Research Article

The Effectiveness of Play Therapy Intervention in Developing Social Skills for Children with Autism Spectrum Disorder: Meta-Analysis

Alghslan MS[1]* and Mohamed H[2]

[1]Department of Medicine, Alfaisal University, Clinical Psychology, Saudi Arabia

[2]Department of Mental Health, Certified Clinical Psychologist, Board Certified Behavior Analyst, Psychology Section, King Fahad Medical City, Saudi Arabia

*Corresponding author: Munirah S Alghslan, Department of Medicine, Alfaisal University, Clinical Psychology, Saudi Arabia

Abstract

The present study will examine existing data on the effectiveness of play therapy on the development of social skills in young children with Autism Spectrum Disorder (ASD). As the prevalence of ASD diagnoses continues to rise, families and educators are faced with critical decisions about the selection and provision of evidence-based approaches, as well as a need for knowledge on the approach to disability and help with long-term management planning. The following study analyzes the effectiveness of Play Therapy Intervention in building Social Skills for Children with Autism Spectrum Disorder using statistical evidence. The researcher used SPSS software to conduct statistical analyses to estimate effect sizes across the available data for the effectiveness of play therapy to foster social development in young children with ASD from 1 to 14 years old. The results revealed that play-based interventions are considered an effective intervention to support social development in young children, and type of play-based intervention as significant predictors of social development for young children with ASD who participate in play-based interventions. Such findings offer insights for families, clinicians, support providers, and decision-makers that are purposely addressed in this analysis for their central role in the guidance in the implementation of various behavioral interventional modalities for ASD which aim to develop their social skills.

Keywords: Autism spectrum disorder (ASD); Play therapy; Social skills

Introduction

Autism Spectrum Disorder (ASD) is characterized by persistent deficits in social communication and social interaction across multiple contexts, including deficits in social reciprocity, nonverbal communicative behaviors used for social interaction, and skills in developing, maintaining, and understanding relationships. In addition to the social communication deficits [2]. Globally, it is estimated that worldwide about one in 100 children has autism [46]. Regarding World Health Organization, this estimate represents an average figure, and reported prevalence varies substantially across studies. Some well-controlled studies have, however, reported figures that are substantially higher. The prevalence of autism in many low- and middle-income countries is unknown [44]. However, controversy exists regarding correct ASD estimates, with international studies showing a wide range of variability as well as disparities in ASD prevalence estimates. The frequency of ASD continues to rise and is the fastest growing neuro developmental disability in the United States, with an estimated incidence of 1 in 44 individuals, or roughly 2.3 percent of 8-year-old children, diagnosed with ASD [12].

Thus, steadily increasing prevalence from national statistics of several countries indicates the need to properly strategize for the care and support of the affected. Thus, social and legal measures have a challenge in mobilizing resources to ensure effective medical and social support strategies are implemented. In another hand, the course and severity of ASD vary across the spectrum with health care providers and researchers charged with monitoring progression across the populations to determine the degree of dependency and appropriate care strategies. Financial challenges are central to the care of ASD patients, with the chronic course further burdening the involved families in obtaining specialized care and adjunct necessities. Moreover, Address to ASD challenges per guidelines of global health agencies entails non-pharmacological therapy composing intensive individual special education, occupation therapy to address productivity, behavioral therapy for social integration, physical therapy for individual health (Kahjoogh, et al., 2020).

The diagnosis of ASD is Based on symptoms includes a decrease in two main domains; social-emotional skills and repetitive behaviors [2]. Which is usually begin in early life, but may become more evident when social demands exceed individuals' capacities or alternative learning coping strategies, causing clinically significant impairment in functioning [38]. Therefore, early recognition and close attention to immediate deficits noted are generally associated with improved prognosis and development of quality life in contrast to delayed diagnosis and followed by effective treatment which can enhance autistic people's long-term prospects. Moreover, social and economic needs that are central to the affectation of the quality of life of the involved children have shaped governmental policies and social interventional strategies for care, including early learning and care settings. Education is greatly impacted mainly secondary to the affectation of cognition and increased dependency. As a result, interventions aimed at enhancing such skills are prioritized by

autistic people [8].

Therapies that include behavioral and developmental interventions have become the most common treatment technique for improving the behavioral skills of ASD children, based on the efficacy demonstrated in earlier studies and the feasibility of application within the community subject to the involved families. Applied behavior analysis (ABA), is "a scientific approach for discovering environmental variables that reliably influence socially significant behavior and for developing a technology of behavior change that takes practical advantage of those discoveries [13] and, Cognitive-Behavioral Therapy (CBT) are the most well-documented evidence-based therapies for autistic children [28].

Play Therapy

The Association for Play Therapy (2022) defines is "the systematic use of a theoretical model to establish an interpersonal process wherein trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties and achieve optimal growth and development. Play Therapy (PT) offers the children with a constant and predictable therapeutic connection and setting in which to explore their anxieties, problems, struggles, and suffering, as well as hopes, aspirations, and fantasies the underlying idea of play therapy is that, given this interaction and environment, the kid has the inner capacity to bring about development and change in their own life [33].

Play Therapy dating back to the early 20th Century, Psychoanalysts began applying techniques for children, and awareness arose on the importance of play in facilitating a child's knowledge of their world (Freud, 1992). Throughout its history, play therapy has been practiced by a variety of child mental health professionals, each of whom adapted it through the lens of their own evolving disciplines, responding to the needs of children in their respective historical times, and developing applications for their treatment settings. Play therapy was viewed as a specific technique of extending psychotherapy to children in a form better suited to their developmental, emotional, cognitive, and relational skills, rather than as a separate professional area distinct from the larger field of psychotherapy [31].

Following that, active proponents of play therapy at the time, Louise Guerney and Charles Schaefer, remarked on the obstacles the field faced. [4,5]. There were few, if any, books or papers produced in the topic, training options were limited, and no professional association dedicated to promoting the field. Charles Schaefer proposed forming an association to rejuvenate the field of play therapy in response to these obstacles. In 1982, he created the Association for Play Therapy with Kevin O'Connor as a cofounder, first bringing together a group of play therapy experts for the sharing of knowledge, provision of training, and building of collaborative networks of academics, educators, and practitioners [5]. Play therapy is increasingly moving away from model-specific psychotherapy treatments and toward more integrated and prescriptive models [16-21].

The Mental Health Profession has continued to develop a variety of models that are more focused on multimodal methods of assessing children's needs and matching these needs with interventions based on an understanding of the therapeutic mechanisms common in most models of child therapy and the factors that establish and maintain the therapeutic relationship. Such modifications, which began in the mid-twentieth century, have all contributed to the current perception of play therapy.

Current play-based therapies for children with ASD or other developmental disorders use a number of strategies that may be used in a variety of contexts with variable degrees of success. Models of intervention are intended to stimulate and improve cognitive responses, expression, communication, and other social skills.

The following is a meta-analysis of studies querying the effectiveness of play-based interventions in improving social skills among ASD children and to establish factors associated with effective play-based models. Moreover, research through data-driven effectiveness of various interventions provides of measures for optimal care of ASD patients with peer-mediated strategies have been largely advocated to improve social interactions.

Statement of the Problem

There are many challenges faced that greatly impact the quality of life of both the child and the immediate social circles, which encountered entails many behaviors such as avoidance behaviors, various phobias-mainly social phobias, hyper-vigilance, repetitive abnormal behaviors or movements, rigid routines and resistance to change, excessive worry, obsessive-compulsive disorder and sometimes self-injurious behaviors. Moreover, pharmacologic interventions have not shown effective with main features of ASD, but drugs have been effective in decrease a severity of various behavioral challenges associated with the spectrum and comorbid disorders such as Attention deficit and hyperactivity and aggressive behavior. Therefore, repetitive behaviors are progressively worsened in case interventional mechanisms are not instituted, thus need to address care strategies with a holistic approach. The consequences of these difficulties include decreased adaptive behaviors and social functioning [29] and depression into maturity [34].

As a result, determining the most effective ASD therapy is critical, with clinicians and involved families charged with devising methods for change to address immediate challenges that arise, plan for transitioning to ensure ASD patients achieve their maximum social and cognitive potential (Kahjoogh, et al., 2020).

Furthermore, numerous researches has shown that play therapy is a beneficial strategy for autistic children's language and social communication development (Ware Balch & Ray, 2015) [11,25,36,37]. On the other hand, meta-analysis and systematic reviews are limited. Where determining effective interventional modalities for optimal management of ASD children remains the main challenge for families, clinicians, governments and society at large.

Statement of Purpose

The purpose of this study is to present the importance of play therapy as a form of learning in childhood in the development of communication and social skills. In addition to providing evidence-based practices, with a need for information to the approach to disabilities and guidance on the planning for long-term management. Adaptation of evidence-based policies helps in the formulation of informed healthcare guidelines more so to the address of a long-term health concern as ASD. However, there is a lot of variation in the

research on these play-based therapies. Therefore, verification of the exact effectiveness imparted is subjective to the involved population with need for more time and greater population samples to gauge the applicability.

This study aid is provided insight into previously applied and current models for the management of ASD with statistical backing as to the effectiveness of play therapy. Families, clinicians, support providers, and decision-makers are purposely addressed in this report's analysis for their central role in the guidance in the implementation of various behavioral interventional modalities in ASD. On the other hand, the analysis takes into consideration the need to standardize care provided to the involved population with the analyzed literature reviews addressing the various play-based therapies suggested. However, detailed this analysis will aid cover gaps in determining the most pressing concerns in the care and development of the affected children and available interventional models. As a result, this meta-analysis aims to evaluate the effectiveness of Play therapy Intervention in developing Social Skills for Children with Autism Spectrum Disorder (ASD).

Questions Research

The study is aimed to address the following one of question:

1) Are play-based interventions considering an effective means of increasing social skills in young children with ASD?

Method

This current paper will be reported following the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) statement [41]. It will be carried out in all procedures following the Cochrane Handbook [23].

Study Eligibility

Research literature focused on the effectiveness of Play therapy Intervention in developing Social Skills for Children with Autism Spectrum Disorder. The study must have adhered to the set-out research principles of interaction with population, including consent, research on human subjects, formal data collection, interpretation and analysis and reliable publishers. Study must have conducted the interventions among young children aged 1and 14 years. Must have satisfied legal and ethical committees of the involved authority protocols. The PICO strategy was used.

Inclusion Criteria

Studies that were described as play-based interventional studies were carried-out in either a clinical, education-based, or home setting, and both pre-test and post-test data were reported, which included participants who were between the ages of one and fourteen years and identified as being diagnosed with ASD, autism, or the previous diagnosis related to ASD (e.g., Asperger's disorder, PDD-NOS), and studies that reported the outcome measures were focused on social skills development. When autism spectrum disorder is mentioned in this study, based on DSM-5 diagnostic criteria.

Exclusion Criteria

Studies are restricted to laboratory diagnostic tests and observational and animal studies. Furthermore, review articles, book chapters, case reports, and series, as well as conference proceedings and editorials, will be excluded also, studies with interventions that are not well defined to allow us to identify the elements relating to play therapy as well as studies in other languages than English will be excluded from this study.

Literature Search Strategy

Search terms were generated from inspection of relevant papers and recent meta-analyses (Table 1). Additionally, we hand-searched a recent meta-analysis to identify further publications. Moreover, several studies were evaluated to meet standard publishing criteria as adherence to research protocols, focus on autism and associated disorders, provide insight to the current approach and management of ASD.

Study Selection

Study screening will be done in two steps. (i) the title and abstract screening to ensure that the inclusion criteria were met, and (ii)

Test for heterogeneity.

Q	0.2751
DF	4
Significance level	P = 0.9914
I^2 (inconsistency)	0.00%
95% CI for I^2	0.00 to 0.00

Publication bias.

Egger's test	
Intercept	0.2594
95% CI	0.1326 to 0.3863
Significance level	P = 0.0074
Begg's test	
Kendall's Tau	0.4
Significance level	P = 0.3272

Meta-analysis: Generic inverse variance method.

Study	Effect size	Standard Error	95% CI	Z	P	Weight (%)	
						Fixed	Random
[1]	1.33	4.8	-8.078 to 10.738			0.035	0.035
[2]	0.2	0.09	0.0236 to 0.376			99.77	99.77
[3]	0.97	2.45	-3.832 to 5.772			0.13	0.13
[4]	2.13	6.16	-9.944 to 14.204			0.021	0.021
[5]	0.93	4.78	-8.439 to 10.299			0.035	0.035
Total (fixed effects)	0.202	0.0899	0.0259 to 0.378	2.248	0.025	100	100
Total (random effects)	0.202	0.0899	0.0259 to 0.378	2.248	0.025	100	100

full-text screening of selected articles retrieved for comprehensive analysis and further assessment for final inclusion. Two authors will review each study independently, and disagreements will be resolved by consensus following a discussion between the two review authors. A study will be excluded if the two authors stated that it did not meet the stated inclusion criteria.

Quality Assessment

All the articles included were evaluated using the NIH quality assessment tool (www.nhlbi.nih.gov/health-topics/study-quality-assessmenttools). Only studies with results of high or acceptable quality were included.

Results

Search Results

The studies grouped in the table met all the inclusion and exclusion criteria also were of high or acceptable quality in the NIH quality assessment tool. Although the search initially yielded 7 studies; two of them were excluded because not being clear enough about the information for that reason we obtained a total of five studies to evaluate (Figure 1).

Summary of Studies

5 studies with a total of 39 participants were included with ages between 1- 14 years. Their findings showed that play therapy has an effective role in a decrease the core symptoms of ASD and developing the social skills of Autistic children. Moreover, in each study pre and post-test were performed; also, different scales and questionnaires were carried out, which contributed to the evaluation and classification of the degree of abuse in the participants (Social

Skills Assessment (SSA), The Social Responsiveness Scale–2nd Edition (SRS-2), Child Behavior Checklist (CBCL), ChIPPA, Child-Initiated Pretend Play Assessment, Social Responsiveness Scale (SRS), Social Communication Questionnaires (SCQ), Test of Playfulness (ToP). Conners' Comprehensive Behavior Rating Scales–Parent (CCBRS-P), Children's Communication Checklist (CCC-2). The following table provides a detailed breakdown of each of the relevant findings (Table 2).

Data Analysis

Researchers used mixed methods to analyze data, a qualitative-quantitative approach in this case. In single research or program of inquiry, the investigator collects and analyzes data, integrates the findings, and develops conclusions utilizing both qualitative and quantitative techniques or methodologies." p.4 [42]. This model has advantages in that it is suited for addressing research questions that neither quantitative nor qualitative approaches could answer alone, and the evidence allows queries to be addressed more thoroughly. When dealing with complicated phenomena, the mixed-method analysis may be an excellent tool for determining what is going on thus, one another in the service of addressing a question [26] Morgan,2007).

Interpretation of Results

From the summary table of fixed and random effect ,it gives statistical results for the intervention effect , the associated Z test for the two models fixed and random effect with both having p-value of 0.025 which're less than the hypothesized value of 0.05 which shows the significant of results from the 5 studies for both models , random-effect assumes the size of the effect of treatment differs from
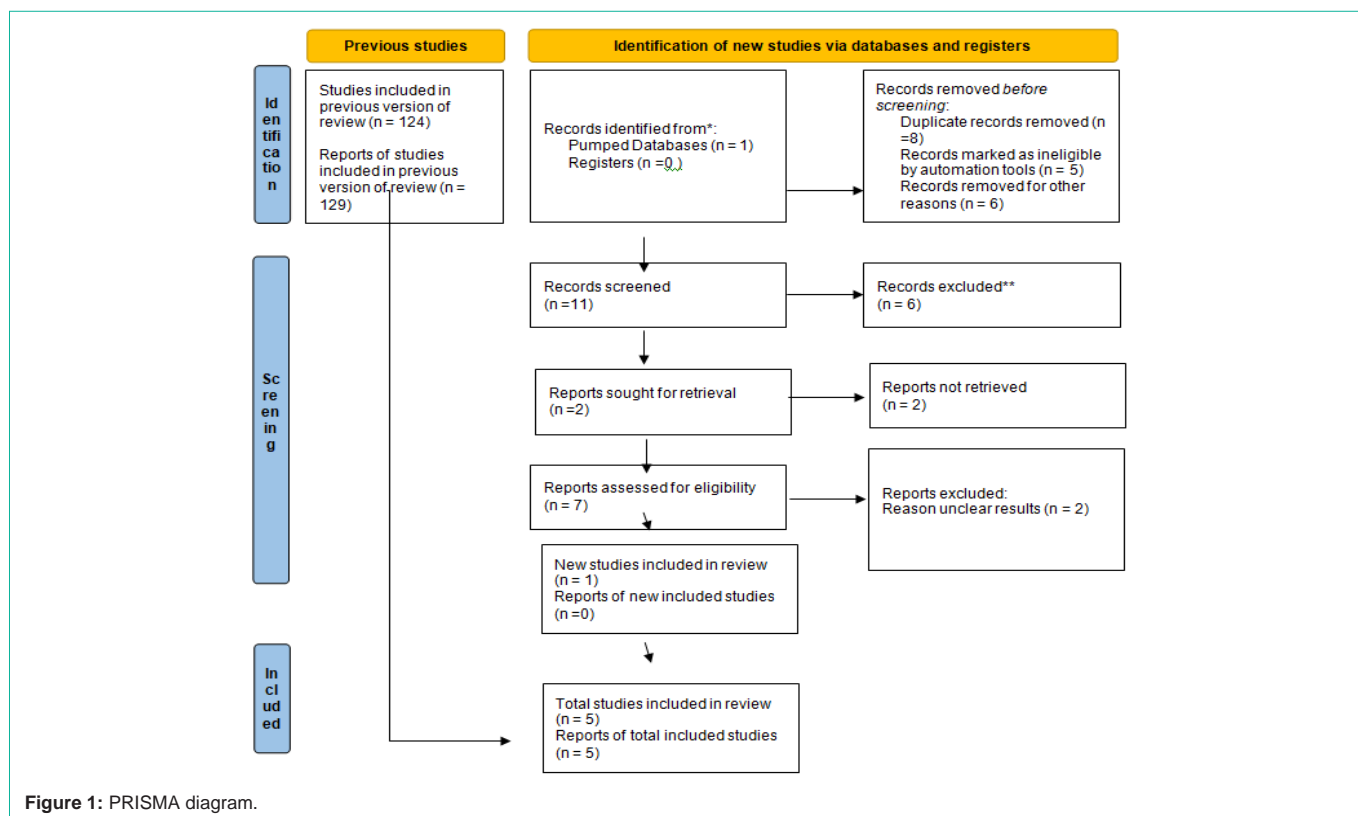

Figure 1: PRISMA diagram.

Table 1: Search terms used to search Google Scholar, MEDLINE, Microsoft Academic and PubMed from the beginning of creation in June 2022.

Search Terms
#1 Autism "autism "autistic*", "ASD", "autism spectrum disorder*", "PDD-NOS", "pervasive developmental disorder*", "Asperger*", and "Asperger* syndrome".
#2 Play Therapy "Play*" Therapy, "*", PT", "Play Therapy*", "Centered", "PCT", "Directive", "Play Centered Therapy*", "Directive Play Therapy", "Non directive*", and "Non directive Play Therapy".
#3 Social Skills "Social*" Skills, "*", "Social skills*", "Interaction", "Socialization"

Table 2: Summary of study finding.

Study	Study Design	Intervention	Results	Quality
[1]	Duration: 9 weekly play-based intervention. Participants: five children between 4 and 11 years old, they were diagnosed of ASD based on DSM-IV under criteria, IQ ≥ 70 and excluded if they had any the comorbidity developmental disorders (e.g.,intellectual disability)	Two therapists and parents delivered the intervention involving clinic play sessions and home modules. Parents' treatment adherence was recorded.	The intervention demonstrated preliminary feasibility and effectiveness for improving the social play skills of some children with ASD. However, there was a decrease in scores from post-intervention for all.	9/12
[2]	Duration: four therapy sessions based on shelter house play 30-45 minutes per session. therapy. Participants: 12 respondents were in the experimental group, who were diagnosed with ASD.	The researcher conducted an experimental study on autistic children using Shelter House Play Therapy. The participants were studied on a case-to-case basis intervention.	The intervention found the Shelter House Play Therapy had an impact on the social responsiveness and social communication in children with autism, and there is a significant difference between the experimental group pre and post-test p< .000.	10/12
[3]	Duration: 6 weeks based on child-centered play therapy. Participants: 12 respondents were in the experimental group between 4 and 10 years old, and were diagnosed with ASD with having moderate or severe levels of symptoms.	Play therapy rooms were established at each participant's school. Therapists could record all play sessions to assist with supervision of skills and treatment integrity. Therapists followed a specific parent consultation which required that each therapist share play therapy themes and behaviors noted in the session with parents and that therapists solicit any behavioral changes noticed by parents at home.	Children who participated in CCPT sessions showed a statistically significant decrease in ASD core symptoms and behavioral symptoms, such as externalizing problems, attention problems, and aggression p < .01.	10/12
[4]	Duration: 18 45-minutes sessions based on play-based empathy training. Participants: 4 children were in the experimental group between 5 and 6 years old, and were diagnosed with ASD.	Play-based empathy training through image cards and social stories is a program invented by the first author for intervening in autism spectrum disorders. The axis of this program is training empathy via playing and narrating social stories. Social stories of this package were codified based on required instruction.	play-based empathy training through image cards and social stories could significantly improve social skills and its subscales in students with autism spectrum disorders p<0.05.	10/12
[5]	Duration: 6 months based on Learn to Play Therapy with parent-child. Participants: Six children with a diagnosis of autism spectrum disorder (mean age = 3.8 years; SD = 1.2 years) were engaged in therapy sessions with parents.	The intervention based on signed consent was received from parents before the study began and children gave assent to participate in the play assessment and Learn to Play Therapy sessions.	The pretend play training showed a significant increase in the child's pretend play ability and social interaction p = .043.	9/10

the 5 studies [15,24,27,27,45]. Therefore, there is enough evidence at 5% significance to conclude that play-based interventions considered an effective means of increasing social skills in young children with autism spectrum disorder.

Homogeneity summary table test whether the effect size calculated from 5 studies with 39 participants from age 1-14 studies is the same. Conclusion on test of homogeneity is drawn from the three test Higgins I^2 statistics, forest plot and Cochrane's Q also known as chi square, since the p-value for Q statistics (0.2571) is grater that 0.05 we conclude that the effect size drawn from the 5 studies is the same, though variation in the case of studies are thought to be due to not only random error but also between-study variability. If using the Higgins I^2 which test for inconsistency normally calculated by taking the difference between the Q value subtract degree freedom then multiply by 100, the I value is 0% which indicate strong homogeneity.

To test the presence or absence of publication bias we use the egger's test, the eggers test shows absence of publication biasness at 5% level since the p-value 0.0074 is less than 0.05, therefore the results is significant and we can conclude having utilize the both qualitative and quantitative techniques for fixed methods, results show enough evidence to answer research question, there significant association between play-based interventions social skills in young children with ASD.

Discussion

As the frequency of ASD diagnosis continues to rise, determining effective interventional modalities for optimal management of ASD children remains the main challenge for families, clinicians, governments, and society at large including play-based interventions. Therefore, core symptoms of ASD are progressively worsened in case interventional mechanisms are not instituted, thus the need to address care strategies with a holistic approach. The purpose of this dissertation study is to analyze existing research examining the impact of play therapy on the development of social skills in young children with ASD and to provide evidence-based practices, with a need for information on the approach to disabilities and guidance on the planning for long-term management.

Determine whether play-based interventions should be considered an effective means of increasing social interaction in young children with ASD. Moreover, Families, clinicians, support providers, and
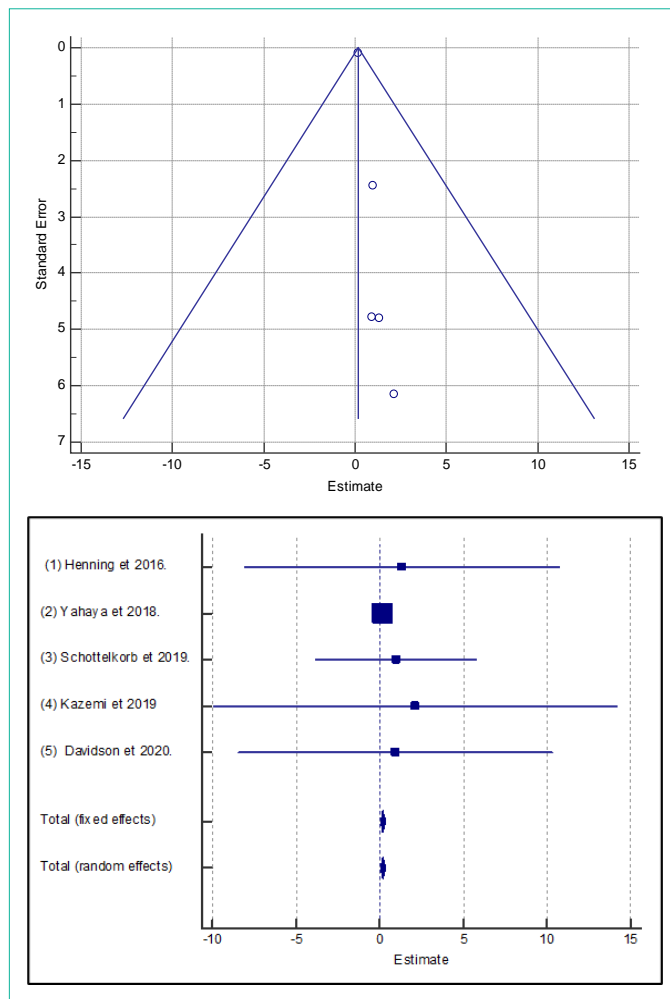
decision-makers are purposely addressed in this report's analysis for their central role in the guidance in the implementation of various behavioral interventional modalities in ASD. The methodological quality of each study was determined acceptable based on the NIH quality assessment tool (www.nhlbi.nih.gov/health-topics/study-quality-assessment tools). Individual participant data for the current study yielded 39 cases; the current meta-small analysis's sample size is most likely due to the limited available literature on play therapy for young children with ASD that specifically focuses on social interaction development as a primary outcome measure. According to the findings of this study, play-based therapies are an effective way of boosting social interaction development in young children with ASD.

Limitations

The current meta-analysis intended to explore the effectiveness of play therapy on social skill development in young children with Autism Spectrum Disorder (ASD). Although the study provides information on important predictor factors and estimations of impacts on play therapy as an intervention, limitations are noted. The first limitation to examine is the individuals' ASD diagnosis despite the fact that this was a criterion for inclusion in the study, the severity of ASD was not stated. As a result, comparisons between participants

should be approached with caution. A second limitation is that additional variables, such as socioeconomic status and enrollment in other early intervention programs, should be examined. Such consequences may have an impact on the intervention's effectiveness. A third limitation is there are a few studies that analyze only social skills in particular, did not include the overlap of other skills.

Future Directions of Research

The current study provides a starting point for determining the effectiveness of play-based interventions on the social skills development of young children with ASD, but more research is needed to increase the significance and understanding of the computed results and their implications for leaders' decision-making. The modest area of studies on the impact of play-based therapies on social interaction development revealed to be limited.

Conclusion

This study, a generic inverse variance method meta-analysis based on small sample studies, revealed that play-based interventions are considered effective in developing social interaction development in young children with ASD. Additionally, the results of the studies yielded that play-based therapy can help children with autism develop social, communication, and coping skills. Play-based therapy can also help children with autism to learn new concepts and improve their problem-solving abilities. Parents and other responsible stakeholders should consider pursuing this approach because of its many benefits, including helping children with autism develop social, communication, and coping skills critical for their survival.

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