

Evidence Based Practices used for Improving Communication Skills of Children with Autism Spectrum Disorder: Perspectives of Speech Therapist

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Abstract

Researchers have been diligently exploring evidence-based practices for enhancing the communication skills of children diagnosed with autism spectrum disorder (ASD), aiming to facilitate effective interaction within their families, peer groups, and communities. This article delves into the perspectives of speech therapists, who have categorized various evidence-based practices essential for augmenting the communication abilities of children with ASD, emphasizing verbal and non-verbal proficiency, receptive language, and pragmatic skills. It underscores the significance of early intervention and evidence-based strategies, such as Applied Behavior Analysis (ABA) therapy, in addressing challenges like delayed speech and social communication difficulties. The background elucidates the complexity of pragmatic language development in children with ASD, highlighting the importance of interventions targeting appropriate language use and understanding. Moreover, it discusses the impact of evidence-based therapeutic practices on the quality of life for individuals with ASD and their families, shedding light on the evolving landscape of interventions tailored to address the unique needs of this population.

Keywords: Applied Behavior Analysis, Autism Spectrum Disorder, Functional Communication Training, Picture Exchange Communication System, Pivotal Response Training

Introduction

Autism spectrum disorder (ASD) is a complex neurodevelopmental condition that is characterized by impairments in social communication skills and includes deficits in social-emotional reciprocity, non-verbal communicative behaviors used for social interaction, and developing, maintaining, and understanding relationships. In contrast to other disabilities, lack of verbal and nonverbal communication skills appears to be a core problem in ASD. Regardless of communicative level, the number of communication initiations and the expansion of specific functions of communication seem to be particularly problematic. In order to improve outcomes in the area of communication for children with ASD, much research has been focused on using effective evidence based practices to treat these communication deficits. There are a number of EBP's that are used by providers for significantly improving the communication skills of the ASD children and these EBP's informed the practice of the professionals. Researchers and practitioners report notable gains in reducing the behavioral domain of children with ASD; however the literature suggests that there remains a major need for research in communication aspects of ASD. So there is a need to explore evidence-based practices used by speech therapists for dealing with the communication challenges presented by this population. There are number of interventions available, ranging from augmentative and alternative communication (AAC) systems to behavioral strategies and social communication approaches. The perspectives and experiences of speech therapists in implementing these

interventions warrant closer examination. Understanding the perspectives of speech therapists is crucial for discovering the practical challenges they face, the strategies they employ, and the outcomes they observe in their practice.

Literature Review

Autism spectrum disorder (ASD) is a neurological condition that impacts the attitude, communication and social interaction of an individual (Lendio et al., 2023). ASD is characterized by impairments in social communication skills, including deficits in non-verbal communicative behaviors used for social interaction and understanding relationships (Watkins et al., 2017). Children with ASD usually face difficulties in verbal and non-verbal communication that impact their ability to develop social bonds and engage effectively with others (Alokla, 2018). Research indicates a strong link between non-verbal communication skills in children with ASD and their language development at later stages (Alokla, 2018). Early interventions focusing on non-verbal communication skills can enhance emotional expression and improve communication abilities through gestures and body language (Alokla, 2018).

Evidence-based practices (EBPs) have significance in addressing communication challenges for children with ASD that cannot be overstated. EBPs play a significant role in developing effective interventions to treat communication challenges faced by the individuals with ASD (Watkins et al., 2017). Different practices, such as functional communication training and the use of visual aids, have shown useful in improving communication skills of children with ASD (Alokla, 2018). A study by Minolin (2022) showed that Evidence-based practices are effective for improving autism spectrum disorder (ASD) in children on socialization, behavior, and communication skills. Comprehensive programs like Picture exchange communication system (PECS) and Pivotal Response Training (PRT) etc target important areas of development, including communication and social interactions, leading to improvements in verbal communication (Brignell et al., 2016).

Evidence-Based Practices for Communication

Naturalistic language strategies

Naturalistic language strategies involve using everyday situations and activities that promote communication skills in children with ASD. These naturalistic language strategies are based on applied behavior analysis (ABA) principles and are designed to promote specific target behaviors based on learners' interests. They have demonstrated effectiveness in improving communication and social skills for learners with ASD across different age groups and cognitive levels (National Professional Development Center on Autism Spectrum Disorder, 2010). Naturalistic intervention is used in daily routines throughout the day to develop skills in the areas of communication (both pre-linguistic and linguistic) and social development. Naturalistic Intervention is a manner that encourages communication (National Professional Development Center on Autism Spectrum Disorder, 2010).

Functional Communication Training (FCT)

Functional Communication Training (FCT) is an evidence-based practice that targets specific skills to help children and youth with ASD effectively communicate in across different situations and settings. FCT addresses interfering behaviors by systematically identifying the function of the behavior and providing a replacement behavior in the form of appropriate communication. It has been effective with learners in preschool to high school and has been shown to improve communication, social, and behavioral outcomes (National Professional Development Center on Autism Spectrum Disorders, 2010). Functional communication training (FCT) is an effective and widely used procedure to reduce problem behaviors. The purpose of FCT is to replace a problem behavior with a socially appropriate and communicative behavior – the functional communication response (FCR), which produces the same reinforcer as the problem behavior (J. Houck et al., 2022). The selection of the Functional Communication Response (FCR) is important in FCT. While there is limited research guiding FCR selection, considerations such as response effort, social recognition of the response, and the likely speed of acquisition of the response are significant factors to consider (J. Houck et al., 2022). Functional Communication Training have numerous benefits for children with ASD, their families, and communities, some of advantages include improved quality of life, enhanced social interaction, reduced challenging behaviors, increased communication skills, and positive impacts on caregivers (Loftus, 2024).

Social narratives

Social narratives explain social situations and appropriate behaviors for children with ASD. They have been effective in addressing social, communication, joint attention and academic outcomes (Sam, 2016). Social narratives can be used by a variety of professionals, including teachers, special educators, speech & language therapists, paraprofessionals, and early interventionists in educational and community-based environments (Sam, 2016).

Video modeling

Video modeling is a teaching procedure that involves an individual viewing a videotaped sample of a model performing a specific, scripted activity or task (Aldi et al., 2016). Video modeling has been shown to be effective in teaching a number of skills to learners diagnosed with autism spectrum disorders (ASD) (Aldi et al., 2016).

Picture Exchange Communication System (PECS)

Picture exchange communication system also known as PECS is a form of augmentative and alternative communication that uses pictures and different symbols that are designed to provide help and support to children with autism in improving their communication skills (Lendio et al., 2023). For students with ASD who are non-verbal, the use of PECS is an enriching process. With the usual classroom set-up, non-verbal students had the most significant tendency to divert their frustrations to challenging and aggressive behavior, with the help of PECS, the learning materials can be designed in the classroom to address such concerns (Lendio et al., 2023). In the year 2015, the National Standards Project, an initiative of the National Autism Center, released part 2 of a report, which seeks to provide significant information about which interventions are helpful for individuals with ASD. This report listed PECS as an emerging intervention for the communication challenges faced by non-verbal ASD children. The report defined emerging interventions as "those for which one or more studies suggest they may produce favorable outcomes," however before the authors can "be fully confident that the interventions are effective, additional high-quality studies are needed" (National Autism Resources, 2020).

Pivotal Response Training (PRT)

Pivotal Response Treatment (PRT) is an evidence-based practice that specifically focuses on supporting "pivotal areas of development" to aid children build the communication and social skills they need to function well in across various settings. PRT is play-based and uses number of natural reinforcements, such as toys, games, and activities that a child wants and takes interest in. It has been shown to improve communication skills, increase positive social behaviors, and reduce disruptive self-stimulatory behaviors in children with autism spectrum disorder (ASD) (Autismspeaks.org n.d.).

Effectiveness of EBPs in Improving Communication Skills

Overview of research findings

Several EBPs that have significantly improved social communication skills are recommended for children of all ages. These practices are effective for toddlers to the high school age learners (Watkins et al., 2017). Research supports the perspective that the utilization of Evidence-Based Practices (EBPs) enhances the performance and communication skills of children with Autism Spectrum Disorder (ASD) (Abda, 2022).

B. Discussion of effectiveness across various age groups and severity levels

As is showed from the results of Wong and colleague's comprehensive review of the literature that there are a number of EBP's available that parents and other service providers can use to inform their practice. Therefore, no single intervention has been identified as effective in enhancing social communication skills for every child with ASD, and practitioners must use their expertise when designing a treatment plan (Watkins et al., 2017).

Comparison with non-EBP interventions

Practices that are not evidence based interventions in the field of special education for improving communication skills in children with ASD usually lack the empirical evidence and scientific basis that characterize evidence-based practices (EBPs). While Practices that are not evidence based interventions may encompass a range of approaches, including traditional methods that typically lack the systematic evaluation and validation required to establish their effectiveness (BARTLETT, 2018).

Non evidence based practices may involve approaches that have not been supported and tested through research studies or lack a sound theoretical foundation. These interventions often rely on personal experiences, beliefs, or historical practices rather than empirical evidence showing their effectiveness in enhancing communication skills in children with ASD (Zhao et al., 2022). Without the support of research-based evidence, non -evidence based practices interventions may vary in their effectiveness and consistency across different settings and populations (Zhao et al., 2022).

Identification of common themes and trends

Through a comprehensive review of literature and research findings, several key themes and trends emerge regarding EBPs for enhancing communication skills in children with ASD. One common theme revolves around the importance of early intervention and individualized approaches tailored to the specific needs of each child with ASD. Personalized interventions that target functional communication skills, social interaction, and language development have shown promising results in improving communication outcomes for children with ASD (reference)

Perspectives of Speech Therapists

The communication challenges faced by children with ASD and the research findings regarding a high incidence of coexisting language disorders suggest that speech-language pathologists (SLPs) are a critical professional group in supporting the diagnosis, assessment, and treatment of children with ASD in their learning and everyday lives. Furthermore, language and communication difficulties have been part of the diagnosis criteria for ASD for several years (Gillon et al., 2017).

It is surprising, therefore, that relatively little is known about the evidence based practices of SLPs in working with children with ASD. A greater understanding of common may help identify effective practices that can be provide insights into the work of SLPs in supporting social communication of children with ASD that have implications for professional preparation and practice(Gillon et al., 2017).

Barriers to using EBPs

There are number of barriers in the utilization of EBP's for enhancing communications skills of children with autism and these barriers can impede the effective implementation of evidence-based interventions. Service providers that are working in the field of special education face numerous challenges that hinder the adoption of EBP's (Sridhar, 2021).

These barriers involve limited knowledge about the implementation of EBP's and also the organizational challenges within educational settings. Research has shown that service providers may perceive barriers related to a limited training and resources and lack of understanding and experience with evidence based strategies (Abda, 2022).

Conclusion

The conclusion of the literature review on Evidence-Based Practices (EBPs) for improving communication skills in children with Autism Spectrum Disorder (ASD) showed the importance of implementing research-based practices to improve outcomes for children with ASD.

Research has consistently proved the efficacy of evidence-based practices and interventions, such as the Picture Exchange Communication System (PECS) and Functional communication training (FCT) in improving socialization and communication skills among children with ASD (Amanda Brignell, 2016).

This literature review emphasize the importance of utilizing EBPs that have been precisely tested and validated through numerous research studies to ensure significant outcomes for children with ASD. By integrating evidence-based practices across different settings professionals can enhance the communication skills of children with ASD, ultimately improving their social interaction and language skills. The literature reviewed showed the significant impact of EBPs on communication outcomes for children with ASD and also stress the need for continued research and implementation of evidence-based interventions in special education practices.

Research methodology

Research design:

For this study quantitative research design was used to explore the Evidence based practices in improving communication skills of children with Autism spectrum disorder (ASD) from the perspective of speech therapists. Researcher used a structured questionnaire to explore the Evidence-based practices which are used for enhancing the communication skills of children with ASD. The researcher employed a survey and collected data from the speech therapists of different organizations e.g. (school, clinics and hospital).

Population and sampling:

The researcher's target population is speech therapists who have at least one year of experience in working with children diagnosed as ASD. Researcher used purposive sampling method for selecting the participants for the research on the basis of their expertise and experience in working with children with ASD to improve their communication skills by using evidence based interventions that truly support the communication of children with autism spectrum disorder. Informed consent was obtained before conducting the research; researcher explained the objectives, aims, goals and time commitment of the research to the participants before collecting data.

Instrument:

Researcher used a structured questionnaire for investigating perspective of speech therapist regarding evidence based practices which are used to enhance the communication skills of children with autism spectrum disorder. The questionnaire contained open-ended and closed ended series of questions. Open ended questions are used to explore the efficacy of evidence based practices used for improving communication skills of children with ASD form the perspective of experienced speech therapists.

For development of questionnaire researcher utilized a comprehensive review of existing literature on Evidence-based practices for improving communication skills of ASD. Through which researcher identified the central motives and framework of research instrument.

Through comprehensive and intensive discussion with speech therapists as well as pilot testing research refined the instrument and improved the objectives, relevance and applicability of the instrument.

The questionnaire contained the items that explore the Evidence based practices that are affective for improvement of communication skills of children with ASD and the challenges which are faced by the speech therapist during the implementation of various evidence-based practices and intervention.

Data Analysis

Table I

Demographics

Title	Description	Frequency	Percentage (%)
Gender	Male	16	12.2%
	Female	46	35.1%
		62	47.3%
Practice	School	26	19.8%
	Hospital	10	7.6%
	Clinic	24	18.3%
		62	47.3%
Experience	1 Year	28	21.4%
	2 Years	14	10.7%
	3 Years	8	6.1%
	4 Years	6	4.6%
	5 Years	6	4.6%
Total		62	47.3

The demographic analysis, depicted in Table I, sheds light on the characteristics of the study participants. Regarding gender distribution, the sample consisted of 16 males (12.2%) and 46 females (35.1%), totaling 62 respondents. In terms of practice settings, the majority of participants were affiliated with schools (26 respondents, 19.8%), followed by clinics (24 respondents, 18.3%), and hospitals (10 respondents, 7.6%), amounting to 62 respondents in total. Additionally, participants varied in their level of professional experience, with the largest group having 1 year of experience (28 participants, 21.4%). This was followed by participants with 2 years (14 participants, 10.7%), 3 years (8 participants, 6.1%), 4 years (6 participants, 4.6%), and 5 years (6 participants, 4.6%) of experience, respectively. These demographic insights provide a comprehensive understanding of the sample composition, essential for contextualizing and interpreting the research findings effectively.

Table 2

T-test Analysis (Article 24 Table 2)

Gender	N	Mean	SD	t	df	Sig.
Male	16	17.1250	2.50000	-2.509	60	.893
Female	46	19.0000	2.59915	-2.558	27.121	
Male	16	17.8750	3.07409	-.873	60	.306
Female	46	18.6522	3.06389	-.872	26.117	
Male	16	17.2500	2.51661	-2.641	60	.952
Female	46	18.6522	3.06389	-.872	26.117	

Female	46	19.3478	2.80648	-2.786	28.976	
Male	16	18.5000	2.52982	-1.206	60	.947
SNT						
Female	46	19.5000	2.95710	-1.302	30.359	.893
Male	16	18.1875	2.34432	-2.401	60	.966
MT						
Female	46	19.9348	2.55953	-2.507	28.390	
Male	16	19.7500	2.79285	.171	60	.621
PECST						
Female	46	19.6087	2.87115	.173	26.846	
Male	16	15.2500	2.43584	-.734	60	.814
PRTT						
Female	46	15.7609	2.38686	-.726	25.736	
Male	16	19.0000	2.42212	-.796	60	.412
EBPT						
Female	46	19.6522	2.94556	-.875	31.613	

The table presents the results of a t-test analysis comparing various measures between male and female participants. Each row corresponds to a specific measure, such as ACIT, NLST, FCT, SNT, MT, PECST, PRTT, and EBPT. For each measure, the table provides data for both male and female participants, including the sample size (N), mean, standard deviation (SD), t-value, degrees of freedom (df), and significance level (Sig.).

For instance, considering the ACIT measure, male participants had a mean score of 17.1250 with a standard deviation of 2.50000, while female participants had a mean score of 19.0000 with a standard deviation of 2.59915. The t-value for this comparison was -2.509, with 60 degrees of freedom, resulting in a significance level of .893.

Similarly, the table provides corresponding data for each measure, allowing for a comprehensive comparison of performance or scores between male and female participants across various domains. The t-test analysis serves to identify any statistically significant differences between the two groups, providing valuable insights into potential gender-based disparities in the measured variables.

Table 3

Comparison of Means (One-Way ANOVA)

Table 3

Comparison of Means (One-Way ANOVA)

	Description	Sum of Squares	df	Mean Square	F	Sig.
ACIT	Between Groups	2.484	2	1.242	.168	.846
	Within Groups	437.000	59	7.407		
	Total	439.484	61			
NLST	Between Groups	17.098	2	8.549	.910	.408
	Within Groups	554.256	59	9.394		
	Total	571.355	61			
FCT	Between Groups	11.447	2	5.723	.689	.506
	Within Groups	490.231	59	8.309		
	Total	501.677	61			
SNT	Between Groups	13.595	2	6.798	.822	.444
	Within Groups	487.776	59	8.267		
	Total	501.371	61			
MT	Between Groups	4.574	2	2.287	.330	.720
	Within Groups	408.910	59	6.931		
	Total	413.484	61			
PECST	Between Groups	11.918	2	5.959	.738	.482
	Within Groups	476.276	59	8.072		
	Total	488.194	61			
PRTT	Between Groups	347.519	2	.474	.081	.923
	Within Groups	347.519	59	5.890		
	Total	348.468	61			
EBPT	Between Groups	.311	2	.155	.019	.981
	Within Groups	483.173	59	8.189		
	Total	483.484	61			

The ANOVA table shows the results for various variables throughout numerous groups. For the ACIT variable, the between-group variance is 2.484 with 2 degrees of freedom, resulting in a mean square of 1.242 and an F-value of 0.168, which is not statistically significant ($p=0.846$). For the NLST variable, the between-group variance is 17.098 with 2 degrees of freedom, a mean square of 8.549, an F-value of 0.910, and a p-value of 0.408, also not significant. Similar non-significant results are shown for the FCT, SNT, MT, PECST, PRTT, and EBPT variables, with F-values ranging from 0.019 to 0.822 and p-values from 0.444 to 0.981. General, the analysis shows there are no statistically significant variation between the group means for the variables examined.

Results

The ANOVA table presents the results of the analysis of variance, which examines the differences between group means for various variables. The table includes key statistics such as the between-group variance, degrees of freedom, mean square, F-value, and p-value for each variable.

For the ACIT variable, the ANOVA results show a between-group variance of 2.484 with 2 degrees of freedom, a mean square of 1.242, an F-value of 0.168, and a p-value of 0.846, indicating no statistically significant differences between the group means. Similar non-significant results were found for the other variables like NLST, FCT, SNT, MT, PECST, PRTT, and EBPT, with F-values ranging from 0.019 to 0.822 and p-values from 0.444 to 0.981. Overall, the ANOVA table demonstrates that there are no statistically significant variations between the group means for the variables examined in this study.

The review's findings illustrate the efficacy of EBPs in improving social communication skills for children with ASD. Personalized interventions focusing functional communication, social interaction, and language development show promising results. However, the review also identifies barriers such as limited knowledge, organizational challenges, and resource constraints that impede the effective implementation of EBPs in special education settings.

Conclusion

The literature review on Evidence-Based Practices (EBPs) for enhancing communication skills in children with Autism Spectrum Disorder (ASD) emphasizes the essential role of research-based interventions in enhancing outcomes for individuals with ASD. Through a comprehensive review of diverse EBPs such as Picture Exchange Communication System (PECS) and Functional Communication Training (FCT), it is clear that evidence-based practices are key in improving socialization and communication skills among children with ASD. The review emphasizes the importance of utilizing rigorously tested and validated EBPs to guarantee substantial and favourable results for children with ASD in varied environments.

Recommendations

The review provides several recommendations to confront the difficulties in executing EBPs. Boosting training and materials for professionals can enhance their understanding and implementation of evidence-based approaches. Highlighting the importance of early intervention and individualized strategies tailored to the specific needs of each child with ASD is also essential. Furthermore, the review supports continuous investigation and application of EBPs to supplementary elevate communication outcomes for children with ASD.

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