

## **Advancements in Early Intervention for Children with Autism: A Five-Year Review**

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### **Abstract**

Early intervention (EI) based on behavioral science is one of the most promising treatment options for children with autism. Ever since Ivar Lovaas study from 1987, researchers are aware of the benefits of intensive early intervention in improving the outcomes of children with autism. Children who receive EI often show remarkable improvements in their social, cognitive, and adaptive skills. These interventions typically involve structured teaching methods, intensive behavioral therapies, and a variety of support services tailored to the individual needs of each child. By addressing the core symptoms of autism early in a child's development, these programs aim to foster better long-term outcomes. In this paper, we presented an overview of the main topics in the field of EI for children with autism published in major scientific journals. For this purpose, we performed a search of the Web of Science citation base and identified 91 articles published in the period 2019-2023 that had the words “early intervention” and “autism” OR “ASD” in their titles. The selected articles dealt with several interesting topics ranging from improving social communication and joint attention to topics dealing with quality of life and parent mediated EI programs. We concluded the paper with a discussion on the future directions of EI research. Despite the significant progress made, there is still much to learn about optimizing these early behavior interventions. Future research should aim to personalize intervention strategies to meet the unique needs of each child with autism and their families. Additionally, more longitudinal studies are needed to understand the long-term impacts of EI on various life outcomes.

**Keywords:** Early intervention, Children with autism, parents, current trends

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## Introduction

The 5th edition of the Diagnostic and Statistical Manual of Mental Disorders defines Autism Spectrum Disorder (ASD) as a neurodevelopmental condition marked by difficulties in social communication and the presence of stereotyped, repetitive behaviors (American Psychiatric Association, 2013). Once considered a rare disorder, the prevalence of autism has increased dramatically over the last two decades. For example, the prevalence rates in 1960's and 1970's were 0.4 to 2/1000 (Fombonne, 2018) and the current median estimate of prevalence rate is about 1% (Zeidan et al., 2022). Numerous explanations have been suggested to explain this rise in autism cases, such as expanded diagnostic criteria, better public awareness about autism, diagnosis at earlier ages, and acknowledging that ASD is a lifelong condition (Matson & Kozlowski, 2011). One closely related topic to autism prevalence is also its gender distribution. Autism has usually been found to be more common in boys than in girls. In a large meta-analysis, the authors have found that male to female odds ratio is 4.2, that is boys are 4.2 times more likely to have autism than girls (Loomes et al., 2017). However, numerous studies suggest that the camouflaging effect in girls makes them more likely to be underdiagnosed compared to boys (Cook et al., 2021; Gould, 2017). Consequently, the true prevalence of autism in girls may be higher than current estimates indicate, which calls for further research to better understand the gender distribution of autism.

Ever since the first scientific report of autistic children (Kanner, 1943), research in the autism field has grown rapidly. As an illustration of this increase in scientific interest in autism, let us just say that in 2001, there were 558 documents indexed in the SCOPUS database with the title "autism," while in 2021, there were 5,837 such documents, representing a nearly 10-fold increase (Memisevic & Djipa, 2023). Much of autism research has been devoted to the etiology of the disorder, a topic which remains elusive and controversial. Most often genetic, along with environmental, factors have been implicated in the etiology of autism (Bölte et al., 2019; Currenti, 2010). However, the research has shown that the significance of environmental factors related to ASD has not grown over time, making them an unlikely explanation for the observed increase in ASD prevalence (Taylor et al., 2020). Obviously, while the field of ASD research has expanded significantly, the understanding of its etiology remains complex and debated. Despite extensive studies, the growing prevalence of ASD cannot be adequately explained by environmental factors alone, highlighting the need for continued investigation into the genetic and other contributing factors.

While research on the etiology of autism is an important topic, from an educational perspective (which we take in writing this paper), a more crucial question is which educational treatments are effective in addressing autism symptoms and how can we improve developmental outcomes through psycho-educational interventions. We have long known that early intervention (EI) is key, as it significantly enhances learning, communication, and social skills in children with autism. Ever since the seminal work by Lovaas (1987), which demonstrated that early intensive

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intervention can improve the developmental trajectories of children with autism, this modality has become a significant focus of research for both scientists and practitioners. Most of EI programs are rooted in applied behavioral analysis and these are the interventions that have the strongest scientific validation (Simpson, 2005).

EI can be defined as a set of planned measures aimed at optimizing a child's early development, typically used with children aged 0-3 years, though some authors propose extending EI services to include children up to 5 years of age (Babić-Čolaković et al., 2016; Grantham-McGregor et al., 2007). EI primarily targets children with developmental disabilities and/or delays, as well as those at risk of developing such disabilities. The importance of EI services is underscored by the increasing number of children at risk, influenced by factors such as poverty, prematurity, and low birth weight (Guralnick, 2017). Dawson et al. (2010) discovered significant benefits of EI for children with autism in cognitive development and adaptive behavior. Additionally, EI positively impacts language, behavior, and socio-emotional development (Hampton & Kaiser, 2016; Roberts & Kaiser, 2015).

As mentioned earlier, early intervention is the best educational strategy in the treatment of autistic children. Early provision of EI services is related to the early detection and diagnosis of autism. Thus, the role of early screening and pediatricians has become increasingly crucial, given the recognized stability of early diagnoses (Corsello, 2005). Autism can be reliably diagnosed at the age of 24 months; however, despite this fact, many children are still diagnosed later (Daniels et al., 2014), which results in delayed access EI services. According to Daniels et al. (2014), some strategies to improve early screening and diagnosis of autism are increased awareness, routine screening, and practice improvement to increase screening.

Although widely acknowledged as the best approach, the effectiveness of EI programs for autism varies among children. An important question in this context is identifying the factors that best predict developmental outcomes in children with autism. For example, verbal ability and maternal age predicted outcomes in adaptive abilities in children with autism, in a way that better verbal ability and older maternal age are related to more adaptive functioning gains (Ben Itzhak & Zachor, 2011). In that same study authors also found that milder autism symptoms, a younger age at the onset of intervention, older maternal age, and higher maternal education were predictors of greater cognitive gains from intervention. However, it is universally recommended EI services be provided as early as possible for children with any developmental disability, including autism (Camarata, 2014; Guthrie et al., 2023).

Given the significance of EI in the field of autism, we aimed to examine the most prevalent topics in the current scientific literature related to these areas.

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## Method

This study falls under the category of descriptive content analysis (Çalık & Sözbilir, 2014). Similar methodology was employed earlier in the field of content analysis of educational journals (Memisevic et al., 2023). We performed a search of the Web of Science (WOS) database. Our inclusion criteria were: a) scientific article (original research papers and reviews) that in its title contained terms: “early intervention” and “autism” OR “ASD” OR “autis\*”, and b) the article was published in the timeframe of 5 years, from 2019 to 2023. A 5-year timeframe was selected due to the relevance of recent research. Focusing on articles published within this period provides insight into current research trends and the most pertinent topics in the field of autism. Exclusion criteria were that the identified document in the WOS were: a letter to the Editor, Editorials, and Commentaries. Through our search we identified 91 articles published in 56 different Journals indexed by the WOS. Top seven contributing journals (that had 3 or more identified articles) are presented in Table 1.

Table 1. Top contributing journals to the content analysis

<i>Journal</i>	<i>Count</i>
JOURNAL OF AUTISM AND DEVELOPMENTAL DISORDERS	11
JOURNAL OF EARLY INTERVENTION	6
AUTISM RESEARCH	4
AUTISM	3
INFANTS & YOUNG CHILDREN	3
JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY	3
RESEARCH IN AUTISM SPECTRUM DISORDERS	3

After the articles were selected, we conducted a thematic analysis of the Abstracts of these articles. Phrases containing two or more words were extracted, and meaningful research topics were manually selected. The data extraction and analysis were conducted by both authors of this study, who independently identified research topics. The data were analyzed with the R computer program (R Core Team, 2021).

## Results and Discussion

The 10 most common topics identified through the analysis are shown in Table 2.

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Table 2. Top 10 most common topics identified in the selected article's abstracts

<i>Research Topic</i>	<i>Count*</i>
Social communication	22
Social interaction	13
Family-centered programs	12
Behavioral intervention	9
Early detection	9
Quality of life	8
Mental health	8
Joint attention	6
Professional development	6
Unsupported practices	5

Note. Count refers to the number of times the term appeared in the Abstracts. It does not necessarily correspond to the number of articles.

The most common topic was social communication. This is not surprising if we know that the core feature of autism is the deficit in social communication. In fact, most mentioning of the term social communication was in relation to the definition of autism (Kodak & Bergmann, 2020; Rojas et al., 2019). However, in some studies, social communication was mentioned as a target of caregiver-mediated interventions (Shannon et al., 2023) or as the target in the structured sequencing of social play (Blanc et al., 2021). It is important to note that in the study by Blanc et al. (2021), authors presented the effectiveness of a program entitled: Tailored and Inclusive Program for Autism-Tours (TIPA-T), which demonstrated a significant improvements in most children included in the intervention. As an illustration of this effectiveness let us just mention that autistic symptomatology was reduced in 85% of the children enrolled into the program. These results appear very promising, and the effectiveness of the program should be further examined. One last study we will mention in relation to improving social communication in children with autism is by using the Naturalistic developmental behavioral interventions (NDBI) (Kitzerow et al., 2020). In this study, authors demonstrated that ASD-specific Frankfurt Early Intervention Program for ASD (A-FFIP) has numerous positive effects on autism symptomatology, including social communication.

Social interaction was the next most frequently discussed topic in these articles. Given the importance of social interactions, we believe this topic warrants high priority in research and practice. In one study, authors postulated something we stressed in the introduction of this paper, that the sooner autism is diagnosed, the greater the effectiveness of intervention in all developmental domains, including social interactions (Ribeiro et al., 2022). In one study, authors examined the effects of parent led program to increase social interactions in their children (Mansur & Nunes, 2020), and found the child's initiatives were significantly increased. Authors concluded that caregiver intervention, guided by a professional, can be both effective and adequate. A similar

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study was assessing the effects of a family-centered early intervention on the quality of social interactions and found improvement in all participants after the intervention (Park et al., 2020). The third top-rated topic was family-centered programs (interventions). From the previous paragraphs we can see that the topics frequently overlap, that is they contain two or even three identified terms in their abstracts, such as Family-centered early intervention and social interaction (Park et al., 2020). Some articles pointed to the general importance of family with regards to early intervention and how family involvement is associated with improved child and family outcomes (Lee et al., 2022). In addition, studies have pointed to the need to gather family perspectives regarding their experiences with the implementation of EI programs (Amsbary & Able, 2023).

Next topic falls within the broad scope of behavioral interventions. We have earlier mentioned that most EI programs are based on behavioral science. Some studies have shown that children who receive programs based on naturalistic developmental behavioral intervention achieve better outcomes than children in the control group (Kasari et al., 2023). Important thing to note is that early intensive behavioral intervention can reduce parental stress as well as improve children's behavior (Rivard et al., 2021). Although demonstrating its positive effects, early intensive behavior intervention is often discouraged from public schools due to its high costs and heavy time commitment (Cooper, 2022). According to Cooper (2022), that strategy is not cost-effective, as implementing early intervention for the autistic population could save the state a significant amount of money—up to \$250,000 per child.

Early detection is the next topic on our list. Early detection leads to early intervention and thus the justified relevance of this topic. Selected studies have stressed the importance of early detection in improving the outcomes of children with autism (Lombardo et al., 2021; Tagavi et al., 2023). In many countries, early detection of autism is related to parental concerns about autistic symptoms (Iwasa et al., 2019). However, Iwasa et al. (2019) highlight that while early diagnostic notification of autism is generally preferred, a highly individualized approach to the timing of diagnosis is crucial, as parental satisfaction is influenced more by the suitability of the timing to the family's readiness rather than the absolute timing of the notification.

The next topic on the list is the Quality of life (QOL), which is generally very important topic in autism research (Memisevic & Djipa, 2023; Memisevic et al., 2022). Some studies explored socio-cultural influences on the QOL of parents with autism. It was shown that having a child with autism had less impact on parents' QOL in collectivist cultures (South-East Asian culture) than in parents from individualistic cultures (Australian culture) (Smith et al., 2021). In one study, the authors have examined the psychometric properties the Autism Trajectory for Parents - Diagnostic Services (ETAP-2) and its relationship with the QOL (Mello et al., 2023). ETAP-2 is a concise parent-report measure with strong psychometric properties. It is useful for collecting information on families' perceptions and experiences with early intervention. Although, the term mental health was found in eight instances, they were all related to a single paper in which mental health and the QOL co-occurred (Smith et al., 2021). It was found that parents of children with

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autism had poorer mental health than parents of children without autism, and parents of autistic children from South-East Asian culture had better mental health than parents of autistic children from Australian culture.

Joint attention is the eighth term in frequency on our list. Joint attention, a crucial social-communication skill involving the shared focus of two individuals on an object or event, is particularly significant in autism spectrum disorder (ASD), with impairments in joint attention often being among the earliest signs of the disorder (Charman, 2003). Children with autism may experience difficulties with joint attention, which can affect their social-communication development (Wong, 2013). An interesting article dealing with joint attention showed that multiple pathway model of joint attention can offer mechanistic insights into how ASD affects the ability of caregivers and infants to create a context for infant learning. Additionally, this model has the potential to inform early intervention strategies (Gaffrey et al., 2020).

Next is the topic of professional development. Professional development is an ongoing process of acquiring and enhancing the knowledge, skills, attitudes, and values essential for competent performance in a profession. It encompasses activities designed to improve expertise, productivity, and workplace satisfaction, benefiting personal growth, team dynamics, and organizational advancement (Conlon, 2004). The research has revealed a need for continuous professional development of teachers conducted in real-time (Luskin-Saxby et al., 2024) and especially in topics related to early screening of autism (Wiegand et al., 2023).

Finally, the last topic, we will mention is unsupported practices. The field of autism is rife with unsupported practices that stand in strong opposition to Evidence Based Practices. Unsupported practices include those that may cause direct harm, create false hope, and incur financial and opportunity costs (Paynter et al., 2022). Research has shown that professionals tend to use unsupported practices and their use represents a great challenge in the field of autism (Paynter et al., 2020).

These were the top 10 most frequently found topics in the titles of articles that contained terms “early intervention” and “autism”. Given the limited space, we were unable to include additional articles and research topics that also merit scientific attention. We aim for this overview to inspire and motivate authors to pursue further studies on this interesting topic.

Of course, this paper is not without limitations, and we will mention some of these. Due to the selection criteria, we did not include many articles that dealt with early intervention of children with autism as they did not contain these terms in their titles. Next, we only included the most prestigious database, namely Web of Science. Future research should be more inclusive and include databases such as SCOPUS and Google Scholar. Finally, in describing the ten most common research topics, there was an element of subjectivity from the authors. It was not feasible to reference all published papers on each topic, and different authors might have selected a different set of articles for their review.

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Programs of early interventions have proven its efficacy in many studies. Besides being beneficial for children with autism and their families they are also beneficial for the educational and social systems of any country. Investing in early intervention is a rare public policy initiative that enhances fairness and social justice while boosting economic productivity. Early interventions yield significantly higher returns than later efforts, such as reduced pupil-teacher ratios or convict rehabilitation programs (Heckman, 2006). While investments in older individuals still provide benefits, the greatest long-term gains are achieved when early interventions are supplemented by continued high-quality learning experiences.

## Conclusions

This review has highlighted the ten most frequently discussed topics in articles containing the terms "early intervention" and "autism," in their titles. The most common topic, social communication, is unsurprising given its core role in autism spectrum disorder (ASD). Many studies emphasize the importance of targeting social communication in early interventions. Social interaction, another frequently discussed topic, underscores the necessity of early diagnosis and intervention. Research shows that parent-led programs and family-centered early interventions can significantly enhance social interactions in children with autism. Family-centered programs are also prominent, with studies showing that involving families in early intervention leads to better outcomes for both children and their families.

Behavioral interventions remain a cornerstone of early intervention strategies. Studies indicate that naturalistic developmental behavioral interventions yield better outcomes compared to control groups. Despite their effectiveness, the high cost and time commitment required for these interventions often limit their implementation in public schools. Addressing these barriers is essential for broader access to effective early intervention.

Early detection is an important condition for improving outcomes, as early intervention is most effective when initiated promptly. While early diagnosis is generally preferred, a personalized approach that considers the family's readiness is recommended to enhance satisfaction and effectiveness. Quality of life (QOL) is another significant topic, with research exploring its socio-cultural dimensions. Studies suggest that the impact of having a child with autism on parents' QOL varies across cultures. Joint attention, a fundamental social-communication skill, is particularly impaired in autism. Research into the multiple pathway model of joint attention provides insights into how ASD affects caregiver-infant interactions and informs early intervention strategies. Professional development for educators is vital for improving early screening and intervention outcomes. Continuous, real-time professional development tailored to early autism screening is necessary to equip educators with the required skills and knowledge. The issue of unsupported practices in autism intervention remains a large concern. These practices can cause harm, create false hope, and lead to financial and opportunity costs. Promoting evidence-based practices is essential to ensure ethical and effective intervention strategies.



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## References

- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). APA, Washington, DC.
- Amsbary, J., & Able, H. (2023). Exploring Parents' Perceptions of an Early Intervention for Toddlers With Autism. *Infants & Young Children*, 36(3), 228-246. <https://doi.org/10.1097/iy.0000000000000242>
- Babić-Čolaković, D., Pasalic, A., & Memisevic, H. (2016). Early intervention in Bosnia and Herzegovina-a description of a model implemented in Zenica-Doboj Canton. *International Journal of Early Childhood Special Education*, 8(2), 113-119.
- Ben Itzhak, E., & Zachor, D. A. (2011). Who benefits from early intervention in autism spectrum disorders? *Research in Autism Spectrum Disorders*, 5(1), 345-350. <https://doi.org/https://doi.org/10.1016/j.rasd.2010.04.018>
- Blanc, R., Latinus, M., Guidotti, M., Adrien, J.-L., Roux, S., Dansart, P., Barthélémy, C., Rambault, A., Bonnet-Brilhault, F., & Malvy, J. (2021). Early Intervention in Severe Autism: Positive Outcome Using Exchange and Development Therapy [Original Research]. *Frontiers in Pediatrics*, 9. <https://doi.org/10.3389/fped.2021.785762>
- Bölte, S., Girdler, S., & Marschik, P. B. (2019). The contribution of environmental exposure to the etiology of autism spectrum disorder. *Cellular and Molecular Life Sciences*, 76(7), 1275-1297. <https://doi.org/10.1007/s00018-018-2988-4>
- Çalık, M., & Sözbilir, M. (2014). İçerik Analizinin Parametreleri [İçerik analizi, Meta-sentez Betimsel içerik analizi, Parametreler]. 2014, 39(174). <https://doi.org/10.15390/eb.2014.3412>
- Camarata, S. (2014). Early identification and early intervention in autism spectrum disorders: Accurate and effective? *International Journal of Speech-Language Pathology*, 16(1), 1-10. <https://doi.org/10.3109/17549507.2013.858773>
- Charman, T. (2003). Why Is Joint Attention a Pivotal Skill in Autism? *Philosophical Transactions of the Royal Society B Biological Sciences*, 358(1430), 315-324. <https://doi.org/10.1098/rstb.2002.1199>
- Conlon, T. J. (2004). A Review of Informal Learning Literature, Theory and Implications for Practice in Developing Global Professional Competence. *Journal of European Industrial Training*, 28(2/3/4), 283-295. <https://doi.org/10.1108/03090590410527663>
- Cook, J., Hull, L., Crane, L., & Mandy, W. (2021). Camouflaging in autism: A systematic review. *Clinical Psychology Review*, 89, 102080. <https://doi.org/https://doi.org/10.1016/j.cpr.2021.102080>
- Cooper, M. (2022). Reducing special education costs by providing early intervention for autistic children. *Behavioral Interventions*, 37(2), 397-414. <https://doi.org/https://doi.org/10.1002/bin.1839>
- Corsello, C. M. (2005). Early Intervention in Autism. *Infants & Young Children*, 18(2), 74-85. [https://journals.lww.com/iyjournal/fulltext/2005/04000/early\\_intervention\\_in\\_autism.2.a.spx](https://journals.lww.com/iyjournal/fulltext/2005/04000/early_intervention_in_autism.2.a.spx)
- Currenti, S. A. (2010). Understanding and Determining the Etiology of Autism. *Cellular and Molecular Neurobiology*, 30(2), 161-171. <https://doi.org/10.1007/s10571-009-9453-8>

DOI: 10.59519/mper6105

- Daniels, A. M., Halladay, A. K., Shih, A., Elder, L. M., & Dawson, G. (2014). Approaches to Enhancing the Early Detection of Autism Spectrum Disorders: A Systematic Review of the Literature. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53(2), 141-152. <https://doi.org/https://doi.org/10.1016/j.jaac.2013.11.002>
- Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J., Donaldson, A., & Varley, J. (2010). Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model. *Pediatrics*, 125(1), e17-e23. <https://doi.org/10.1542/peds.2009-0958>
- Fombonne, E. (2018). Editorial: The rising prevalence of autism. *Journal of Child Psychology and Psychiatry*, 59(7), 717-720. <https://doi.org/https://doi.org/10.1111/jcpp.12941>
- Gaffrey, M. S., Markert, S., & Yu, C. (2020). Social origins of self-regulated attention during infancy and their disruption in autism spectrum disorder: Implications for early intervention. *Development and Psychopathology*, 32(4), 1362-1374. <https://doi.org/10.1017/S0954579420000796>
- Gould, J. (2017). Towards understanding the under-recognition of girls and women on the autism spectrum. *Autism*, 21(6), 703-705. <https://doi.org/10.1177/1362361317706174>
- Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., Richter, L., & Strupp, B. (2007). Developmental potential in the first 5 years for children in developing countries. *The Lancet*, 369(9555), 60-70. [https://doi.org/10.1016/S0140-6736\(07\)60032-4](https://doi.org/10.1016/S0140-6736(07)60032-4)
- Guralnick, M. J. (2017). Early Intervention for Children with Intellectual Disabilities: An Update. *Journal of Applied Research in Intellectual Disabilities*, 30(2), 211-229. <https://doi.org/https://doi.org/10.1111/jar.12233>
- Guthrie, W., Wetherby, A. M., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. E. (2023). The earlier the better: An RCT of treatment timing effects for toddlers on the autism spectrum. *Autism*, 27(8), 2295-2309. <https://doi.org/10.1177/13623613231159153>
- Hampton, L. H., & Kaiser, A. P. (2016). Intervention effects on spoken-language outcomes for children with autism: a systematic review and meta-analysis. *Journal of Intellectual Disability Research*, 60(5), 444-463. <https://doi.org/https://doi.org/10.1111/jir.12283>
- Heckman, J. J. (2006). Skill Formation and the Economics of Investing in Disadvantaged Children. *Science*, 312(5782), 1900-1902. <https://doi.org/doi:10.1126/science.1128898>
- Iwasa, M., Shimizu, Y., Hara, I., Imai, M., & Honda, H. (2019). The earlier, the better? Diagnostic experiences of parents in a community-based early intervention system for preschool children with autism. *Autism & Developmental Language Impairments*, 4, 2396941519845201. <https://doi.org/10.1177/2396941519845201>
- Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous child*, 2(3), 217-250.
- Kasari, C., Shire, S., Shih, W., Landa, R., Levato, L., & Smith, T. (2023). Spoken language outcomes in limited language preschoolers with autism and global developmental delay: RCT of early intervention approaches. *Autism Research*, 16(6), 1236-1246. <https://doi.org/https://doi.org/10.1002/aur.2932>
- Kitzerow, J., Hackbusch, M., Jensen, K., Kieser, M., Noterdaeme, M., Fröhlich, U., Taurines, R., Geißler, J., Wolff, N., Roessner, V., Bast, N., Teufel, K., Kim, Z., & Freitag, C. M. (2020). Study protocol of the multi-centre, randomised controlled trial of the Frankfurt Early Intervention Programme A-FFIP versus early intervention as usual for toddlers and preschool children with Autism Spectrum Disorder (A-FFIP study). *Trials*, 21(1), 217. <https://doi.org/10.1186/s13063-019-3881-7>

DOI: 10.59519/mper6105

- Kodak, T., & Bergmann, S. (2020). Autism spectrum disorder: characteristics, associated behaviors, and early intervention. *Pediatric Clinics of North America*, 67(3), 525-535.
- Lee, J., Kaat, A. J., & Roberts, M. Y. (2022). Involving Caregivers of Autistic Toddlers in Early Intervention: Common Practice or Exception to the Norm? *American Journal of Speech-Language Pathology*, 31(4), 1755-1770. [https://doi.org/doi:10.1044/2022\\_AJSLP-21-00246](https://doi.org/doi:10.1044/2022_AJSLP-21-00246)
- Lombardo, M. V., Busuoli, E. M., Schreibman, L., Stahmer, A. C., Pramparo, T., Landi, I., Mandelli, V., Bertelsen, N., Barnes, C. C., Gazestani, V., Lopez, L., Bacon, E. C., Courchesne, E., & Pierce, K. (2021). Pre-treatment clinical and gene expression patterns predict developmental change in early intervention in autism. *Molecular Psychiatry*, 26(12), 7641-7651. <https://doi.org/10.1038/s41380-021-01239-2>
- Loomes, R., Hull, L., & Mandy, W. P. L. (2017). What Is the Male-to-Female Ratio in Autism Spectrum Disorder? A Systematic Review and Meta-Analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(6), 466-474. <https://doi.org/https://doi.org/10.1016/j.jaac.2017.03.013>
- Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology*, 55(1), 3-9. <https://doi.org/10.1037/0022-006X.55.1.3>
- Luskin-Saxby, S., Zimmer-Gembeck, M., Sulek, R., & Paynter, J. (2024). Professional Development and Use of Evidence-Based Practice in Autism Early Intervention. *Journal of Early Intervention*, 46(1), 94-112. <https://doi.org/10.1177/10538151231159638>
- Mansur, O. M. F. d. C., & Nunes, L. R. d. O. d. P. (2020). FROM THE DETECTION OF INDICATORS OF RISK FOR AUTISM TO EARLY INTERVENTION. *ETD Educação Temática Digital*, 22(1), 50-67.
- Matson, J. L., & Kozlowski, A. M. (2011). The increasing prevalence of autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5(1), 418-425. <https://doi.org/https://doi.org/10.1016/j.rasd.2010.06.004>
- Mello, C., Rivard, M., Patel, S., Morin, D., & Morin, M. (2023). Assessing the quality of care and service trajectories in autism from families' perspective: Early intervention and interim services. *Research in Developmental Disabilities*, 133, 104387. <https://doi.org/https://doi.org/10.1016/j.ridd.2022.104387>
- Memisevic, H., Biscevic, I., Hadzic, S., & Kuduzovic, A. (2023). Exploring Current Trends in Education: A Review of Research Topics in the Problems of Education in the 21st Century Journal. *Problems of Education in the 21st Century*, 81(2), 258-268.
- Memisevic, H., & Djipa, A. (2023). Content Analysis of Abstracts Published in Autism Journals in 2021: The year in Review. *Journal of Autism and Developmental Disorders*, 53(12), 4849-4855. <https://doi.org/10.1007/s10803-022-05751-4>
- Memisevic, H., Đordjević, M., & Glumbić, N. (2022). Quality of Life for Individuals with Autism and Pervasive Developmental Disabilities. In J. L. Matson & P. Sturmey (Eds.), *Handbook of Autism and Pervasive Developmental Disorder: Assessment, Diagnosis, and Treatment* (pp. 185-208). Springer International Publishing. [https://doi.org/10.1007/978-3-030-88538-0\\_7](https://doi.org/10.1007/978-3-030-88538-0_7)
- Park, H. I., Park, H. Y., Yoo, E., & Han, A. (2020). Impact of Family-Centered Early Intervention in Infants with Autism Spectrum Disorder: A Single-Subject Design. *Occupational Therapy International*, 2020, 1427169. <https://doi.org/10.1155/2020/1427169>

DOI: 10.59519/mper6105

- Paynter, J., Luskin-Saxby, S., Keen, D., Fordyce, K., Frost, G., Imms, C., Miller, S., Sutherland, R., Trembath, D., Tucker, M., & Ecker, U. (2020). Brief Report: Perceived Evidence and Use of Autism Intervention Strategies in Early Intervention Providers. *Journal of Autism and Developmental Disorders*, 50(3), 1088-1094. <https://doi.org/10.1007/s10803-019-04332-2>
- Paynter, J., Sulek, R., & Westerveld, M. (2022). The Importance of Evidence Based Practices and Autism. In J. L. Matson & P. Sturmey (Eds.), *Handbook of Autism and Pervasive Developmental Disorder: Assessment, Diagnosis, and Treatment* (pp. 579-598). Springer International Publishing. [https://doi.org/10.1007/978-3-030-88538-0\\_25](https://doi.org/10.1007/978-3-030-88538-0_25)
- R Core Team. (2021). R: A language and environment for statistical computing [computer software]. *Vienna, Austria: R Foundation for Statistical Computing*.
- Ribeiro, M. F., Barreto, J. B. M., & Sousa-Gomes, V. (2022). Early Intervention in Autism Spectrum Disorder. *European Psychologist*, 27(4), 338-351. <https://doi.org/10.1027/1016-9040/a000475>
- Rivard, M., Mello, C., Mestari, Z., Terroux, A., Morin, D., Forget, J., Lefebvre, C., & Argumedes, M. (2021). Using Prevent Teach Reinforce for Young Children to Manage Challenging Behaviors in Public Specialized Early Intervention Services for Autism. *Journal of Autism and Developmental Disorders*, 51(11), 3970-3988. <https://doi.org/10.1007/s10803-020-04856-y>
- Roberts, M. Y., & Kaiser, A. P. (2015). Early Intervention for Toddlers With Language Delays: A Randomized Controlled Trial. *Pediatrics*, 135(4), 686-693. <https://doi.org/10.1542/peds.2014-2134>
- Rojas, V., Rivera, A., & Nilo, N. (2019). Update in diagnosis and early intervention of Autistic Spectrum Disorder. *Revista chilena de pediatria*, 90(5), 478-484.
- Shannon, E. N., Kang, S., Marchand Martella, A., Richards, C. D., & Martella, R. C. (2023). Early Intervention Caregiver Training for Children with Autism: a Quality Review. *Education and Treatment of Children*, 46(2), 165-192. <https://doi.org/10.1007/s43494-023-00092-y>
- Simpson, R. L. (2005). Evidence-Based Practices and Students With Autism Spectrum Disorders. *Focus on Autism and Other Developmental Disabilities*, 20(3), 140-149. <https://doi.org/10.1177/10883576050200030201>
- Smith, J., Sulek, R., Abdullahi, I., Green, C. C., Bent, C. A., Dissanayake, C., & Hudry, K. (2021). Comparison of mental health, well-being and parenting sense of competency among Australian and South-East Asian parents of autistic children accessing early intervention in Australia. *Autism*, 25(6), 1784-1796. <https://doi.org/10.1177/13623613211010006>
- Tagavi, D. M., Dick, C. C., Attar, S. M., Ibanez, L. V., & Stone, W. L. (2023). The implementation of the screening tool for autism in toddlers in Part C early intervention programs: An 18-month follow-up. *Autism*, 27(1), 173-187. <https://doi.org/10.1177/13623613221086329>
- Taylor, M. J., Rosenqvist, M. A., Larsson, H., Gillberg, C., D'Onofrio, B. M., Lichtenstein, P., & Lundström, S. (2020). Etiology of Autism Spectrum Disorders and Autistic Traits Over Time. *JAMA Psychiatry*, 77(9), 936-943. <https://doi.org/10.1001/jamapsychiatry.2020.0680>
- Wiegand, S. D., Brown, J. A., & Lieberman-Betz, R. G. (2023). Autism Spectrum Disorder Screening Practices of Part C Early Intervention Providers: A Brief Report. *Journal of Early Intervention*, 45(4), 359-369. <https://doi.org/10.1177/10538151221141639>

DOI: 10.59519/mper6105

Wong, C. (2013). A Play and Joint Attention Intervention for Teachers of Young Children With Autism: A Randomized Controlled Pilot Study. *Autism, 17*(3), 340-357. <https://doi.org/10.1177/1362361312474723>

Zeidan, J., Fombonne, E., Scolah, J., Ibrahim, A., Durkin, M. S., Saxena, S., Yusuf, A., Shih, A., & Elsabbagh, M. (2022). Global prevalence of autism: A systematic review update. *Autism Research, 15*(5), 778-790. <https://doi.org/https://doi.org/10.1002/aur.2696>