

Early Interventions for Autism: Scientific Evidence and Impact on Child Development

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Abstract:

Early interventions for autism have been the subject of growing interest in the scientific community due to their potential to positively impact child development. Autism, a neurodevelopmental disorder that affects communication, social interaction, and behavior, demands effective therapeutic approaches from the early years of a child's life. Objective: The objective of this systematic literature review is to analyze the available scientific evidence on early interventions for autism and their impact on child development, based on studies published in the last 10 years. Methodology: Using the PRISMA checklist, searches were conducted in the PubMed, Scielo, and Web of Science databases. The descriptors used were "autism", "early interventions", "children", "child development", and "therapy". Inclusion criteria were studies published in the last 10 years, addressing early interventions for autism and their impact on child development. Exclusion criteria included studies unrelated to the topic, studies with non-representative samples, and studies with inadequate methods. Results: The review identified a variety of studies highlighting the benefits of early interventions for autism. The results indicated significant improvements in communication skills, social interaction, adaptive behaviors, and cognition in children who received early intervention. Additionally, there was evidence of long-term benefits, such as greater success in education and social life. Conclusion: This review highlights the importance of early interventions for autism as an effective approach to promoting child development in children with this disorder. The accumulated scientific evidence indicates that these interventions can result in significant improvements in several key areas of development, emphasizing the importance of early access and implementation of these therapeutic programs.

Keywords: "autism", "early interventions", "children", "child development", and "therapy".

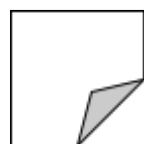
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I. Introduction

Early interventions for autism represent a crucial area of study and practice in promoting child development and improving the quality of life for children diagnosed with this neurodevelopmental disorder. At the heart of this field lies the need to understand the importance of both early diagnosis and immediate initiation of therapeutic interventions.

The first essential facet is addressing the scientific evidence supporting the efficacy of early interventions for autism. Consistent long-term studies have shown that early initiation of specific therapeutic interventions can lead to significant improvements in child development. These improvements manifest in various key areas, including social, linguistic, and adaptive skills. This solid evidence base highlights the crucial importance of recognizing and intervening in autism as early as possible.



The second critical aspect addresses early diagnosis and its close relationship with early interventions. Early diagnosis of autism is crucial to enable rapid access to necessary services and supports. Screening tools and diagnostic protocols have been developed to identify early signs of autism in infants and young children. Early detection not only allows for immediate intervention but also facilitates the planning of personalized treatment tailored to the individual needs of each child. Thus, early diagnosis and immediate initiation of interventions form an essential foundation for the effectiveness of early interventions for autism.

Early interventions for autism encompass a wide variety of therapeutic approaches aimed at promoting child development and improving the quality of life for affected children. In addition to scientific evidence and early diagnosis, it is essential to understand the different therapeutic approaches available, the importance of family involvement, and the need for an individualized and multidisciplinary approach.

Among the varied therapeutic approaches for early intervention in autism, Applied Behavior Analysis (ABA), Developmental and Relational Therapy (DIR/Floortime), among others, stand out. Each of these approaches has its own principles and techniques adapted to the specific needs of each child. The diversity of therapeutic options allows for a personalized approach, aiming to maximize the developmental potential of each individual.

Family involvement plays a fundamental role in all phases of early interventions for autism. Parents and caregivers are the primary agents of support for the child, and their active participation in the therapeutic process is essential for long-term success. Family involvement not only strengthens therapeutic

outcomes but also contributes to a better understanding of autism and increased ability to cope with associated challenges.

Lastly, individualization and multidisciplinary are essential aspects to be considered in any early intervention for autism. Each child with autism is unique, with their own needs, abilities, and challenges. Therefore, it is crucial to adopt an individualized approach, adapting therapeutic interventions according to the specific characteristics of each child. Additionally, a multidisciplinary approach, involving professionals from different fields such as psychology, occupational therapy, and speech therapy, can provide a comprehensive and integrated view of the child's development, allowing for more effective and holistic intervention.

II. Objective

The objective of this systematic literature review is to examine and synthesize the most recent scientific evidence on early interventions for autism, analyzing the impact of these interventions on child development. The review aims to identify the most effective therapeutic approaches, assess the quality of available studies, and provide insights into best clinical practices for professionals working with children with autism and their families. Additionally, the objective is to highlight gaps in current research and suggest directions for future investigations, aiming to further enhance support and services offered to this vulnerable population.

III. Methodology

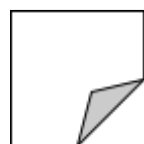
To conduct this systematic literature review, we used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist as a methodological guide. Initially, we conducted a search in the PubMed, Scielo, and Web of Science databases to identify relevant studies related to early interventions for autism. The descriptors used in the search were "autism," "early interventions," "children," "child development," and "therapy."

To ensure proper inclusion of studies, we established inclusion and exclusion criteria based on the PRISMA checklist. The inclusion criteria were as follows: Studies published in peer-reviewed scientific journals; Studies investigating early therapeutic interventions for children with autism; Studies including children aged 0 to 6 years; Studies reporting outcomes related to the social, communicative, or cognitive development of children; and studies published in the last 10 years (2012-2022) to ensure relevance and timeliness of findings.

On the other hand, the exclusion criteria were as follows: Studies not available in full text; Studies not written in English, Portuguese, or Spanish; Studies not focusing on specific therapeutic interventions for autism; Studies involving only adult populations with autism; and studies not reporting outcomes related to child development or not including relevant outcome measures for the review.

After the initial search and application of inclusion and exclusion criteria, we screened the titles and abstracts of the identified studies. Then, we assessed the 14 selected studies in full to determine their relevance and methodological quality. Those meeting the inclusion criteria were included in the qualitative analysis of the systematic review. .

IV. Results



Currently, early interventions for autism are the subject of extensive scientific research aimed at understanding their efficacy and impact on child

development. Recent studies have sought to gather evidence supporting the effectiveness of these interventions, using a variety of methodologies and approaches. Through systematic reviews and meta-analyses, researchers have examined the results of multiple studies to identify consistent patterns and trends. Additionally, longitudinal studies have tracked the progress of children undergoing early interventions over time, allowing for a more comprehensive assessment of their long-term impact. In this context, current scientific evidence highlights the crucial importance of early interventions in improving child development in children with autism, providing a solid foundation for clinical practice and health policy formulation.

Early diagnosis of autism and immediate initiation of therapeutic interventions are considered fundamental pillars in the effective management of this disorder. Healthcare professionals, educators, and parents are increasingly aware of the importance of identifying early signs of autism and referring children for assessment and intervention as quickly as possible. Early intervention can begin as soon as the diagnosis is suspected, allowing children to receive appropriate support from a young age. This can lead to better long-term outcomes, as early interventions have the potential to reshape developmental trajectories and promote adaptive skills. Therefore, the need for healthcare and education systems to facilitate early diagnosis and ensure rapid access to intervention services for children with autism is emphasized to maximize their developmental potential and quality of life.

A distinctive feature of early interventions for autism is the diversity of therapeutic approaches available, each with its own theories and methodologies. Among these approaches, Applied Behavior Analysis (ABA) stands out, which is based on behavior principles to teach new skills through functional behavior analysis. Additionally, Developmental and Relationship-based Therapy (DIR/Floortime) emphasizes the importance of following the child's interests to promote social and emotional interaction. Other approaches include sensory therapies, aimed at regulating sensory processing, and augmentative and alternative communication (AAC) therapies, which help promote communication in children with verbal difficulties. Each therapeutic approach offers a unique perspective on autism and can be tailored to the individual needs of each child, providing a wide range of treatment options.

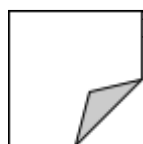
Family involvement plays a crucial role in the success of early interventions for autism. Parents and caregivers are the primary support agents for the child, and their active involvement in the therapeutic process can significantly improve long-term outcomes. Family involvement can take various forms, from participating in therapy sessions to implementing intervention strategies at home and in the community. Additionally, the emotional and practical support offered by the family can help reduce stress and increase the effectiveness of interventions. Therefore, it is essential for healthcare and education professionals to recognize the central role of the family in autism treatment and provide the necessary support to empower them to play this role effectively.

One of the essential characteristics of early interventions for autism is the need for individualization to meet the unique needs of each child. Each child with autism has a unique set of skills, challenges, and preferences, demanding a personalized therapeutic approach. Therefore, it is crucial for healthcare and education professionals to conduct a comprehensive assessment of each child's abilities and needs, taking into account their interests, learning style, and

family context. Based on this assessment, therapeutic interventions can be adapted and modified to meet the specific needs of each child, thereby maximizing developmental potential and treatment effectiveness. This child-centered approach recognizes the importance of considering their individuality and promoting a holistic and personalized therapeutic intervention.

Furthermore, the individualization of interventions is not limited to the child but also considers the family and social context in which they are embedded. Professionals should work closely with parents and caregivers to understand the environment in which the child lives and identify opportunities to promote development in different contexts. This may include implementing therapeutic strategies at home, school, and extracurricular activities, as well as engaging the community to provide additional support. By individualizing interventions not only for the child but also for their environment, it is possible to create a comprehensive support system that promotes child development more effectively and sustainably.

A multidisciplinary approach is essential in the treatment of autism, allowing for a comprehensive view of the child's needs and the provision of holistic therapeutic interventions. Professionals from different fields, such as psychology, occupational therapy, speech therapy, and special education, play complementary roles in planning and implementing early interventions for autism. For example, psychologists can provide cognitive and emotional assessments, while occupational therapists can help develop motor and sensory skills. Additionally, collaboration among professionals allows for the exchange of knowledge and experiences that enrich the therapeutic process and increase the effectiveness of interventions. Thus, multidisciplinary in the approach to autism is crucial to ensure that all child needs are met comprehensively and integratively.



The field of early interventions for autism is constantly evolving, with the inclusion of innovative therapeutic approaches that complement traditional practices. For example, technology-based interventions, such as mobile applications and computerized games, are increasingly being used to promote communication and social interaction skills in children with autism. Additionally, evidence-based approaches, such as third-generation behavioral therapy, are gaining prominence for their emphasis on acceptance and commitment rather than direct behavior modification. The inclusion of innovative approaches in the therapeutic arsenal offers new opportunities to improve autism treatment and adapt it to the individual needs of each child. These complementary approaches can expand the range of available treatment options, providing a more comprehensive and personalized approach to autism management.

Continuous assessment of outcomes is a crucial step in the early intervention process for autism, allowing for monitoring of the child's progress over time and adjustments as needed. Healthcare and education professionals should conduct regular assessments of the child's skills in key areas such as communication, social interaction, and adaptive behavior. These assessments may include direct observations, standardized tests, and reports from parents and caregivers. Based on the assessment results, professionals can identify areas of progress and areas requiring additional intervention, thus adapting the therapeutic plan to meet the evolving needs of the child. Additionally, continuous assessment of outcomes allows for the evaluation of intervention effectiveness over time and provides feedback to parents and caregivers on the

child's progress, thus promoting effective collaboration among all involved in the therapeutic process.

Despite the benefits of early interventions for autism, there are significant challenges in their practical implementation. One of the main challenges is limited access to specialized services, especially in rural or low-income areas. Additionally, a lack of financial and qualified professional resources can hinder access to quality interventions. Another challenge is coordination among different professionals and agencies involved in child care, which can result in gaps in service provision and lack of treatment continuity. Additionally, cultural and social issues can influence acceptance and adherence to interventions, requiring a sensitive and culturally competent approach. Therefore, overcoming these challenges requires a collaborative and multifaceted approach involving all stakeholders, from healthcare and education professionals to parents, caregivers, and the community at large.

Raising awareness about autism and community education are fundamental aspects of improving early recognition of the disorder and ensuring timely access to appropriate interventions. Through awareness campaigns, educational lectures, and community events, it is possible to increase knowledge about autism, reduce associated stigma, and promote a culture of inclusion and acceptance. Additionally, education of healthcare professionals, educators, and other professionals working with children is essential to ensure they have the knowledge and skills necessary to recognize early signs of autism and refer children for appropriate assessment and intervention.

Investing in training programs and professional development can increase cultural competence and sensitivity of professionals regarding the needs of children with autism and their families. Additionally, promoting the inclusion of children with autism in regular educational and community environments can help reduce social isolation and promote acceptance and understanding of neurodevelopmental diversity. Thus, raising awareness and education about autism not only benefits affected children and their families but also contributes to building a more inclusive and compassionate society.

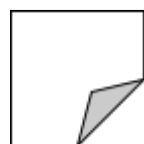
V. Conclusion

A relevant finding from the studies is the importance of early diagnosis and immediate initiation of therapeutic interventions. Research demonstrates that "early intervention can begin as soon as the diagnosis is suspected," allowing children to receive necessary support from a young age. This is crucial because "early interventions have the potential to reshape developmental trajectories and promote adaptive skills."

Another conclusion highlighted by the studies is the diversity of therapeutic approaches available for autism. Among them, Applied Behavior Analysis (ABA) and Developmental and Relationship-based Therapy (DIR/Floortime) are mentioned as effective approaches. The individualization of interventions is emphasized as a crucial aspect to maximize therapeutic outcomes, tailoring them to the specific needs of each child. Furthermore, the inclusion of the family in the therapeutic process is considered fundamental for the success of early interventions.

The studies emphasize that a multidisciplinary approach, involving professionals from different fields, provides a holistic view of the child's needs and allows for a comprehensive provision of therapeutic support. Continuous

assessment of outcomes is highlighted as a crucial step in the early intervention process, allowing for monitoring of the child's progress over time and adjustments as necessary.



Despite the evident benefits of early interventions for autism, the studies also point out significant challenges in their practical implementation. Limited access to specialized services, coordination among professionals, and availability of resources are important obstacles to overcome. Promoting awareness and community education emerges as a fundamental strategy to address these challenges, empowering professionals and raising awareness in society about the needs of children with autism and their families.

In summary, based on the available scientific evidence, it is concluded that early interventions for autism represent a promising approach in managing this neurodevelopmental disorder. These interventions have the potential to significantly improve the quality of life for affected children and their families, promoting their overall development. However, to fully realize their potential, it is crucial to continue investing in research, professional training, and public policies to ensure universal access to quality interventions.

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