassing substantial variation in developmental profiles, communication abilities, cognitive functioning, sensory experiences, adaptive skills, behavioral presentation, educational needs, and levels of support required across the lifespan (Happé & Frith, 2020; Lord *et al.*, 2020).

The concept of a spectrum is central to understanding autism. No two autistic children present identically, and developmental trajectories. They can differ considerably even among individuals with similar diagnostic classifications. Some children develop fluent spoken language and participate successfully in mainstream educational settings with minimal accommodations, whereas others may be minimally speaking, require augmentative and alternative communication (AAC) systems, and depend on extensive support in daily living activities (Tager-Flusberg & Kasari, 2013). Variability also exists in intellectual functioning, social motivation, emotional regulation, adaptive behavior, and responsiveness to intervention. This diversity highlights the importance of individualized assessment and intervention rather than reliance on generalized assumptions about autism.

Historically, autism was commonly conceptualized through deficit-oriented frameworks that emphasized impairments and limitations. However, contemporary perspectives increasingly incorporate neurodiversity-informed approaches, which view autism as a naturally occurring variation in human neurodevelopment rather than solely as a disorder requiring normalization (Kapp, 2020). Neurodiversity advocates argue that many challenges experienced by individuals with ASD arise from a mismatch between individual needs and environmental expectations rather than from autism itself. While recognizing the very real support needs that many autistic individuals experience, neurodiversity perspectives encourage professionals to focus on participation, accommodation, self-determination, and quality of life rather than exclusively on symptom reduction (Bottema-Beutel *et al.*, 2021; Kapp, 2020).

One of the defining features of ASD pertains to differences in social communication and social interaction skill deficits. These differences may manifest in a variety of ways, including challenges with reciprocal conversation, understanding social cues, interpreting non-verbal communication, maintaining peer relationships, adjusting communication across contexts, and understanding the perspectives of others (APA, 2022; Lord *et al.*, 2020). Some children may demonstrate delayed language acquisition, while others develop advanced vocabulary but experience difficulties with pragmatic language and social communication. Communication challenges often influence

educational participation, peer interaction, family relationships, and community engagement, making communication support a central focus of multidisciplinary rehabilitation.

Language development in autism demonstrates remarkable variability. Some children experience significant delays in expressive and receptive language development, whereas others develop age-appropriate structural language skills but continue to experience difficulties with conversational reciprocity, figurative language, inferencing, and social communication. Pragmatic language difficulties frequently persist into adolescence and adulthood and may affect academic achievement, employment opportunities, social participation, and independent living (Tager-Flusberg, 2021). These realities underscore the critical role of speech-language pathologists within multidisciplinary teams.

Restricted and repetitive behaviors represent the second core diagnostic domain of ASD. These behaviors may include repetitive motor movements, repetitive use of objects, echolalia, adherence to routines, intense interests, repetitive questioning, and insistence on sameness (APA, 2022). Historically, such behaviors were often viewed solely as problematic symptoms requiring reduction. However, emerging evidence suggests that repetitive behaviors may serve important regulatory, communicative, emotional, or adaptive functions for autistic individuals (Bottema-Beutel *et al.*, 2021; Mottron & Bzdok, 2020). Consequently, multidisciplinary teams are encouraged to understand the purpose and context of repetitive behaviors before determining whether intervention is necessary.

Sensory processing differences are increasingly recognized as a significant aspect of autism. The DSM-5 and DSM-5-TR formally incorporated sensory reactivity into diagnostic criteria, reflecting growing recognition of its importance (APA, 2013, 2022). Autistic children may demonstrate hyperresponsiveness, hyporesponsiveness, or sensory-seeking behaviors across auditory, visual, tactile, proprioceptive, vestibular, gustatory, and olfactory systems. Sensory experiences can influence communication, learning, self-care, emotional regulation, feeding, sleep, social interaction, and participation in educational environments. Occupational therapists frequently play a central role in assessing sensory processing and developing individualized supports that facilitate participation across settings.

Motor development has also emerged as an important area of autism research. Many autistic children experience difficulties with motor coordination, balance, motor planning, gait, posture, fine motor skills, and physical fitness (Bhat, 2021). Motor challenges may affect handwriting, self-care, participation in sports, classroom activities, and peer interaction. Research increasingly suggests that motor differences should not be considered secondary concerns but rather integral components of the developmental profile of many autistic children. The recognition of motor challenges further supports the inclusion of occupational therapists and physiotherapists within multidisciplinary rehabilitation teams.

Adaptive functioning represents another area in which autistic children often experience challenges. Adaptive skills include communication, self-care, socialization, daily living skills, safety awareness, and community participation. Importantly, adaptive functioning does not always correspond directly with intellectual ability. Some autistic individuals with average or above-average cognitive abilities may nevertheless experience substantial difficulties managing everyday responsibilities, social expectations, and independent living tasks (Lord *et al.*, 2022). Consequently, multidisciplinary intervention must address not only developmental skills but also functional participation and independence.

Emotional regulation is increasingly recognized as a critical component of autism intervention. Many children with Autism experience difficulties managing frustration, anxiety, uncertainty, sensory overload, and social demands. Emotional dysregulation may contribute to behavioral challenges, school difficulties, social withdrawal, and reduced participation. Psychological support, sensory regulation strategies, communication interventions, environmental modifications, and family education frequently contribute to improved emotional well-being and participation outcomes.

Another important consideration is the prevalence of co-occurring conditions. Autism frequently occurs alongside intellectual disability, attention-deficit/hyperactivity disorder, anxiety disorders, depression, epilepsy, sleep disorders, feeding difficulties, gastrointestinal concerns, and developmental coordination disorder (Guinchat *et al.*, 2020; Lai *et al.*, 2019). These comorbidities often interact with core autism characteristics, creating complex developmental profiles that require coordinated assessment and intervention. The presence of multiple conditions further strengthens the rationale for multidisciplinary rehabilitation because no single profession possesses expertise across all relevant domains.

Cultural and contextual factors also influence how autism is understood and experienced. Perceptions of child development, disability, communication, family roles, and intervention vary across cultures and communities. In many African contexts, autism awareness remains limited, and misconceptions regarding causes and management may contribute to delayed identification and reduced access to services (Franz *et al.*, 2017; Zeidan *et al.*, 2022). Culturally responsive practice therefore requires professionals to consider family beliefs, language preferences, community values, and available resources when planning intervention.

Recent developments in autism research have increasingly emphasized participation-based outcomes rather than solely focusing on symptom reduction. Participation refers to involvement in meaningful life situations, including family routines, educational activities, peer relationships, recreation, community engagement, and future vocational opportunities. This shift aligns closely with the International Classification of Functioning, Disability and Health (ICF), which emphasizes activity and participation as central outcomes of rehabilitation (World Health Organization [WHO], 2001). Within this framework, the ultimate goal of intervention is not to eliminate autistic characteristics but to enhance participation, independence, well-being, and quality of life.

Understanding ASD therefore requires moving beyond simplistic diagnostic descriptions toward recognition of its complexity, diversity, and developmental implications. Autism affects multiple domains of functioning simultaneously, interacts with environmental influences, and presents differently across individuals and cultures. These realities provide a compelling rationale for multidisciplinary rehabilitation approaches that integrate expertise from healthcare, education, psychology, therapy, and family systems. As the following sections demonstrate, a comprehensive understanding of autism is fundamental to designing effective multidisciplinary interventions that address the broad and interconnected needs of autistic children and their families.

3. Diagnostic Evolution: From DSM-IV to DSM-5-TR and Its Implications for Multidisciplinary Rehabilitation

The diagnosis and conceptualization of Autism Spectrum Disorder (ASD) have undergone substantial transformation over the past several decades. These changes have significantly influenced prevalence estimates, clinical assessment procedures, intervention planning, research methodologies, and rehabilitation practices. The transition from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) to the Fifth Edition (DSM-5) and subsequently the DSM-5 Text Revision (DSM-5-TR) reflects advances in scientific understanding of autism as a complex and heterogeneous neurodevelopmental condition rather than a collection of distinct developmental disorders. This evolution has contributed to a more comprehensive understanding of autism and has strengthened the rationale for multidisciplinary assessment and intervention approaches (American Psychiatric Association [APA], 2013, 2022; Lord *et al.*, 2020).

Under DSM-IV, autism-related conditions were classified within a broader category known as Pervasive Developmental Disorders (PDDs), which included Autistic Disorder, Asperger's Disorder, Pervasive Developmental Disorder–Not Otherwise Specified (PDD-NOS), Rett's Disorder, and Childhood Disintegrative Disorder. Diagnosis required the identification of impairments across three domains: social interaction, communication, and restricted or repetitive behaviors (APA, 1994). Although this framework contributed significantly to the recognition and diagnosis of autism, concerns emerged regarding the reliability and consistency of diagnostic practices. Clinicians often encountered difficulty distinguishing between Autistic Disorder, Asperger's Disorder, and PDD-NOS because symptom presentations frequently overlapped. As a result, individuals with similar developmental profiles could receive different diagnoses depending on the clinician, assessment setting, or interpretation of diagnostic criteria (Lord *et al.*, 2020; Posar & Visconti, 2023).

Growing evidence suggested that these diagnostic categories did not represent distinct disorders but rather different manifestations of a broader autism spectrum. Consequently, the DSM-5 introduced a major revision in 2013 by consolidating Autistic Disorder, Asperger's Disorder, and PDD-NOS into a single diagnosis known as Autism

Spectrum Disorder (APA, 2013). This change reflected increasing recognition that autism exists along a continuum characterized by varying strengths, challenges, and support needs. The DSM-5 also reduced the diagnostic domains from three to two by combining social interaction and communication difficulties into a single domain referred to as social communication and social interaction, while retaining restricted and repetitive behaviors as the second diagnostic domain. This reorganization was based on research demonstrating that communication difficulties and social interaction challenges are closely interconnected and are more accurately conceptualized as a unified area of functioning (Lord *et al.*, 2020).

Another important contribution of the DSM-5 was the introduction of severity levels intended to describe the degree of support required by an individual. Rather than functioning as indicators of ability, these severity levels were designed to guide service planning and intervention decisions. The DSM-5 also permitted the co-diagnosis of ASD and Attention-Deficit/Hyperactivity Disorder (ADHD), addressing a major limitation of previous diagnostic systems. This revision acknowledged the high prevalence of co-occurring neurodevelopmental conditions and encouraged more comprehensive assessment and intervention planning (Lai *et al.*, 2019).

The publication of the DSM-5-TR in 2022 retained the core structure of DSM-5 while refining diagnostic descriptions and clarifying terminology. The revised manual emphasizes the heterogeneity of autism and encourages clinicians to specify associated features such as intellectual impairment, language impairment, genetic conditions, medical conditions, neurodevelopmental disorders, mental health concerns, and severity of support needs (APA, 2022). These specifications facilitate a more individualized understanding of each child and support the development of tailored intervention plans. The DSM-5-TR also acknowledges variations in presentation across age groups, cultures, genders, and developmental stages, addressing concerns that some populations—particularly girls and individuals from culturally diverse backgrounds—may be underdiagnosed or diagnosed later than their peers (Lord *et al.*, 2022).

The evolution of autism diagnosis has had profound implications for multidisciplinary rehabilitation. Contemporary diagnostic frameworks encourage professionals to move beyond categorical labels and instead examine how autism influences communication, learning, adaptive functioning, sensory processing, motor development, emotional regulation, and participation in everyday activities. As a result, assessment increasingly involves collaboration among developmental pediatricians, psychologists, speech-language pathologists, occupational therapists, educators, physiotherapists, and family members. Each professional contributes unique expertise that enhances understanding of the child's strengths, challenges, and support needs.

The spectrum-based approach promoted by DSM-5 and DSM-5-TR aligns closely with the International Classification of Functioning, Disability and Health (ICF), which emphasizes participation, activity, environmental influences, and quality of life rather than impairment alone (World Health Organization, 2001). This alignment supports the adoption of multidisciplinary rehabilitation because it recognizes that developmental

outcomes are influenced by interactions among individual characteristics, family systems, educational environments, healthcare services, and community contexts. Consequently, effective intervention requires coordinated efforts that address multiple developmental domains simultaneously.

Although diagnostic revisions have improved conceptual clarity and consistency, challenges remain. Concerns persist regarding access to culturally appropriate assessment tools, variability in diagnostic practices, and the limited availability of specialist services in many low- and middle-income countries. In African contexts, including Kenya, shortages of trained diagnosticians and limited public awareness continue to contribute to delayed identification and intervention (Franz *et al.*, 2017). These challenges further reinforce the importance of multidisciplinary teams capable of considering developmental, educational, cultural, linguistic, and environmental factors when evaluating autistic children.

Ultimately, the transition from DSM-IV to DSM-5-TR represents more than a modification of diagnostic criteria. It reflects a broader shift toward understanding autism as a diverse and multifaceted condition requiring individualized, holistic, and collaborative support. By emphasizing support needs, functional outcomes, and participation across settings, contemporary diagnostic frameworks provide a strong foundation for multidisciplinary rehabilitation. This evolution supports the central argument of the present review that coordinated, family-centered, and evidence-based multidisciplinary approaches offer the most comprehensive pathway for promoting positive developmental outcomes and meaningful participation among autistic children.

4. Multiple Disabilities and Comorbidities in Autism Spectrum Disorder

One of the most important considerations in understanding Autism Spectrum Disorder (ASD) is the recognition that autism rarely occurs in isolation. Although the core diagnostic features of ASD involve differences in social communication and social interaction, together with restricted and repetitive patterns of behavior, many autistic children also experience additional developmental, medical, sensory, motor, educational, and psychological conditions that significantly influence their functioning and support needs. The presence of these co-occurring conditions contributes to the heterogeneity of autism and presents substantial challenges for assessment, intervention planning, and long-term rehabilitation. Consequently, understanding comorbidities is essential for appreciating why multidisciplinary rehabilitation has become the preferred model of care for autistic children (Lai *et al.*, 2019; Lord *et al.*, 2020).

Research consistently demonstrates that autistic children experience higher rates of co-occurring conditions than their neurotypical peers. These conditions often interact in complex ways, creating developmental profiles that cannot be adequately addressed through single-discipline interventions. Intellectual disability remains one of the most frequently reported co-occurring conditions, although prevalence estimates vary depending on diagnostic criteria, sampling methods, and assessment procedures.

Children who present with both ASD and intellectual disability often experience greater difficulties in communication, adaptive behavior, educational participation, and independent functioning. These challenges frequently require coordinated intervention involving psychologists, speech-language pathologists, occupational therapists, special educators, and family members working collaboratively to support development across multiple domains (Maenner *et al.*, 2023; Shaw *et al.*, 2025).

Communication disorders represent another major area of comorbidity. While social communication difficulties form part of the diagnostic criteria for ASD, many children also present with significant delays or disorders affecting receptive language, expressive language, speech production, pragmatic language, literacy development, and communication participation. Some autistic children are minimally speaking or non-speaking and require augmentative and alternative communication (AAC) systems to facilitate meaningful interaction. Others may possess age-appropriate structural language skills but continue to experience substantial difficulties with conversational reciprocity, inferencing, figurative language, and social communication. These diverse communication profiles reinforce the importance of speech-language pathology as a core component of multidisciplinary rehabilitation (Tager-Flusberg, 2021; Tager-Flusberg & Kasari, 2013).

Mental health conditions are increasingly recognized as significant contributors to disability and reduced participation among autistic individuals. Lai *et al.* (2019) reported that co-occurring psychiatric disorders are considerably more prevalent among autistic populations than among the general population. Anxiety disorders, depression, attention-deficit/hyperactivity disorder (ADHD), obsessive-compulsive symptoms, emotional dysregulation, and sleep disorders frequently coexist with ASD and may significantly influence behavior, learning, social participation, and quality of life. Anxiety, for example, may reduce classroom engagement, increase social withdrawal, intensify sensory sensitivities, and contribute to avoidance behaviors. Similarly, ADHD may affect attention, executive functioning, organization, impulse control, and academic performance. Effective management of these conditions often requires coordinated input from psychologists, psychiatrists, educators, therapists, and caregivers to ensure that intervention strategies are consistent and responsive to the child's needs (Guinchat *et al.*, 2020; Lai *et al.*, 2019).

Sensory processing differences represent another highly prevalent and clinically significant aspect of autism. Many autistic children experience heightened sensitivity, reduced sensitivity, or atypical responses to sensory stimuli across auditory, visual, tactile, vestibular, proprioceptive, gustatory, and olfactory systems. These sensory experiences may influence feeding, sleep, communication, learning, emotional regulation, self-care, social interaction, and participation in daily routines. A child who experiences extreme auditory sensitivity, for example, may struggle to participate effectively in classroom environments, while sensory-seeking behaviors may interfere with attention and engagement. Occupational therapists play a central role in assessing

sensory processing patterns and developing individualized strategies that promote participation and well-being across settings (Bhat, 2021; Hume *et al.*, 2021).

Motor difficulties are increasingly recognized as an important but historically underappreciated aspect of autism. Research indicates that many autistic children experience challenges involving balance, coordination, motor planning, gait, posture, strength, and fine motor performance. These difficulties may affect handwriting, dressing, feeding, participation in sports, classroom engagement, and peer interactions. Bhat (2021) demonstrated that motor impairments are strongly associated with communication difficulties, adaptive functioning, repetitive behaviors, and social participation, suggesting that motor development should be considered an integral component of comprehensive autism assessment and intervention. The recognition of motor challenges further supports the inclusion of physiotherapists and occupational therapists within multidisciplinary rehabilitation teams.

Medical comorbidities also contribute substantially to the complexity of autism rehabilitation. Epilepsy, gastrointestinal disorders, feeding difficulties, sleep disturbances, allergies, and genetic conditions occur at elevated rates among autistic children compared to the general population (Guinchat *et al.*, 2020). Sleep difficulties may affect attention, emotional regulation, learning, and family well-being, while gastrointestinal discomfort may contribute to irritability, behavioral changes, and reduced participation. Feeding difficulties are particularly common and may involve food selectivity, sensory aversions, oral-motor challenges, rigid eating patterns, and nutritional deficiencies. Addressing these concerns often requires collaboration among pediatricians, speech-language pathologists, occupational therapists, nutritionists, psychologists, and caregivers.

Educational challenges frequently emerge as a consequence of the interaction between autism characteristics and co-occurring conditions. Difficulties with communication, attention, sensory regulation, adaptive functioning, and emotional well-being can significantly affect academic achievement and classroom participation. Many autistic children require individualized educational supports, curriculum adaptations, assistive technologies, structured teaching strategies, and collaborative planning through Individualized Education Programs (IEPs). Effective educational intervention therefore depends upon close collaboration among educators, therapists, psychologists, families, and healthcare professionals to ensure that support strategies remain coordinated and meaningful across settings (Gitonga & Wairungu, 2025; Hume *et al.*, 2021).

The presence of multiple disabilities and co-occurring conditions has important implications for rehabilitation planning. A child presenting with ASD, ADHD, sensory processing difficulties, language impairment, and anxiety, for example, requires far more than isolated speech therapy or educational support. Difficulties observed in one domain often influence functioning in several others. Communication breakdowns may contribute to behavioral challenges, sensory sensitivities may affect participation and emotional regulation, and motor difficulties may limit independence and social engagement. Consequently, multidisciplinary teams are uniquely positioned to identify

the interactions among developmental domains and develop integrated intervention plans that address the child's overall functioning rather than isolated symptoms.

From a rehabilitation perspective, the significance of comorbidities extends beyond diagnosis. Contemporary disability frameworks such as the International Classification of Functioning, Disability and Health (ICF) emphasize participation, environmental supports, and quality of life rather than impairment alone (World Health Organization, 2001). This perspective encourages professionals to consider how co-occurring conditions affect the child's ability to participate in family routines, educational activities, community life, recreation, and social relationships. Intervention therefore becomes less focused on symptom reduction and more focused on supporting meaningful participation and inclusion.

In many African countries, including Kenya, the identification and management of co-occurring conditions remain challenging due to shortages of specialized professionals, limited access to diagnostic services, inadequate public awareness, and resource constraints. Children with complex developmental profiles may experience delayed diagnosis or fragmented intervention, reducing opportunities for early and coordinated support (Franz *et al.*, 2017). Strengthening multidisciplinary assessment and rehabilitation systems is therefore particularly important in these contexts, where comprehensive evaluation can improve diagnostic accuracy, facilitate timely intervention, and promote more equitable access to services.

Ultimately, the high prevalence of multiple disabilities and comorbidities among autistic children provides one of the strongest justifications for multidisciplinary rehabilitation. Because autism affects multiple developmental domains and frequently coexists with additional conditions, effective intervention requires coordinated expertise from a range of professionals working collaboratively with families. The complexity of these developmental profiles reinforces the central argument of this review: that multidisciplinary rehabilitation is not merely beneficial but essential for supporting communication, participation, adaptive functioning, educational success, family well-being, and quality of life among autistic children.

5. Theoretical Foundations of Multidisciplinary Rehabilitation in Autism Spectrum Disorder

The increasing adoption of multidisciplinary rehabilitation in the management of Autism Spectrum Disorder (ASD) is grounded in several complementary theoretical frameworks that recognize the complexity of human development and the interconnected nature of functioning across multiple domains. Contemporary understanding of autism acknowledges that developmental outcomes are influenced not only by individual characteristics but also by interactions among biological, psychological, educational, social, cultural, and environmental factors. Consequently, effective intervention requires approaches that extend beyond isolated therapeutic techniques and instead integrate expertise from multiple disciplines to address the diverse needs of autistic children and

their families. Theoretical models such as the International Classification of Functioning, Disability and Health (ICF), Bronfenbrenner's Ecological Systems Theory, the Biopsychosocial Model, Family-Centered Practice, and Participation-Based Intervention provide the conceptual foundation for multidisciplinary rehabilitation and support its growing prominence in autism services worldwide (World Health Organization [WHO], 2001; Dillenburger *et al.*, 2014; Lord *et al.*, 2020).

One of the most influential frameworks underpinning multidisciplinary rehabilitation is the International Classification of Functioning, Disability and Health (ICF), developed by the World Health Organization. The ICF represents a significant departure from traditional medical models of disability that focus primarily on diagnosis and impairment. Instead, the ICF conceptualizes disability as the result of interactions among body functions and structures, activities, participation, environmental factors, and personal factors (WHO, 2001). Within this framework, autism is not viewed solely as a collection of symptoms but as a condition that influences participation in meaningful life situations. For example, communication difficulties may affect classroom engagement, social relationships, community participation, and independence in daily living. Similarly, sensory processing differences may influence educational performance, emotional regulation, and social interaction. The ICF therefore encourages professionals to move beyond symptom management and focus on enhancing participation, inclusion, and quality of life. This perspective aligns closely with multidisciplinary rehabilitation because improving participation often requires coordinated contributions from speech-language pathologists, occupational therapists, physiotherapists, psychologists, educators, social workers, medical professionals, and family members.

Bronfenbrenner's Ecological Systems Theory provides another important foundation for multidisciplinary intervention. According to this theory, child development occurs through dynamic interactions between the individual and multiple environmental systems, including the family, school, healthcare services, community, and broader societal structures. Development is influenced not only by the child's abilities and challenges but also by the opportunities, supports, and barriers present within these interconnected systems. For autistic children, outcomes are shaped by family relationships, educational experiences, healthcare access, cultural attitudes toward disability, and community participation opportunities. Consequently, interventions that focus exclusively on the child without considering environmental influences may have limited effectiveness. Multidisciplinary rehabilitation reflects ecological principles by engaging professionals from diverse sectors who collaborate to support the child across multiple contexts. This collaborative approach promotes consistency between home, school, clinical, and community environments, thereby increasing the likelihood that developmental gains will generalize beyond therapy settings.

The Biopsychosocial Model further reinforces the rationale for multidisciplinary rehabilitation. Traditionally, disability was often explained through biomedical frameworks that emphasized pathology and impairment. While biological factors remain

important, contemporary perspectives recognize that developmental outcomes emerge through interactions among biological, psychological, and social influences. In autism, biological factors may include neurological differences, genetic predispositions, sensory processing patterns, and medical comorbidities. Psychological factors may involve cognition, emotional regulation, mental health, motivation, and behavioral adaptation. Social influences include family relationships, educational opportunities, cultural beliefs, socioeconomic conditions, and community support systems. Because these factors interact continuously throughout development, effective intervention requires coordinated efforts that address each domain simultaneously. Multidisciplinary teams are uniquely positioned to operationalize the biopsychosocial model by integrating expertise from healthcare, education, rehabilitation, psychology, and social services into comprehensive intervention plans.

Family-Centered Practice has also emerged as a cornerstone of contemporary autism rehabilitation. Historically, intervention models often positioned professionals as primary decision-makers while families assumed relatively passive roles. Contemporary approaches increasingly recognize parents and caregivers as essential partners whose knowledge, experiences, priorities, and values are fundamental to effective intervention. Family-centered practice emphasizes shared decision-making, collaborative goal setting, respect for family preferences, and active caregiver involvement throughout assessment, intervention, and evaluation processes (Leadbitter *et al.*, 2021). Research consistently demonstrates that interventions are more effective when families participate actively in implementation and when therapeutic strategies are embedded within natural routines and everyday environments. Family-centered approaches are particularly important in autism because caregivers provide the majority of developmental learning opportunities and are responsible for supporting skill generalization across contexts. Multidisciplinary teams that embrace family-centered principles are better positioned to develop realistic, meaningful, and sustainable intervention plans.

Another influential framework supporting multidisciplinary rehabilitation is the Participation-Based Model of intervention. Traditional therapeutic approaches frequently focused on remediating deficits or reducing symptoms. Although these goals remain relevant, participation-based approaches emphasize involvement in meaningful activities and life situations as the ultimate outcome of intervention. Participation includes engagement in family routines, educational activities, peer relationships, recreation, community events, and future vocational opportunities. This perspective aligns closely with contemporary disability rights movements and neurodiversity-informed approaches, which emphasize inclusion, self-determination, autonomy, and quality of life rather than normalization alone (Kapp, 2020). Multidisciplinary rehabilitation is particularly effective within a participation-based framework because professionals from different disciplines can collaboratively address the diverse factors influencing participation. For example, speech-language pathologists may support communication, occupational therapists may address sensory regulation and daily living skills, educators may facilitate academic engagement, and psychologists may promote

emotional well-being. Together, these interventions contribute to meaningful participation across environments.

Theoretical support for multidisciplinary rehabilitation is further strengthened by evidence from systems theory and collaborative practice models. Systems theory proposes that individual components of a system influence one another continuously and that understanding any single component requires examination of the broader system in which it operates. Applied to autism rehabilitation, this perspective suggests that communication, behavior, sensory processing, learning, social participation, emotional regulation, and family functioning should not be viewed as isolated constructs. Instead, they interact dynamically and influence one another throughout development. Improvements in communication may reduce behavioral challenges, enhanced sensory regulation may improve educational participation, and increased family confidence may strengthen intervention consistency. Because developmental domains are interconnected, multidisciplinary teams are better equipped than isolated professionals to address the complexity of these interactions.

Interprofessional collaboration theories also contribute to the conceptual foundation of multidisciplinary rehabilitation. Effective collaboration requires role clarity, mutual respect, shared goals, open communication, and collective responsibility for outcomes (Bowman *et al.*, 2021; LaFrance *et al.*, 2019). These principles support the development of integrated intervention plans that reduce fragmentation and ensure consistency across service providers. Collaborative practice models recognize that no single profession possesses all the expertise necessary to address the diverse needs of autistic children. Instead, optimal outcomes emerge when professionals combine their knowledge and work collaboratively with families to support holistic development.

Within African and Kenyan contexts, these theoretical foundations have particular relevance. Resource limitations, workforce shortages, and fragmented service systems often make coordinated intervention challenging. However, the principles underlying multidisciplinary rehabilitation remain applicable and provide valuable guidance for service development. Collaborative partnerships among hospitals, schools, universities, community-based rehabilitation programs, non-governmental organizations, and families can help bridge service gaps and expand access to intervention. By applying ecological, biopsychosocial, participation-based, and family-centered principles, multidisciplinary teams can promote more equitable and culturally responsive autism services within resource-constrained settings (Franz *et al.*, 2017; Gitonga & Wairungu, 2025).

Collectively, these theoretical frameworks provide a compelling rationale for multidisciplinary rehabilitation as the preferred model of autism intervention. The ICF emphasizes participation and environmental influences, ecological theory highlights the importance of multiple developmental systems, the biopsychosocial model recognizes the interaction of biological, psychological, and social factors, family-centered practice promotes caregiver empowerment, and participation-based approaches focus on meaningful life outcomes. Together, these perspectives reinforce the central argument of

this review: that multidisciplinary rehabilitation offers the most comprehensive, evidence-informed, and person-centered framework for supporting autistic children and their families.

6. Multidisciplinary Team Members and Their Roles in Autism Rehabilitation

The effectiveness of multidisciplinary rehabilitation in Autism Spectrum Disorder (ASD) is largely dependent upon the coordinated contributions of professionals from diverse disciplines who work collaboratively to address the complex and interconnected needs of autistic children. Autism affects communication, social interaction, sensory processing, adaptive behavior, emotional regulation, motor development, educational participation, and family functioning simultaneously. Consequently, no single profession possesses the expertise necessary to address all aspects of development comprehensively. Multidisciplinary teams therefore bring together professionals with complementary skills who collaborate to assess, plan, implement, monitor, and evaluate interventions designed to promote participation, independence, inclusion, and quality of life (Bowman *et al.*, 2021; LaFrance *et al.*, 2019).

The developmental pediatrician often serves as the primary medical coordinator within multidisciplinary autism services. Developmental pediatricians are responsible for developmental surveillance, diagnostic assessment, differential diagnosis, identification of co-occurring medical conditions, and referral to appropriate rehabilitation professionals. Their role extends beyond diagnosis to include ongoing monitoring of developmental progress, medication management when indicated, and coordination of healthcare services. Because autistic children frequently present with epilepsy, sleep disturbances, gastrointestinal disorders, feeding difficulties, genetic syndromes, and other neurodevelopmental conditions, developmental pediatricians play a crucial role in ensuring that medical factors influencing participation and development are appropriately addressed. In complex cases, collaboration with pediatric neurologists, psychiatrists, nutritionists, and other medical specialists may be necessary to provide comprehensive care (Lord *et al.*, 2020; APA, 2022).

Speech-language pathologists (SLPs) occupy a central position within multidisciplinary autism rehabilitation because communication challenges represent one of the defining characteristics of ASD. Communication difficulties may involve expressive language, receptive language, social communication, pragmatic language skills, speech intelligibility, literacy development, and conversational competence. Some autistic children may experience significant delays in language acquisition, while others may possess advanced vocabulary yet struggle with social communication and reciprocal interaction. Speech-language pathologists conduct comprehensive assessments to identify communication strengths and challenges and develop individualized intervention plans that promote functional communication and participation. Their interventions may target joint attention, turn-taking, conversational skills, narrative development, social interaction, and classroom communication. For minimally speaking

or non-speaking children, SLPs frequently recommend and implement augmentative and alternative communication (AAC) systems, including communication boards, picture exchange systems, and speech-generating devices. Additionally, speech-language pathologists often manage feeding and swallowing difficulties, which are common among autistic children and may significantly affect nutrition, health, and participation (Tager-Flusberg, 2021; Tager-Flusberg & Kasari, 2013).

Occupational therapists contribute expertise in participation, sensory processing, adaptive behavior, self-care, play, and engagement in meaningful daily activities. Occupational therapy interventions focus on enabling children to participate successfully in home, school, and community environments. Sensory processing differences are particularly common in autism and may influence behavior, attention, emotional regulation, learning, feeding, sleep, and social interaction. Occupational therapists assess sensory processing patterns and develop individualized sensory supports that facilitate participation and engagement. They may recommend environmental modifications, sensory regulation strategies, visual schedules, adaptive equipment, and structured routines to support successful functioning across contexts. Occupational therapists also address activities of daily living such as dressing, feeding, toileting, grooming, and personal organization, promoting independence and reducing caregiver burden. Increasingly, occupational therapy interventions also target executive functioning skills, including planning, organization, task initiation, self-monitoring, and flexibility, all of which are important for educational participation and long-term independence (Bhat, 2021; Hume *et al.*, 2021).

Physiotherapists play an important role in addressing motor development and physical participation. Although motor difficulties were historically viewed as secondary concerns in autism, growing evidence suggests that many children with autism experience challenges involving balance, coordination, posture, gait, motor planning, strength, endurance, and physical fitness. These motor differences may affect participation in recreational activities, sports, self-care routines, classroom tasks, and peer interactions. Physiotherapists assess gross motor skills and develop interventions aimed at improving mobility, physical competence, and participation in age-appropriate activities. Through collaboration with occupational therapists, educators, and families, physiotherapists help ensure that motor goals are integrated into everyday routines and educational experiences rather than being confined solely to therapy sessions (Bhat, 2021).

Psychologists contribute expertise in cognitive assessment, adaptive behavior evaluation, emotional functioning, social cognition, behavioral analysis, and mental health intervention. Psychological assessment provides valuable information regarding intellectual functioning, executive functioning, learning profiles, emotional regulation, adaptive skills, and behavioral patterns. Contemporary psychological practice increasingly emphasizes understanding behavior within developmental and environmental contexts rather than focusing exclusively on behavior reduction. Functional behavior assessments help identify the communicative, sensory, emotional,

and environmental factors influencing challenging behaviors. Psychologists also provide interventions targeting anxiety, emotional regulation, coping strategies, social understanding, resilience, and family adjustment. Given the high prevalence of co-occurring mental health conditions among autistic individuals, psychological services are often essential components of comprehensive rehabilitation (Lai *et al.*, 2019; Guinchat *et al.*, 2020).

Special needs educators serve as critical members of multidisciplinary teams because educational participation is one of the primary goals of rehabilitation. These professionals facilitate access to learning by adapting curriculum content, modifying instructional approaches, implementing classroom accommodations, and developing Individualized Education Programs (IEPs). Through collaboration with therapists, psychologists, medical professionals, and families, special educators translate rehabilitation goals into practical educational strategies that can be implemented within classroom settings. Effective educational planning ensures that communication, sensory regulation, behavioral supports, social participation, and academic objectives are integrated into a cohesive framework that promotes meaningful learning and inclusion. Research increasingly demonstrates that collaborative educational planning enhances both academic achievement and participation outcomes for learners with autism (Hume *et al.*, 2021; Gitonga & Wairungu, 2025).

Social workers address the broader social, emotional, financial, and environmental factors that influence rehabilitation outcomes. Families frequently encounter challenges navigating healthcare systems, educational services, disability support programs, and community resources. Social workers assist families in accessing available services, advocating for their rights, securing financial assistance, and coordinating support across multiple agencies. They also provide psychosocial counseling, caregiver support, crisis intervention, and community linkage. Their role is particularly important in contexts where stigma, poverty, limited awareness, and resource constraints create additional barriers to participation and service access (Franz *et al.*, 2017).

Increasingly, multidisciplinary rehabilitation recognizes families as core members of the intervention team rather than passive recipients of professional recommendations. Parents and caregivers possess unique knowledge regarding their child's communication styles, preferences, strengths, routines, motivations, and challenges. Family-centered practice emphasizes shared decision-making, collaborative goal setting, and caregiver empowerment throughout the rehabilitation process. Research consistently demonstrates that interventions embedded within natural routines and implemented collaboratively with caregivers result in improved communication, adaptive behavior, participation, and long-term developmental outcomes (Leadbitter *et al.*, 2021). Family involvement also enhances the generalization of skills across home, school, and community environments. It is important to appreciate role of families as mentors, advocates of the rights of the child with Autism and as well provider of monetary and material resources (Mokhtar *et al.*, 2023).

The effectiveness of multidisciplinary rehabilitation depends not only on the expertise of individual professionals but also on the quality of collaboration among team members. Effective teams engage in regular communication, shared assessment, coordinated intervention planning, collaborative problem-solving, and joint evaluation of outcomes. Professionals contribute discipline-specific knowledge while maintaining a shared commitment to family-centered, participation-focused goals. Such collaboration reduces service fragmentation, minimizes duplication of effort, promotes consistency across settings, and enhances overall intervention effectiveness (Bowman *et al.*, 2021; LaFrance *et al.*, 2019).

Within Kenya and other low- and middle-income countries, multidisciplinary teams often operate under resource constraints, including shortages of specialists, limited service infrastructure, and restricted access to training opportunities. Nevertheless, the principles of multidisciplinary practice remain highly relevant. Partnerships among hospitals, schools, universities, community-based rehabilitation programs, non-governmental organizations, and families provide opportunities to strengthen service delivery despite limited resources. Expanding interprofessional collaboration and workforce development will be essential for improving access to comprehensive autism services throughout Africa (Franz *et al.*, 2017; Gitonga & Wairungu, 2025).

Ultimately, multidisciplinary team members contribute distinct but complementary expertise that collectively supports the holistic development of autistic children. By addressing communication, sensory processing, motor skills, adaptive behavior, emotional well-being, educational participation, family functioning, and community inclusion simultaneously, multidisciplinary teams provide a comprehensive framework for promoting meaningful and sustainable developmental outcomes. This collaborative approach forms the foundation upon which effective autism rehabilitation is built and provides the practical mechanism through which theoretical principles are translated into everyday practice.

7. Interprofessional Collaboration and Shared Decision-Making in Autism Rehabilitation

The success of multidisciplinary rehabilitation in Autism Spectrum Disorder (ASD) depends not only on the expertise of individual professionals but also on the quality of collaboration among team members. While each discipline contributes specialized knowledge and skills, meaningful outcomes are most likely to be achieved when professionals work together within a coordinated framework that promotes shared goals, mutual respect, effective communication, and family engagement. Interprofessional collaboration has therefore emerged as a defining characteristic of contemporary autism rehabilitation and is increasingly recognized as a critical determinant of intervention effectiveness (Bowman *et al.*, 2021; LaFrance *et al.*, 2019).

Historically, autism services were often delivered through multidisciplinary arrangements in which professionals worked independently within their respective areas

of specialization. Although children could receive services from multiple providers, communication among professionals was frequently limited, resulting in fragmented intervention plans, inconsistent recommendations, duplication of services, and reduced opportunities for coordinated care. Families were often required to act as intermediaries between professionals, carrying information from one provider to another while attempting to reconcile conflicting advice. Such fragmented approaches often created confusion, increased caregiver burden, and reduced the overall effectiveness of intervention programs (LaFrance *et al.*, 2019). This frustrated achievement of annual and short term rehabilitation goals.

In contrast, contemporary interprofessional collaboration emphasizes active cooperation among professionals throughout the assessment, planning, implementation, and evaluation processes. Collaborative teams share information, jointly establish priorities, coordinate intervention strategies, and collectively evaluate progress. Rather than focusing exclusively on discipline-specific goals, team members work toward shared outcomes that reflect the child's overall functioning, participation, and quality of life. This approach ensures that intervention strategies implemented by one professional complement rather than contradict those provided by others, thereby increasing consistency across settings and maximizing opportunities for skill generalization (Bowman *et al.*, 2021).

A central principle of interprofessional collaboration is role clarity. Effective teamwork requires that professionals understand not only their own responsibilities but also the expertise and contributions of other team members. Clear role definition reduces misunderstandings, minimizes duplication of effort, and promotes efficient utilization of available resources. For example, while both speech-language pathologists and psychologists may address social communication challenges, their approaches differ according to their professional expertise. Similarly, occupational therapists and physiotherapists may both address motor-related concerns, yet their intervention goals and methods often focus on different aspects of functioning. Recognizing these distinctions while appreciating areas of overlap strengthens collaborative practice and improves service delivery (LaFrance *et al.*, 2019).

Communication is another fundamental component of effective interprofessional collaboration. Regular meetings, shared documentation systems, case conferences, collaborative assessment reports, and coordinated intervention plans facilitate information exchange and support consistency across intervention settings. Through ongoing communication, professionals can monitor progress, identify emerging concerns, adjust goals, and ensure that interventions remain responsive to the child's evolving needs. Consistent communication is particularly important in autism rehabilitation because developmental progress often occurs across multiple domains simultaneously. Improvements in communication may influence behavior, sensory regulation may affect classroom participation, and emotional well-being may impact learning outcomes. Collaborative communication enables professionals to recognize these interactions and adapt interventions accordingly.

Collaborative assessment represents one of the most significant advantages of interprofessional practice. Autism affects multiple developmental systems, making comprehensive evaluation essential for accurate understanding of strengths, challenges, and support needs. A multidisciplinary assessment may incorporate medical evaluations, psychological testing, speech-language assessments, sensory processing evaluations, motor assessments, educational observations, adaptive behavior measures, and family interviews. Each professional contributes unique insights that collectively provide a more complete understanding of the child than could be achieved through discipline-specific evaluation alone. Collaborative assessment also facilitates earlier identification of co-occurring conditions and informs the development of integrated intervention plans that address multiple areas of need simultaneously (Lord *et al.*, 2020; Hume *et al.*, 2021).

Interprofessional collaboration is particularly important during intervention planning. Effective rehabilitation goals should reflect priorities that are meaningful to the child and family while addressing participation across home, school, and community settings. Collaborative goal setting enables professionals to align discipline-specific objectives within a unified framework. For example, a goal related to classroom participation may involve communication strategies developed by a speech-language pathologist, sensory supports designed by an occupational therapist, behavioral interventions recommended by a psychologist, and instructional accommodations implemented by an educator. Such coordinated planning increases the likelihood that interventions will be mutually reinforcing and relevant to everyday functioning.

Shared decision-making has become a cornerstone of contemporary family-centered rehabilitation. This approach recognizes that families possess valuable expertise regarding their child's strengths, challenges, preferences, routines, and priorities. Rather than acting solely as recipients of professional advice, caregivers are viewed as equal partners in determining intervention goals, selecting strategies, monitoring progress, and evaluating outcomes. Shared decision-making promotes respect for family values and cultural perspectives while ensuring that intervention plans are feasible, meaningful, and sustainable within natural environments (Leadbitter *et al.*, 2021).

The importance of family involvement extends beyond ethical considerations and is strongly supported by empirical evidence. Research indicates that caregiver-mediated interventions contribute to improvements in communication, adaptive behavior, social participation, and family confidence. Because children spend the majority of their time outside formal therapy sessions, caregiver participation is essential for promoting generalization and maintenance of newly acquired skills. Multidisciplinary teams that actively involve families in intervention planning and implementation are therefore more likely to achieve meaningful and long-lasting outcomes (Leadbitter *et al.*, 2021; Kasari *et al.*, 2021).

Interprofessional collaboration also contributes to professional development and service quality. Exposure to diverse perspectives encourages professionals to broaden their understanding of autism and develop more holistic approaches to intervention.

Collaborative environments foster knowledge exchange, enhance problem-solving capacity, and promote innovation in service delivery. Furthermore, interdisciplinary teamwork supports the development of shared competencies related to communication, leadership, conflict resolution, ethical practice, and cultural responsiveness. These competencies are increasingly recognized as essential components of effective autism services and should be incorporated into professional training programs (Holman *et al.*, 2025).

Despite its many benefits, interprofessional collaboration is not without challenges. Differences in professional philosophies, communication styles, terminology, and intervention priorities may create barriers to effective teamwork. Limited time, high caseloads, resource constraints, and organizational structures can further restrict opportunities for collaboration. In many low- and middle-income countries, including Kenya, shortages of specialists and fragmented service systems present additional obstacles to coordinated care. Nevertheless, these challenges do not diminish the importance of collaboration; rather, they highlight the need for deliberate strategies that strengthen teamwork, communication, and shared responsibility for outcomes (Franz *et al.*, 2017; Gitonga & Wairungu, 2025).

Within the Kenyan context, strengthening interprofessional collaboration offers significant opportunities to improve autism service delivery. Collaborative partnerships among hospitals, schools, universities, rehabilitation centers, community-based organizations, and families can help address workforce shortages and expand access to services. Integrated service models may facilitate earlier identification, improve continuity of care, reduce duplication of services, and enhance participation outcomes for autistic children. Additionally, incorporating interprofessional education into professional training programs can prepare future practitioners to work effectively within multidisciplinary teams and respond more effectively to the complex needs of individuals with autism and their families.

Ultimately, interprofessional collaboration and shared decision-making provide the operational foundation upon which multidisciplinary rehabilitation is built. The integration of diverse professional perspectives, combined with meaningful family participation, enables the development of comprehensive, individualized, and participation-focused intervention plans (Doornebsch *et al.*, 2025). Through collaborative practice, multidisciplinary teams can address the interconnected nature of autism more effectively than isolated professionals working independently. As the following section demonstrates, growing empirical evidence supports the effectiveness of such collaborative approaches in improving developmental, educational, communication, and participation outcomes among autistic children.

8. Evidence Supporting Multidisciplinary Rehabilitation in Autism Spectrum Disorder

The growing emphasis on multidisciplinary rehabilitation in Autism Spectrum Disorder (ASD) is supported by an expanding body of scientific evidence demonstrating that coordinated, collaborative interventions produce more comprehensive and sustainable outcomes than isolated discipline-specific approaches. Although individual therapeutic interventions may address particular developmental challenges, the complex and interconnected nature of autism necessitates intervention models that simultaneously target communication, adaptive functioning, educational participation, sensory processing, motor development, emotional well-being, and family support. Consequently, multidisciplinary rehabilitation has emerged as an evidence-based framework capable of addressing the diverse needs of autistic children while promoting meaningful participation and quality of life across settings (Hume *et al.*, 2021; Lord *et al.*, 2020).

One of the strongest areas of evidence supporting multidisciplinary rehabilitation relates to communication development. Communication difficulties are among the defining features of ASD and significantly influence social participation, educational engagement, behavioral regulation, and independence. Research consistently demonstrates that communication outcomes improve when speech-language interventions are integrated with caregiver involvement, educational supports, occupational therapy strategies, and behavioral interventions. Communication skills acquired in clinical settings are more likely to generalize and be maintained when opportunities for practice are embedded within natural environments such as homes, schools, and community settings. This integration requires collaboration among speech-language pathologists, educators, occupational therapists, psychologists, and family members who work together to reinforce communication goals across contexts (Tager-Flusberg, 2021; Hume *et al.*, 2021).

The effectiveness of caregiver-mediated interventions further illustrates the value of multidisciplinary approaches. Caregivers play a critical role in supporting communication, adaptive behavior, emotional regulation, and social participation because they provide the majority of learning opportunities outside formal therapy sessions. Studies examining parent-mediated interventions have reported positive effects on language development, joint attention, social interaction, adaptive functioning, and caregiver confidence (Kasari *et al.*, 2021; Leadbitter *et al.*, 2021). These findings support family-centered models of rehabilitation in which professionals collaborate with caregivers to implement intervention strategies within everyday routines. By empowering families as active partners, multidisciplinary teams increase the intensity, consistency, and ecological validity of intervention (Martinez-Rico *et al.*, 2022).

Evidence also supports the contribution of multidisciplinary rehabilitation to improvements in adaptive functioning (You *et al.*, 2021). Adaptive skills encompass communication, self-care, socialization, community participation, safety awareness, and

independent living abilities. Many children with Autism experience challenges in adaptive functioning that affect their ability to participate effectively in daily activities. Research indicates that coordinated interventions involving occupational therapists, speech-language pathologists, psychologists, educators, and caregivers can significantly enhance adaptive behavior outcomes. Improvements in communication, sensory regulation, executive functioning, and social understanding often contribute indirectly to gains in adaptive functioning, highlighting the interconnected nature of developmental domains and the need for integrated intervention approaches (DaWalt *et al.*, 2021; Hume *et al.*, 2021).

Educational participation represents another area in which multidisciplinary rehabilitation has demonstrated substantial benefits. Successful participation in educational environments requires the integration of communication skills, behavioral regulation, sensory processing, social competence, motor abilities, and academic readiness. Isolated interventions that address only one domain may fail to produce meaningful improvements in classroom functioning. Conversely, multidisciplinary teams can develop coordinated educational plans that align therapeutic goals with academic objectives and classroom practices. Collaboration among educators, therapists, psychologists, and families facilitates the implementation of individualized supports, curriculum adaptations, environmental modifications, and behavioral strategies that enhance learning and participation. Evidence-based educational practices have been associated with improvements in academic engagement, peer relationships, classroom behavior, and overall school success among learners with autism (Hume *et al.*, 2021; Gitonga & Wairungu, 2025).

Behavioral and emotional outcomes also appear to benefit from multidisciplinary intervention. Historically, challenging behaviors were often addressed through isolated behavioral programs focused primarily on behavior reduction (Zhang, 2026). Contemporary approaches increasingly recognize that behavior is influenced by multiple interacting factors, including communication difficulties, sensory processing differences, emotional regulation challenges, environmental demands, and social experiences (Wairungu, 2020). Multidisciplinary teams are uniquely positioned to examine these factors comprehensively and develop intervention plans that address underlying causes rather than symptoms alone. For example, a child who exhibits aggression during classroom activities may be experiencing communication frustration, sensory overload, anxiety, or academic difficulties. Collaborative assessment enables professionals to identify these contributing factors and implement coordinated strategies that promote positive behavior and participation (LaFrance *et al.*, 2019; Bowman *et al.*, 2021).

The evidence supporting multidisciplinary rehabilitation is further strengthened by findings from systematic reviews and meta-analyses. Project AIM (Autism Intervention Meta-Analysis for Studies of Young Children), one of the largest syntheses of autism intervention research, demonstrated that interventions targeting communication, social interaction, and developmental outcomes are most effective when implemented within comprehensive and coordinated frameworks that involve multiple

stakeholders and settings (Sandbank *et al.*, 2020). Subsequent analyses have reinforced the importance of integrating intervention strategies across environments to promote meaningful and sustained developmental gains. These findings align closely with multidisciplinary rehabilitation principles, which emphasize consistency, collaboration, and generalization of learning across contexts.

Multidisciplinary rehabilitation has also been associated with improved diagnostic accuracy and intervention planning. Autism affects multiple developmental systems, and no single assessment method can adequately capture the full range of strengths and challenges experienced by a child with autism. Collaborative assessments that incorporate medical, psychological, educational, communication, sensory, and functional perspectives provide a more comprehensive understanding of individual needs. Such assessments facilitate earlier identification of co-occurring conditions, improve intervention targeting, and support the development of individualized rehabilitation plans that address multiple domains simultaneously (Lord *et al.*, 2020; Hume *et al.*, 2021).

Family outcomes constitute another important area of evidence supporting multidisciplinary rehabilitation. Caring for a child with autism often places significant emotional, social, and financial demands on families. Fragmented services can increase caregiver stress by requiring families to navigate multiple systems independently while coordinating interventions across providers. Multidisciplinary models reduce fragmentation by promoting communication among professionals and providing families with more coordinated support. Research indicates that families who receive integrated services report greater satisfaction, improved understanding of their child's needs, increased confidence in supporting development, and enhanced quality of life (DaWalt *et al.*, 2021; Leadbitter *et al.*, 2021). These findings underscore the importance of viewing family well-being as an essential outcome of rehabilitation rather than a secondary consideration.

The effectiveness of multidisciplinary rehabilitation is particularly evident when considering the concept of skill generalization. One of the greatest challenges in autism intervention involves ensuring that skills learned in therapy settings transfer to everyday environments (Zwaigenbaum, *et al.*, 2015). A child who demonstrates communication skills during therapy sessions may struggle to use those same skills at home, in school, or within community settings if intervention remains isolated. Multidisciplinary approaches address this challenge by coordinating strategies across environments and involving caregivers, educators, and multiple professionals in intervention delivery. Such coordination creates repeated opportunities for practice and reinforcement, increasing the likelihood that developmental gains will be maintained over time (Kasari *et al.*, 2021; Hume *et al.*, 2021).

Despite the growing evidence base, it is important to recognize that multidisciplinary rehabilitation is not a single intervention but rather a framework through which evidence-based practices are coordinated and delivered. The effectiveness of multidisciplinary rehabilitation therefore depends on the quality of collaboration

among team members, the appropriateness of intervention strategies, family engagement, and the availability of resources. Nevertheless, the collective evidence consistently suggests that integrated and coordinated approaches produce superior outcomes compared to fragmented service delivery models (Zhao *et al.*, 2025). Improvements in communication, adaptive functioning, educational participation, social engagement, emotional well-being, caregiver confidence, and quality of life all provide compelling support for multidisciplinary rehabilitation as a preferred model of autism intervention.

Within African and Kenyan contexts, the evidence supporting multidisciplinary rehabilitation has important implications for service development. Although workforce shortages and resource constraints remain significant challenges, the principles underlying multidisciplinary practice remain highly relevant. Strengthening collaboration among healthcare providers, educators, universities, community-based rehabilitation programs, and families may offer an effective strategy for improving access to services while maximizing available resources. Investment in multidisciplinary systems has the potential to enhance developmental outcomes, reduce service fragmentation, and promote more equitable access to autism support across diverse communities.

Taken together, the available evidence strongly supports multidisciplinary rehabilitation as an effective and comprehensive approach to autism intervention. By integrating expertise across disciplines and coordinating intervention across multiple environments, multidisciplinary teams address the interconnected nature of autism more effectively than isolated services. The following section examines how these improvements translate into meaningful educational, communication, social, and participation outcomes that ultimately determine long-term quality of life for autistic children and their families.

9. Educational, Communication, and Participation Outcomes of Multidisciplinary Rehabilitation

The ultimate objective of multidisciplinary rehabilitation in Autism Spectrum Disorder (ASD) extends beyond symptom management to encompass meaningful participation in everyday life. While improvements in specific developmental domains such as language, motor skills, or behavior remain important, contemporary rehabilitation frameworks increasingly emphasize outcomes that enhance an individual's ability to participate successfully within family, educational, social, and community environments. This shift reflects broader developments in disability and rehabilitation research, particularly the influence of the International Classification of Functioning, Disability and Health (ICF), which positions participation as a central indicator of health, well-being, and quality of life (World Health Organization [WHO], 2001). Consequently, the effectiveness of multidisciplinary rehabilitation is best evaluated not solely by reductions in autism-

related challenges but by improvements in communication, educational engagement, adaptive functioning, social inclusion, and meaningful participation across contexts.

Communication outcomes are among the most extensively studied and clinically significant indicators of intervention effectiveness in autism rehabilitation. Communication serves as the foundation for social interaction, learning, emotional expression, self-advocacy, and participation in daily activities. Many autistic children experience challenges in expressive language, receptive language, social communication, conversational reciprocity, and pragmatic language use. These difficulties can affect educational performance, peer relationships, family interactions, and long-term independence. Multidisciplinary rehabilitation addresses communication through coordinated efforts involving speech-language pathologists, educators, psychologists, occupational therapists, and caregivers. Evidence indicates that communication outcomes improve substantially when intervention strategies are reinforced across multiple environments and implemented collaboratively by professionals and family members (Tager-Flusberg, 2021; Kasari *et al.*, 2021).

One of the most significant contributions of multidisciplinary rehabilitation to communication development is the promotion of functional communication rather than isolated language skills. Functional communication refers to the ability to express needs, share information, participate in conversations, build relationships, and engage effectively within everyday environments. For minimally speaking or non-speaking children, augmentative and alternative communication (AAC) systems provide important pathways for participation. Research demonstrates that AAC interventions, when integrated across home and school settings and supported by caregivers and educators, can enhance communication competence, reduce frustration, and increase social engagement (Hume *et al.*, 2021). These findings underscore the importance of collaborative implementation and consistent communication opportunities across environments.

Educational participation represents another critical outcome influenced by multidisciplinary rehabilitation. Education plays a central role in cognitive development, socialization, communication growth, and future vocational opportunities. However, autistic children often encounter barriers to educational participation resulting from communication difficulties, sensory processing differences, behavioral challenges, social interaction difficulties, and co-occurring developmental conditions. Multidisciplinary teams help address these barriers through coordinated educational planning, individualized accommodations, therapeutic supports, and environmental modifications. Special educators, speech-language pathologists, occupational therapists, psychologists, and families work collaboratively to ensure that educational goals align with broader developmental objectives and participation outcomes (Gitonga & Wairungu, 2025; Hume *et al.*, 2021).

The implementation of Individualized Education Programs (IEPs) provides a practical example of multidisciplinary collaboration within educational settings. Effective IEPs integrate communication goals, academic objectives, sensory supports,

behavioral strategies, and participation outcomes into a unified framework. Such collaborative planning enhances consistency across educational and therapeutic environments while ensuring that interventions remain relevant to classroom participation and learning. Research suggests that children who receive coordinated educational and therapeutic support demonstrate improved academic engagement, classroom participation, peer interaction, and educational achievement compared to those receiving fragmented services (Hume *et al.*, 2021; Dillenburger *et al.*, 2014).

Social participation constitutes another important outcome domain. Social relationships contribute significantly to emotional well-being, self-esteem, learning opportunities, and overall quality of life. Many autistic children experience difficulties initiating interactions, maintaining friendships, interpreting social cues, understanding social expectations, and participating in group activities. Multidisciplinary rehabilitation addresses these challenges through interventions targeting communication skills, social cognition, emotional regulation, sensory processing, and environmental adaptation. Speech-language pathologists support conversational competence and pragmatic language development, psychologists address social understanding and emotional skills, occupational therapists facilitate participation in play and group activities, and educators create inclusive opportunities for peer interaction. Collectively, these interventions contribute to enhanced social participation and relationship development (Leadbitter *et al.*, 2021; Lord *et al.*, 2022).

Adaptive functioning outcomes provide another important measure of rehabilitation effectiveness. Adaptive functioning encompasses the practical skills required for everyday living, including self-care, communication, personal safety, social responsibility, organization, and community participation. Many children with autism experience challenges in adaptive functioning that may persist despite strengths in other developmental areas. Multidisciplinary interventions targeting self-care, executive functioning, communication, sensory regulation, and social participation have been associated with improvements in adaptive behavior and independence. Occupational therapists, educators, psychologists, speech-language pathologists, and caregivers often collaborate to develop strategies that support the acquisition and generalization of adaptive skills across environments (DaWalt *et al.*, 2021).

Participation within family life is equally important when evaluating rehabilitation outcomes. Families provide the primary context within which children learn, communicate, develop relationships, and engage in everyday activities. Effective rehabilitation should therefore enhance participation in family routines, shared activities, household responsibilities, recreational experiences, and community events. Family-centered approaches encourage caregivers to actively participate in intervention planning and implementation, ensuring that goals are meaningful and relevant to daily life. Research consistently demonstrates that family involvement contributes to improved developmental outcomes, greater caregiver confidence, and enhanced family quality of life (Leadbitter *et al.*, 2021; Kasari *et al.*, 2021).

Community participation represents a broader extension of educational and family outcomes. Meaningful inclusion involves opportunities to participate in recreational activities, religious events, cultural celebrations, sports programs, youth organizations, and other community experiences. Unfortunately, children with autism often encounter environmental barriers, stigma, inadequate accommodations, and limited opportunities for inclusion. Multidisciplinary rehabilitation addresses these barriers by promoting self-advocacy, environmental adaptation, social competence, communication skills, and community awareness. Social workers, educators, therapists, healthcare professionals, and families each play important roles in facilitating community engagement and reducing participation restrictions (Franz *et al.*, 2017).

The concept of quality of life has gained increasing attention within autism research and rehabilitation. Quality of life encompasses subjective well-being, satisfaction with relationships, participation opportunities, independence, emotional health, and access to meaningful activities. Contemporary perspectives emphasize that successful intervention should not be measured solely by symptom reduction but by improvements in overall well-being and life satisfaction. Multidisciplinary rehabilitation supports quality of life by addressing multiple domains simultaneously and by focusing on participation-based outcomes that reflect real-world experiences. Improvements in communication, educational engagement, social participation, adaptive functioning, and family support collectively contribute to enhanced quality of life for autistic individuals and their families (Howlin, 2021; Pellicano, 2022).

Importantly, the benefits of multidisciplinary rehabilitation extend beyond childhood. Educational participation, communication competence, adaptive functioning, and social engagement established during childhood form the foundation for successful transitions into adolescence and adulthood. Early intervention programs that emphasize participation, independence, and family engagement can positively influence long-term outcomes related to employment, community living, social relationships, and mental health. This developmental perspective highlights the importance of viewing rehabilitation as a continuous process that evolves alongside the individual's changing needs and aspirations.

Within Kenya and other low- and middle-income countries, educational and participation outcomes are often influenced by resource limitations, workforce shortages, and disparities in service availability. Nevertheless, the principles of multidisciplinary rehabilitation remain highly relevant. Collaborative partnerships among schools, healthcare facilities, universities, community-based rehabilitation programs, and families can help strengthen educational inclusion and participation opportunities despite resource constraints. Expanding access to multidisciplinary services may therefore represent an important strategy for improving developmental outcomes and promoting social inclusion among autistic children within diverse African contexts (Gitonga & Wairungu, 2025; Franz *et al.*, 2017).

In summary, educational, communication, and participation outcomes provide compelling evidence of the value of multidisciplinary rehabilitation in ASD. By

integrating expertise across disciplines and focusing on meaningful engagement in everyday life, multidisciplinary teams support improvements that extend far beyond isolated developmental skills. Enhanced communication, educational success, adaptive functioning, social inclusion, family participation, and quality of life collectively demonstrate the transformative potential of coordinated rehabilitation approaches. These outcomes reinforce the central argument of this review that multidisciplinary rehabilitation offers the most comprehensive and effective framework for supporting autistic children to achieve meaningful participation and lifelong developmental success.

10. Barriers to the Implementation of Multidisciplinary Rehabilitation in Autism Spectrum Disorder

Despite the growing evidence supporting multidisciplinary rehabilitation as the preferred approach for managing Autism Spectrum Disorder (ASD), significant barriers continue to limit its implementation across many healthcare, educational, and community settings. These barriers operate at multiple levels, including the child, family, service provider, institutional, and policy levels. While multidisciplinary rehabilitation offers substantial benefits in promoting communication, adaptive functioning, educational participation, social inclusion, and quality of life, the successful implementation of this model requires coordinated systems, adequately trained professionals, sustainable funding, and supportive policy frameworks. Understanding these barriers is therefore essential for identifying strategies that can strengthen autism services and improve developmental outcomes for autistic children and their families (Bowman *et al.*, 2021; Franz *et al.*, 2017).

One of the most significant challenges facing multidisciplinary rehabilitation is the shortage of qualified professionals. Effective multidisciplinary teams typically require the involvement of developmental pediatricians, speech-language pathologists, occupational therapists, physiotherapists, psychologists, special educators, social workers, and other specialists. However, many countries, particularly low- and middle-income countries, experience severe shortages of these professionals. In numerous regions, specialist services are concentrated in major urban centers, leaving rural and underserved populations with limited or no access to comprehensive autism services. Consequently, many children are diagnosed late, receive fragmented interventions, or remain entirely excluded from specialized support programs (Franz *et al.*, 2017; WHO, 2023).

The shortage of professionals is often compounded by insufficient training opportunities in autism-specific assessment and intervention. Many healthcare providers, educators, and rehabilitation professionals receive limited formal training in autism during their undergraduate or postgraduate education. As a result, professionals may feel inadequately prepared to identify autism, manage complex developmental profiles, implement evidence-based interventions, or collaborate effectively within multidisciplinary teams. This challenge is particularly evident in emerging healthcare

systems where autism services are still developing and specialized training programs remain limited. Strengthening professional education and interprofessional training opportunities is therefore essential for improving service quality and accessibility (Holman *et al.*, 2025).

Financial constraints represent another major barrier to multidisciplinary rehabilitation. Comprehensive autism services often require multiple assessments, ongoing therapy sessions, specialized educational support, assistive technologies, transportation, and caregiver involvement. These costs can place considerable financial burdens on families, particularly in settings where healthcare coverage for developmental disabilities is limited. Even when services are available, many families struggle to afford the frequency and intensity of intervention recommended by professionals. Financial barriers may result in delayed intervention, inconsistent service utilization, and reduced opportunities for long-term developmental support. Furthermore, healthcare institutions and educational systems may face resource limitations that restrict their ability to establish and maintain multidisciplinary programs (DaWalt *et al.*, 2021).

Fragmentation of services remains a persistent challenge in many autism support systems. In fragmented models, healthcare providers, educators, therapists, and social services often operate independently with limited communication or coordination. Families may be required to navigate multiple systems, attend appointments at different locations, and relay information between professionals. This fragmentation can lead to duplication of assessments, inconsistent intervention goals, conflicting recommendations, and reduced continuity of care. Importantly, fragmented services undermine one of the core strengths of multidisciplinary rehabilitation: coordinated intervention across developmental domains and environments. Effective multidisciplinary practice requires structures that facilitate communication, shared decision-making, collaborative planning, and integrated service delivery (LaFrance *et al.*, 2019; Bowman *et al.*, 2021).

Limited awareness and understanding of autism within communities also contribute significantly to service barriers. Misconceptions regarding the causes, characteristics, and management of autism continue to exist in many societies. Some families may initially interpret autism-related behaviors through cultural, spiritual, or social frameworks that delay access to formal assessment and intervention. Stigma associated with developmental disabilities may further discourage families from seeking support or participating fully in educational and community activities. Lack of awareness among healthcare providers, educators, and policymakers can similarly contribute to delayed identification, inadequate services, and insufficient resource allocation. Public education initiatives are therefore essential for improving early identification, reducing stigma, and promoting inclusion (Franz *et al.*, 2017; WHO, 2023).

Cultural and linguistic factors present additional challenges for multidisciplinary rehabilitation. Many assessment tools and intervention programs have been developed primarily within Western contexts and may not adequately reflect the cultural values,

languages, and lived experiences of diverse populations. Families from different cultural backgrounds may hold varying beliefs regarding child development, disability, communication, education, and family roles. Failure to consider these factors may reduce engagement, limit intervention effectiveness, and contribute to disparities in service access. Culturally responsive multidisciplinary practice requires professionals to adapt assessment procedures, intervention strategies, and communication approaches to align with the cultural contexts of the families they serve (Kapp, 2020; Franz *et al.*, 2017).

Educational systems often face significant challenges in supporting autistic learners. Many schools lack adequately trained personnel, specialized instructional resources, assistive technologies, and inclusive educational policies. Large class sizes, limited teacher preparation, and insufficient collaboration between educational and healthcare systems may further hinder the implementation of individualized support strategies. Even when Individualized Education Programs (IEPs) are developed, successful implementation requires ongoing collaboration among educators, therapists, families, and administrators. In the absence of such collaboration, educational interventions may become fragmented and less effective in promoting meaningful participation and learning outcomes (Gitonga & Wairungu, 2025; Hume *et al.*, 2021).

Another important barrier relates to caregiver stress and family burden. Caring for an autistic child often involves substantial emotional, physical, financial, and logistical demands. Parents may experience elevated levels of stress, anxiety, social isolation, and uncertainty regarding intervention decisions. Frequent appointments, transportation challenges, financial pressures, and concerns about future outcomes can further increase caregiver burden. These challenges may affect family participation in intervention programs and reduce the consistency of support provided across environments. Multidisciplinary teams must therefore recognize caregiver well-being as a critical component of effective rehabilitation and provide appropriate psychosocial support and family-centered services (Leadbitter *et al.*, 2021; DaWalt *et al.*, 2021).

Technological and infrastructural limitations also affect service delivery in many regions. Limited access to telehealth platforms, assistive communication technologies, electronic health records, and digital learning resources can restrict opportunities for collaboration and service coordination. During recent years, telepractice has emerged as a valuable strategy for expanding access to autism services, particularly in rural and underserved areas. However, successful implementation depends on reliable internet connectivity, technological literacy, and supportive infrastructure, all of which may be limited in resource-constrained settings (WHO, 2023).

Policy and governance challenges further influence the implementation of multidisciplinary rehabilitation. Effective autism services require coordinated policies that support early identification, inclusive education, workforce development, healthcare access, disability rights, and family support. In many countries, autism policies remain underdeveloped or inconsistently implemented. Limited funding, weak intersectoral coordination, and inadequate monitoring systems may hinder efforts to establish comprehensive multidisciplinary services. Strong policy frameworks are therefore

essential for creating environments that support collaborative practice and equitable access to intervention (Dillenburger *et al.*, 2014).

Within Kenya and many other African countries, these barriers often intersect and reinforce one another. Professional shortages, limited public awareness, financial constraints, inadequate infrastructure, and fragmented service systems continue to restrict access to comprehensive autism support. Nevertheless, significant opportunities exist to strengthen multidisciplinary rehabilitation through partnerships among healthcare institutions, universities, schools, community-based rehabilitation programs, governmental agencies, and non-governmental organizations. Expanding professional training programs, strengthening interprofessional education, increasing public awareness, and investing in inclusive policies can contribute substantially to improving autism services throughout the region (Gitonga & Wairungu, 2025; Franz *et al.*, 2017).

Although these barriers present significant challenges, they should not be viewed as reasons to abandon multidisciplinary rehabilitation. Rather, they highlight the areas in which healthcare systems, educational institutions, policymakers, and communities must invest to improve service delivery. The evidence reviewed throughout this article consistently demonstrates that multidisciplinary rehabilitation offers substantial benefits for children with autism and their families. Addressing implementation barriers is therefore not merely an administrative concern but a critical step toward ensuring equitable access to effective, family-centered, and evidence-based autism services. The following section explores future directions and recommendations for strengthening multidisciplinary rehabilitation and advancing autism services within both global and African contexts.

11. Future Directions and Recommendations for Multidisciplinary Rehabilitation in Autism Spectrum Disorder

As understanding of Autism Spectrum Disorder (ASD) continues to evolve, the future of autism rehabilitation increasingly depends on the development of integrated, evidence-based, and family-centered systems of care. Although significant advances have been made in diagnosis, intervention, and service delivery, considerable disparities remain in access, quality, and coordination of services across countries and regions. Emerging research suggests that future autism services should move beyond fragmented discipline-specific models toward collaborative frameworks that prioritize participation, inclusion, quality of life, and long-term developmental outcomes. Strengthening multidisciplinary rehabilitation therefore represents both a clinical necessity and a public health priority (Lord *et al.*, 2022; Pellicano, 2022).

One of the most important future directions involves expanding early identification and intervention services. Research consistently demonstrates that early intervention can positively influence communication, social engagement, adaptive behavior, and developmental trajectories among children with autism (Dawson *et al.*, 2022; Hume *et al.*, 2021). However, many children continue to experience delayed

diagnosis due to limited awareness, inadequate screening systems, shortages of trained professionals, and barriers to accessing specialist services. Future efforts should focus on strengthening developmental surveillance programs, integrating autism screening into routine pediatric healthcare, and improving referral pathways between healthcare, educational, and rehabilitation systems. Earlier identification enables multidisciplinary teams to initiate support during critical periods of neurodevelopment, thereby maximizing opportunities for positive outcomes (Hadders-Algra, 2021).

The expansion of interprofessional education represents another critical priority. Effective multidisciplinary rehabilitation depends on professionals who possess not only discipline-specific expertise but also the collaborative competencies necessary for teamwork. Historically, many healthcare, education, and rehabilitation programs have trained professionals in isolation, providing limited opportunities for students to develop collaborative skills. Future professional preparation should therefore emphasize interprofessional learning experiences that foster communication, role clarity, teamwork, shared decision-making, and collaborative problem-solving. Such educational models can prepare future practitioners to work effectively within multidisciplinary environments and improve the quality of coordinated care (Holman *et al.*, 2025; Bowman *et al.*, 2021).

Technological innovation is expected to play an increasingly important role in autism rehabilitation. Advances in telehealth, digital communication platforms, electronic health records, assistive technologies, and artificial intelligence offer new opportunities for expanding access to services and improving collaboration among professionals. Telepractice has already demonstrated considerable potential for supporting assessment, intervention, caregiver training, and professional consultation, particularly in rural and underserved communities. The integration of digital tools may facilitate more efficient communication among multidisciplinary team members, improve continuity of care, and reduce geographic barriers to service access. However, future implementation efforts must address issues related to technological infrastructure, digital literacy, accessibility, and equitable access to ensure that technological innovations benefit all families rather than widening existing disparities (World Health Organization, 2023).

Family-centered care is likely to remain a central focus of future rehabilitation models. Increasing recognition of parents and caregivers as equal partners in intervention planning reflects broader shifts toward person-centered and participatory healthcare. Future services should continue to prioritize shared decision-making, caregiver empowerment, and interventions that are embedded within natural routines and everyday environments. Research suggests that family-mediated interventions not only improve child outcomes but also strengthen caregiver confidence, reduce stress, and enhance family quality of life (Leadbitter *et al.*, 2021; Kasari *et al.*, 2021). Consequently, future rehabilitation programs should invest in caregiver education, peer-support networks, family counseling services, and community-based support systems that promote long-term sustainability.

Another emerging direction involves the adoption of neurodiversity-informed approaches to autism rehabilitation. Traditional intervention models often emphasized normalization and symptom reduction as primary objectives. While addressing support needs remains important, contemporary perspectives increasingly advocate for approaches that respect autistic identities, recognize strengths, and promote self-determination, inclusion, and quality of life (Kapp, 2020; Pellicano, 2022). Future multidisciplinary teams will need to balance evidence-based intervention with respect for neurodiversity principles, ensuring that rehabilitation supports participation and well-being without undermining individuality or autonomy.

Participation-based outcome measurement is also expected to become increasingly important. Historically, intervention effectiveness was frequently evaluated using standardized assessments of symptoms, developmental skills, or behavioral change. While these measures remain valuable, they may not fully capture the outcomes that matter most to autistic individuals and their families. Future research and practice should therefore place greater emphasis on participation outcomes, including educational engagement, social relationships, community involvement, employment readiness, independent living skills, self-advocacy, and overall quality of life. Such outcomes align closely with the International Classification of Functioning, Disability and Health (ICF) framework and provide a more holistic understanding of intervention effectiveness (World Health Organization, 2001).

Within educational settings, future directions should focus on strengthening inclusive education systems and improving collaboration between schools and rehabilitation services. Inclusive education offers opportunities for social participation, academic engagement, peer interaction, and community inclusion. However, successful inclusion requires adequate teacher preparation, individualized supports, accessible learning environments, and effective collaboration among educators, therapists, psychologists, and families. Future educational reforms should prioritize multidisciplinary planning, evidence-based instructional strategies, and inclusive policies that support meaningful participation for autistic learners across all levels of education (Gitonga & Wairungu, 2025; Hume *et al.*, 2021).

In African countries, including Kenya, future development of autism services will require particular attention to workforce expansion and capacity building. The limited availability of developmental pediatricians, speech-language pathologists, occupational therapists, psychologists, physiotherapists, and special educators continues to restrict access to multidisciplinary care. Investment in professional training programs, postgraduate education, continuing professional development, and interprofessional learning opportunities will be essential for strengthening service delivery. Partnerships among universities, healthcare institutions, government agencies, and international organizations may provide valuable opportunities for expanding workforce capacity and supporting sustainable service development (Franz *et al.*, 2017).

Policy reform will also play a crucial role in shaping the future of autism rehabilitation. Effective multidisciplinary services require coordinated policies that

support early identification, healthcare access, inclusive education, disability rights, family support, and workforce development. Governments should prioritize the integration of autism services within broader health, education, and social protection systems to reduce fragmentation and improve continuity of care. Increased investment in community-based rehabilitation programs, assistive technologies, caregiver support services, and inclusive educational initiatives can further strengthen outcomes for autistic individuals and their families (Dillenburger *et al.*, 2014).

Research priorities should similarly evolve to reflect contemporary understandings of autism and rehabilitation. Future studies should examine the effectiveness of multidisciplinary interventions across diverse cultural contexts, investigate long-term participation outcomes, explore strategies for improving service coordination, and evaluate models of care that are feasible within resource-constrained settings. Greater inclusion of autistic individuals and families in research design, implementation, and dissemination processes is also essential for ensuring that research remains relevant and responsive to community needs (Pellicano, 2022).

Ultimately, the future of autism rehabilitation lies in the development of collaborative systems that integrate expertise across disciplines while maintaining a strong focus on participation, inclusion, family empowerment, and quality of life (Hallaråker *et al.*, 2025). The evidence reviewed throughout this article suggests that multidisciplinary rehabilitation offers the most comprehensive framework for achieving these goals. Continued investment in workforce development, interprofessional education, technological innovation, family-centered practice, inclusive policies, and culturally responsive services will be essential for ensuring that autistic children receive the support necessary to thrive within their families, schools, communities, and societies. These future directions provide a roadmap for advancing autism rehabilitation and strengthening developmental outcomes across both high-resource and resource-constrained contexts.

12. Educational Implications for Special Needs Education and Inclusive Practice

The findings of this review have important implications for special needs education, inclusive schooling, and educational policy. Although Autism Spectrum Disorder (ASD) is often discussed within medical and rehabilitation contexts, many of its most significant impacts are experienced within educational environments where children spend a substantial portion of their developmental years. Consequently, schools play a critical role in supporting communication development, social participation, academic achievement, adaptive behavior, and overall quality of life for autistic learners.

The evidence reviewed in this article demonstrates that effective educational support for learners with autism requires collaboration among teachers, special needs educators, speech-language pathologists, occupational therapists, psychologists, physiotherapists, social workers, healthcare professionals, and families. Educational outcomes are significantly enhanced when intervention goals developed within clinical

settings are reinforced in classrooms and other natural learning environments. This collaborative approach ensures consistency across settings and promotes the generalization of skills necessary for academic success and social participation (Nguyen *et al.*, 2025)

Special needs educators occupy a central position within multidisciplinary rehabilitation because they facilitate access to learning opportunities while promoting participation within inclusive educational settings. Through the development and implementation of Individualized Education Programs (IEPs), special educators can integrate communication goals, sensory supports, behavioral strategies, adaptive skills, and academic objectives into a coordinated educational framework. Such collaboration learners with autism to access the curriculum more effectively while receiving individualized support tailored to their unique strengths and needs.

The implementation of inclusive education policies requires schools to move beyond placement-focused approaches and embrace participation-focused practices. Inclusion should not simply involve physical presence within mainstream classrooms but should ensure meaningful engagement in academic, social, recreational, and extracurricular activities. Teachers must therefore be equipped with knowledge and skills related to autism, differentiated instruction, classroom accommodations, behavioral support, communication strategies, and collaborative problem-solving (Petersson-Bloom, 2022). Continuous professional development programs are essential for building educator capacity and strengthening inclusive practices.

Communication accessibility is another critical consideration within educational settings. Learners with autism frequently experience communication challenges that affect classroom participation and learning outcomes. Educators should collaborate closely with speech-language pathologists to create communication-friendly learning environments that support expressive and receptive communication (Gallagher *et al.*, 2019). Furthermore, the principles of communication accessibility are equally relevant to learners with hearing impairments and other communication disabilities. The integration of visual supports, augmentative and alternative communication systems, sign language where appropriate, structured teaching approaches, and assistive technologies can significantly enhance educational participation and inclusion.

From a special needs education perspective, multidisciplinary rehabilitation aligns closely with the principles of Universal Design for Learning (UDL), which advocate for multiple means of engagement, representation, and expression (Doyle *et al.*, 2025). By recognizing learner diversity and proactively removing barriers to participation, schools can create educational environments that accommodate a broad range of developmental and communication needs. Such approaches benefit not only autistic learners but also other students with disabilities and diverse learning profiles.

Within Kenya, the Competency-Based Curriculum (CBC) presents significant opportunities for implementing multidisciplinary and learner-centered approaches. The CBC emphasizes individualized learning pathways, practical skill development, participation, and holistic assessment (Ndiang'ui *et al.*, 2025). These principles align well

with multidisciplinary rehabilitation and can facilitate stronger collaboration among educators, therapists, families, and community stakeholders. However, successful implementation will require investment in teacher training, specialist support services, resource development, and inclusive educational policies.

Ultimately, the findings of this review suggest that multidisciplinary rehabilitation should be viewed not only as a healthcare intervention but also as an educational support framework. By fostering collaboration among professionals and families, schools can become powerful environments for communication development, participation, inclusion, academic achievement, and lifelong learning. Strengthening multidisciplinary partnerships within educational systems therefore represents a critical strategy for improving outcomes for autistic learners and advancing inclusive education.

13. Way Forward and Recommendations

To strengthen multidisciplinary rehabilitation and inclusive educational outcomes for children with Autism Spectrum Disorder, the following recommendations are proposed:

13.1 Policy Recommendations

Governments should strengthen policies supporting early identification, multidisciplinary assessment, and inclusive education for autistic learners.

National disability and education policies should promote collaboration among healthcare, education, and social service sectors.

Increased funding should be allocated toward autism services, assistive technologies, and workforce development.

13.2 Education-related Recommendations

Teacher-training institutions should incorporate autism, inclusive education, communication disorders, and multidisciplinary collaboration into pre-service and in-service training programs.

Schools should establish multidisciplinary support teams involving educators, therapists, psychologists, and families.

Individualized Education Programs (IEPs) should be developed and implemented through collaborative decision-making processes.

Universal Design for Learning (UDL) principles should be adopted to improve accessibility and participation for all learners.

13.3 Clinical and Rehabilitation Recommendations

Rehabilitation services should prioritize family-centered and participation-based approaches.

Healthcare institutions should strengthen collaboration with schools to ensure continuity of support.

Telehealth and community-based rehabilitation programs should be expanded to improve service access in underserved areas.

Regular multidisciplinary case conferences should be conducted to improve communication and coordination among professionals.

14. Research Recommendations

More studies should examine multidisciplinary rehabilitation outcomes within African and Kenyan contexts.

Future research should investigate long-term educational, vocational, and quality-of-life outcomes associated with multidisciplinary intervention.

Greater involvement of autistic individuals and families in research design and implementation should be encouraged.

Studies evaluating inclusive education practices within the Competency-Based Curriculum framework should be prioritized.

15. Conclusion

Autism Spectrum Disorder (ASD) is a complex and heterogeneous neurodevelopmental condition that affects multiple domains of functioning, including communication, social interaction, adaptive behavior, sensory processing, motor development, emotional regulation, educational participation, and family well-being. The diversity of presentations observed among autistic children, together with the high prevalence of co-occurring developmental, medical, and psychological conditions, underscores the limitations of isolated intervention approaches and highlights the need for comprehensive systems of support. Throughout this review, evidence has demonstrated that autism cannot be adequately understood or managed through a single disciplinary perspective. Rather, effective intervention requires coordinated efforts that address the interconnected nature of developmental functioning and participation across home, school, healthcare, and community environments.

The evolution of autism diagnosis from DSM-IV to DSM-5-TR has contributed significantly to contemporary understanding of ASD as a spectrum characterized by varying strengths, challenges, and support needs. This conceptual shift has encouraged more individualized assessment practices and reinforced the importance of multidisciplinary evaluation and intervention. Similarly, recognition of the multiple disabilities and comorbidities frequently associated with autism further strengthens the argument for collaborative rehabilitation models. Communication difficulties, sensory processing differences, motor challenges, adaptive functioning limitations, mental health concerns, and educational barriers often interact in complex ways, creating developmental profiles that require expertise from multiple professions working together toward shared goals.

The theoretical foundations examined in this review, including the International Classification of Functioning, Disability and Health (ICF), ecological systems theory, the biopsychosocial model, family-centered practice, and participation-based approaches, collectively support multidisciplinary rehabilitation as the most appropriate framework for autism intervention. These models emphasize that developmental outcomes are shaped not only by individual characteristics but also by environmental, social, educational, cultural, and familial influences. Consequently, successful rehabilitation requires coordinated interventions that address multiple domains simultaneously while promoting meaningful participation and quality of life.

A central theme emerging from the literature is the indispensable role of multidisciplinary teams in supporting autistic children and their families. Developmental pediatricians, speech-language pathologists, occupational therapists, physiotherapists, psychologists, special educators, social workers, and caregivers each contribute unique expertise that complements the work of other team members. Effective interprofessional collaboration, characterized by shared decision-making, role clarity, continuous communication, and family engagement, enables professionals to develop integrated intervention plans that are responsive to the child's holistic needs. Such collaboration reduces service fragmentation, enhances consistency across environments, and promotes the generalization of skills into everyday life.

The evidence reviewed throughout this article consistently supports the effectiveness of multidisciplinary rehabilitation in improving communication outcomes, adaptive functioning, educational participation, behavioral regulation, social engagement, family empowerment, and overall quality of life. Multidisciplinary approaches facilitate coordinated assessment, individualized intervention planning, and meaningful participation across settings. Importantly, these benefits extend beyond childhood and contribute to improved long-term outcomes related to independence, social inclusion, educational achievement, employment readiness, and community participation. The evidence further demonstrates that family-centered and participation-focused interventions are particularly effective when embedded within natural environments and supported by collaborative partnerships among professionals and caregivers.

Despite the substantial benefits associated with multidisciplinary rehabilitation, significant barriers continue to impede implementation. Workforce shortages, limited autism-specific training, fragmented service systems, financial constraints, inadequate infrastructure, cultural misconceptions, and inequitable access to services remain major challenges, particularly within low- and middle-income countries. In Kenya and many other African nations, these barriers contribute to delayed diagnosis, reduced access to intervention, and limited opportunities for participation and inclusion. Nevertheless, the growing recognition of autism within healthcare, educational, and policy frameworks presents important opportunities for strengthening multidisciplinary service delivery across the region.

Future progress in autism rehabilitation will depend on continued investment in workforce development, interprofessional education, technological innovation, family-centered care, inclusive education, and evidence-based policy reform. Expanding access to multidisciplinary services, strengthening collaboration among institutions, and promoting culturally responsive intervention models will be essential for improving developmental outcomes and reducing disparities in service access. Furthermore, greater involvement of autistic individuals and their families in research, service planning, and policy development will help ensure that future rehabilitation efforts remain responsive to the priorities and lived experiences of the communities they are intended to serve.

In conclusion, the evidence reviewed throughout this article demonstrates that multidisciplinary rehabilitation is not merely one intervention option among many but rather the most comprehensive and effective framework currently available for addressing the diverse and interconnected needs of autistic children. Through coordinated contributions from healthcare professionals, educators, therapists, social workers, and families, multidisciplinary teams promote communication, participation, adaptive functioning, educational achievement, social inclusion, independence, and quality of life. As autism services continue to evolve globally and within Kenya, investment in collaborative, family-centered, culturally responsive, and evidence-based multidisciplinary systems will be essential for ensuring equitable access to services and meaningful developmental outcomes for autistic children and their families. This integrated approach provides the strongest foundation for supporting autistic individuals to thrive across the lifespan and participate fully within their communities.

Funding Statement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The study was conducted as part of academic and scholarly activities undertaken by the authors. All costs associated with literature retrieval, manuscript preparation, and review were borne by the authors.

Author Contributions

Erick Nyandieka Momanyi conceptualized the study, conducted the literature search and review, synthesized the evidence, drafted the manuscript, revised subsequent versions, and prepared the final submission manuscript. George Wairungu provided academic supervision, methodological guidance, critical review of intellectual content, scholarly input on autism and educational perspectives, manuscript editing, and approval of the final version for publication. Both authors read and approved the final manuscript and agree to be accountable for all aspects of the work.

Data Availability Statement

This article is a narrative review based exclusively on published literature. No new datasets were generated, collected, or analyzed during the preparation of this

manuscript. All information used in the review is available through the cited sources included in the reference list.

Ethical Considerations

Ethical approval was not required for this study because it involved a review and synthesis of previously published literature and did not include human participants, patient data, animal subjects, or experimental procedures. The manuscript was prepared in accordance with accepted principles of academic integrity, ethical scholarship, and responsible scientific reporting.

Consent for Publication

Not applicable. The manuscript does not contain identifiable personal information, clinical case reports, photographs, or individual participant data requiring consent for publication.

Authors's Disclaimer

The views and opinions expressed in this manuscript are those of the authors and do not necessarily reflect the official policies, positions, or views of Kenyatta University, Kenyatta National Hospital, or any affiliated institution. The responsibility for the content of this manuscript rests solely with the authors.

Acknowledgements

The authors wish to acknowledge the faculty members of the Department of Speech and Language Pathology at Kenyatta University for their academic support and mentorship. Appreciation is also extended to colleagues within the Occupational Therapy Department at Kenyatta National Hospital for their professional insights regarding multidisciplinary rehabilitation practices. The authors further recognize the contributions of families, educators, healthcare professionals, and researchers whose work continues to advance understanding and support for individuals with Autism Spectrum Disorder.

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Conflict of Interest Statement

The authors declare that there are no financial, professional, personal, or institutional conflicts of interest that could have influenced the preparation, interpretation, or publication of this manuscript. The authors have conducted this review independently and report no competing interests related to the subject matter discussed in this article.

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