RESEARCH PAPER

The Effectiveness of Play Therapy and Art Therapy for Children with Autism Spectrum Disorder: A Systematic Review

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ABSTRACT

Background: Autism spectrum disorder is a brain condition in which there are issues with the person's communication and social skills, and their behaviour is limited and monotonous. Whereas therapies such as art and play therapy hold significant relevance as fine interventions, which are also non-pharmacological. This review paper examines the effectiveness of art and play therapy for children who suffer from ASD.

Aims: To investigate the effects of play and art therapy on different areas such as communication, motor skills, emotional and behavioural outcomes of children with ASD.

Methods: An investigation was conducted on different databases such as PubMed, PsycINFO, ERIC, Scopus, Web of Science, Google Scholar to find relevant research papers that show the effectiveness of art and play therapy on autistic children. For this, we used PRISMA 2020 guidelines with descriptive meta-analysis.

Result: This review study includes eighteen studies that show improvement in social skills, motor skills and behavioural skills in children with ASD.

Conclusion: Therapies such as Art and Play therapy offer very positive improvement in children with ASD, helping them in different aspects of life. Further studies are required to verify these findings and to improve the approach.

Implications: In art and play therapy in clinical practice, it's important to rely on good clinical judgment for combined approaches, parental involvement, and technology integration. And also, to track their impact using reliable ways to measure the outcome.

Key Words: Autism Spectrum Disorder, Art Therapy, Play Therapy, Communication, Children.

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Introduction

Autism spectrum disorder is a neurodevelopmental disorder that is found in children who are at genetic disadvantage and have problems in different aspects, such as social skills, recurrent behaviour, and low interest (Daniel H. Geschwind, 2009). The estimated global prevalence of ASD ranged from 0.8% to 1.5%, depending on the method used from 2004 to 2025 (John K. Muthuka et al., 2026). Many traditional therapies, such as cognitive behavioural therapies, have a very limited effect on children with autism. There might be some effect on young children, but modifications are needed (Sasha Walters et al., 2016). The prevalence of male children is comparatively higher than that of female children with ASD (S Baron et al.,2011), so the studies and assessment tools are more relevant for males than girls (Gould et al., 2011). ASD has an impact not just on the individual with it, but also on the caretaker of such children, like parents, who experience major emotional fatigue due to irritation (Kurian et al., 2018), so studies that include parents also play an important role in highlighting such issues. The children with ASD have difficulty expressing, so therapies such as art and play therapy play an important role. Art therapy is a creative therapy that includes things such as painting, drawing and other things. These help in emotional reaction, self-discovery, and mental well-being (American Art Therapy Association [AATA], 2017). Art therapy has a positive effect on children, and its interventions help children with ASD in different areas of their lives, such as social, behavioural and motor skills (Vogel et al., 2025). Art therapy improves the levels of creativity, self-control, and interpersonal communication. It has also been seen that shared activities help the individual to have more calmness and better expression capabilities (Richardson et al.,2026). When therapies such as art therapy are combined with artificial intelligence, this results in better regulation of emotions, communication and helps in reducing the comorbidities with ASD (Sumaiya Yeasmin et al.,2025). Play therapy is a psychological and physiological activity that improves areas such as mental cognition, like taking better decision, problem resolution, and working collectively (Elbeltagi et al., 2023). Play therapy also helps in improving the mental lexicons and improving the skills such as sensory and behavioural (Suma Raju et al., 2026). Play therapies such as sand therapy show positive outcomes in children with ASD in social interaction, sensory work, motor and behavioural skills (Xia Wu et al.,2026). With the use of different approaches of the conducted studies, it became difficult to evaluate the studies. But as of now there is no systematic review that evaluate and compare the art therapy and play therapy. This review aims to fill the gap by collecting the proofs for the art therapy and play therapy the review tries recognise different interventions studies, try find the outcome of the therapy in terms of social, motor and behavioural skills and also tries to find the clinical implications and give keys insight for the future studies. This review used PRISMA 2020 guidelines with descriptive meta-analysis.

Method

Search strategy

For conducting the systematic review in 2026, we came across different databases such as Scopus, ERIC, PsycINFO, PubMed, and Web of Science. Experimental research, preferably randomised controlled trials (RCTs), is most appropriate for the research questions.

The population, intervention, comparison, and outcome (PICO) framework was used, and Medical Subject Headings (MeSH) were used to develop search terms and free-text terms, combining concepts related to ASD and play therapy.

Study Design

In this research, qualitative research is primarily used to determine the effectiveness of art therapy and play therapy on the ASD population. (RCTs) Experiments seem to be more effective in measuring the effectiveness of the interventions for the ASD population. The PICO criteria are used for the inclusion and exclusion process.

Population

The ages of participants in this study are varied, although only a few of them give age-related details. Some studies reported age ranges of 5–12 years and 6–12 years, while one study mentioned 5.6 years. Other studies used terms such as “young children” or “school-age children” without giving precise age ranges. Also, many studies didn’t provide information about the comorbidities. Mostly, they refer to children with autism spectrum disorder, without specifying whether conditions like anxiety, attention-deficit disorders, or intellectual disabilities were included or not.

Table1 .1. MeSH headings and keywords utilised in search strategy.

Element	Concept	MeSH Terms	Keywords
Population	Children with ASD	Autism Spectrum Disorder; Autistic Disorder; Child; Child, Preschool; Adolescent	ASD; autism; autistic children; children with autism; neurodevelopmental disorder
	Age range	Child; Child, Preschool; Adolescent; Age Factors	children aged 5–12; young children; preschool children; paediatric population
	Family involvement	Parents; Family Therapy; Parent-Child Relations; Parent Training	parental involvement; caregiver participation; family-centred therapy
Intervention	Art therapy (general)	Art Therapy; Expressive Therapies; Creative Arts Therapy	art therapy; creative arts; expressive therapy
	Visual art / painting	Art Therapy; Painting; Expressive Therapies	painting therapy; drawing; artwork creation
	Art-based games	Games, Recreational; Art Therapy; Motor Activity; Cognition	art-based games; movement-based art; game therapy
Element	**Concept**	**MeSH Terms**	**Keywords**
	Play therapy (general)	Play Therapy; Behavior Therapy; Child Development	play therapy; therapeutic play
	PCIT	Play Therapy; Parent-Child Relations; Parent Training; Behavior Therapy	parent-child interaction therapy; PCIT
	Sand play therapy	Sandplay Therapy; Play Therapy; Psychotherapy	sand play; sand tray therapy
	CBT play therapy	Play Therapy; Cognitive Behavioral Therapy; Behavior Therapy	CBT play therapy; cognitive play
	3i intensive therapy	Play Therapy; Intensive Intervention; Longitudinal Studies	intensive play therapy; 3i method
	AR-based games	Play Therapy; Augmented Reality; Games, Recreational	AR games; digital therapy
	Puppet play therapy	Play Therapy; Puppetry; Social Stories	puppet therapy; narrative play
	DIR/Floortime	Play Therapy; DIR/Floortime; Developmental Therapy	Floortime; developmental play
	Music + play therapy	Music Therapy; Play Therapy; Expressive Therapies	music therapy; combined therapy
	Play, Language & Friendship	Play Therapy; Language Therapy; Peer Group; Friendship	PLF programme; peer interaction
	Child-Centred Play Therapy	Play Therapy; Child-Centered Therapy; Psychotherapy	CCPT; non-directive play

Intervention

Studies that measure art and play therapy are considered. Many therapies that come under art therapy, such as painting, visual art therapy, were included, and for play therapy,

therapies such as sand play therapy, puppet play therapy, and DIR therapy were used. Whereas therapies such as drama therapy were excluded.

Comparator

Studies were used without considering the comparison they used. Some studies compare the intervention to other treatments. In this, we include studies that considered the before and after intervention, without having a separate control group.

Outcome measure

from skills such as social skills (communication, interaction), behaviour skills (disruptive behaviour, anxiety, repetitive actions), emotional skills (managing emotions, self-image), and motor skills (coordination, balance and movement). If the study measures at least one outcome from these, then those studies were included, whereas studies with quantitative data were excluded.

Search of Literature

The database, which was initially taken, for identification is 312 records. Then the 89 duplicates were removed, and further screening takes the number down to 223. Whereas the excluded screening was done as if the population was not ASD-specific (n= 48), no therapy intervention (n=37), non-English/unavailable (n=31), not peer-reviewed (n=24), duplicate data (n=16). The eligible studies were then reduced to 67, out of which 47 were removed due to insufficient outcome data (n=18), mixed population not ASD (n=14), no

control/comparison (n=9), protocol only (n=6). At last, a total of 18 studies met all inclusion criteria from which art therapy (n=6) and play therapy (n=12) were included in the study,

Methodological quality assessment

We assessed the quality of the studies that met the

Result

Study Selection

inclusion criteria through two validated tools as per the study design. Randomised control trials (RCTs) were evaluated using the Cochrane Risk of Bias Tool 2.0 (RoB 2; Sterne et al., 2019), which looks at the possible biases in five different areas, such as how participants were assigned to groups, whether the

intervention was followed as per plan or not, missing data, how the outcome was measured, and how results were addressed. In non-randomised and observational studies, we use the Newcastle-Ottawa Scale (NOS; Wells et al., 2013), which focuses on how the participants

were selected, how much the groups are comparable, and how the outcome was measured. The studies are of high quality, which implies no risk of bias, whereas if they are of moderate quality, that means some concerns exist. Both reviewers conducted the quality test independently, and any disagreements were resolved through discussions and reached a

shared decision.

Data extraction

The data was extracted and evaluated by both authors, and a table was made in which they include the authors, year of publication, country of origin, size of the sample, participant characteristics (age, gender, ASD severity), the intervention design, intervention type, duration, frequency, outcome measure and instruments used.

Analysis and synthesis of results

As the studies are very different in terms of design, intervention, and outcome, we didn't combine the results into a single statistical analysis. Instead, we summarise them using the (SWiM) guidelines (Campbell et al., 2020). The results were categorised differently for art and play therapy, as their outcomes are different in terms of (social, emotional, behavioural), and show whether the effect is positive, negative or no change. To compare the studies, we used the PICO framework to point out the systematic comparison.

The database, which was initially taken, for identification is 312 records. Then the 89 duplicates were removed, and further screening takes the number down to 223. Whereas the excluded screening was done as if the population was not ASD specific (n= 48), no therapy intervention (n=37), non-English/unavailable (n=31), not peer-reviewed (n=24), duplicate data (n=16). The eligible studies were then reduced to 67, out of which 47 were removed due to insufficient outcome data (n=18), mixed population not ASD (n=14), no control/comparison (n=9), protocol only (n=6). At last, a total of 18 studies met all inclusion criteria, from which art therapy (n=6) and play therapy (n=12) were included in the study; the study selection is summarised in accordance with the PRISMA 2020 flow diagram (Page et al., 2021).

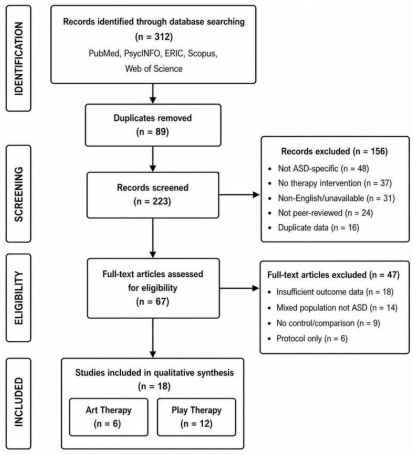

Figure 1. PRISMA flow chart

Methodological quality

From all the 18 studies, 11 studies are of high effect study which means they have a low risk of bias as they are RCT or controlled design with statistically significant between-group differences, like Bakhshi et al**.** (2018), Jalambadani(2020), Huili et al. (2023), Liu et al. (2023), Hamidifard et al**.** (2023), Kiasari et al**.** (2023), Barghi et al**.** (2023), Khanzadeh et al**.** (2017), Kent et al. (2020), Schottelkorb et al. (2020). Whereas the other 7 studies are of moderate effect, which means there can be some minor issues, as they are non-randomised or observational designs like Quadri (2014), Sabet & Abadi (2021), D'Amico & Lalonde (2017), Zlomke et al . (2017), Ahvaz Branch et al. (2024), Brefort et al. (2022).

Study characteristics

The studies were published from 2014 to 2024 in different countries, and an increase in research can be seen after 2017, as an increase in interest can be seen in this research field. The research was taken from different countries. A large number of studies came from Iran, which can show a great interest in such fields there.

Participant characteristics

The combined pool of participants is around 500 children with ASD, with sample sizes ranging from 15 (Kiasari et al., 2023) to 90 (Brefort et al., 2022), and the reported age range is between the ages of 5-12 years. The gender participation is not equal; there are more male children than female, consistent with the higher known prevalence of males in ASD diagnosis (Loomes et al., 2017). There is a focus on early intervention in Brefort et al. (2022), where the mean age is 5.6 years. Parental involvement was also there on 5 studies (Jalambadani, 2020; Zlomke et al., 2017; Liu et al., 2023; Barghi et al., 2023; Khanzadeh et al., 2017), which represents the importance of the family, which can help greatly in areas like social and emotional skills.

Types of intervention

There are 6 art therapies and 12 play therapies, which are also divided into different categories, like art therapy, which includes further interventions such as art-based games incorporating body movement (Huili et al., 2023), general art therapy (Bakhshi et al., 2018; Sabet & Abadi, 2021; D'Amico & Lalonde, 2017) and painting therapies (Jalambadani, 2020). Whereas, for play therapy, different interventions are used such as Parent-Child Interaction Therapy (PCIT; Zlomke et al., 2017); general play therapy (Ahvaz Branch et al., 2024); sand play therapy (Liu et al., 2023); cognitive-behavioural play therapy (CBT-PT; Hamidifard et al., 2023); 3i intensive play therapy (Brefort et al., 2022); augmented reality (AR)-based games (Bhatt et al., 2014); puppet play therapy with social stories (Kiasari et al., 2023); DIR/Floortime (Barghi et al., 2023); music-integrated play therapy (Khanzadeh et al., 2017); the Play, Language and Friendship (PLF) programme (Kent et al., 2020); and child-centred play therapy (CCPT; Schottelkorb et al., 2020). These help in the different models that can be applied to the practices, such as clinical.

Table 2: Study and participants' characteristics

Study	Design	Country	Sample Size (n)	Age (years)	Outcome of Interest
Quadri (2014)	Pre-test–post-test	NR	20	NR	Social, emotional, behavioural
Bakhshi et al. (2018)	Randomised controlled trial	Iran	26 (experimental + control)	NR	Social, emotional, behavioural
Sabet & Abadi (2021)	Quasi-experimental	Iran	30	6–12	Motor
Jalambadani (2020)	Randomised controlled trial	Iran	~40	NR	Social, emotional
Study	**Design**	**Country**	**Sample Size (n)**	**Age (years)**	**Outcome of Interest**
Huili et al. (2023)	Randomised controlled trial	China	26	NR	Motor, social, cognitive, language
D'Amico & Lalonde (2017)	Quasi-experimental	Canada	NR	NR	Social, behavioural
Zlomke et al. (2017)	Pre-test–post-test (observational)	USA	17 children + parents	NR	Behavioural, social, relational
Ahvaz Branch et al. (2024)	Pre-test–post-test	Iran	30	5–12	Behavioural, functional
Liu et al. (2023)	Randomised controlled trial	China	52 (23 intervention, 29 control)	NR	Social, sleep, parental stress
Hamidifard et al. (2023)	Randomised controlled trial	Iran	24 (12 experimental, 12 control)	NR	Emotional, behavioural

Brefort et al. (2022)	Pre-test–post-test (longitudinal)	France	90 (mean = 5.6 yrs)	~5.6 (mean)	Social, behavioural, communication
Bhatt et al. (2014)	Quasi-experimental	NR	NR	NR	Emotional, motor, cognitive
Kiasari et al. (2023)	Randomised controlled trial	Iran	15	NR	Social, communication, behavioural
Barghi et al. (2023)	Randomised controlled trial	Iran	30	NR	Social, emotional
Khanzadeh et al. (2017)	Randomised controlled trial	Iran	30	6–12	Social, behavioural
Kent et al. (2020)	Randomised controlled trial	UK	68 pairs (1 ASD + 1 neurotypical)	NR	Social, communication, play
Schottelkorb et al. (2020)	Randomised controlled trial	USA	23 (12 treatment, 11 control)	NR	Social, behavioural

m = mean
NR = not reported

Measures

All 18 studies use some standardised tools for the assessment and to find the outcome of the research. Areas that are affected are social, emotional, behavioural and emotional skills of children with ASD. Studies that measure the overall severity, such as Brefort et al. (2022) and Kent et al. (2020), used the Autism Diagnostic Observation Schedule (Lord et al., 2000), while Brefort et al. (2022) and Liu et al. (2023) used the Childhood Autism Rating Scale (Schopler et al., 1980; 2010). To measure social skills and change in social interaction and communication Quadri (2014), D'Amico & Lalonde (2017), Bhatt et al. (2014), Liu et al. (2023), Ahvaz Branch et al. (2024), Huili et al. (2023), Kent et al. (2020), and Schottelkorb et al. (2020)—used the Social Responsiveness Scale (Constantino & Gruber, 2005; 2012) and for behavioural skills studies such asSchottelkorb et al. (2020) used the Child Behavior Checklist (Achenbach & Rescorla, 2001), Khanzadeh et al. (2017) used the Aberrant Behavior Checklist (Aman et al., 1985), and Zlomke et al. (2017) used both the Eyberg Child Behavior Inventory (Eyberg & Pincus, 1999) and the Dyadic Parent–Child Interaction Coding System (Eyberg et al., 2005). Whereas for emotional skill, Quadri (2014) used the Emotion Regulation Checklist (Shields & Cicchetti, 1997) and Barghi et al. (2023) used the Functional Emotional Assessment Scale (Greenspan et al., 2001). for motor skills, Sabet & Abadi (2021) and Huili et al. (2023) using the Bruininks–Oseretsky Test of Motor Proficiency (Bruininks & Bruininks, 2005). Sabet & Abadi (2021) also used the Lincoln–Oseretsky Motor Development Scale (Sloan, 1955), and for anxiety, Hamidifard et al. (2023) used the Social Phobia and Anxiety Inventory (Turner et al., 1989) and the Multidimensional Anxiety Scale for Children (March et al., 1997). As there are different tools used and different outcomes came, it is not possible to compare the results statistically.

Table3. intervention characteristics

Study	Intervention Modality	Delivered By	Mode of Delivery	Duration	Frequency	Intensity (min)
Quadri (2014)	Visual art therapy – creating artworks	NR	NR	Multiple sessions	NR	NR
Bakhshi et al. (2018)	Art therapy – structured art activities	Art therapist	Group (experimental vs. control)	44 sessions	NR	NR
Sabet & Abadi (2021)	Painting therapy	Lead researcher	Individual	6 weeks	3× per week	40
Jalambadani (2020)	Painting therapy with parental involvement	Art therapist	Group + parent	12 sessions	NR	NR
Huili et al. (2023)	Art-based games using body movement vs. picture book therapy	Researcher	Group	NR	NR	NR
D'Amico & Lalonde (2017)	Multi-modality – drawing, mask making, mind-mapping, paper making, mirrors, tower building	Art therapist (×2)	Group	21 weeks	1× per week	75
Zlomke et al. (2017)	Parent-Child Interaction Therapy (PCIT)	Trained therapist + parent coach	Individual (child + parent)	19 sessions	NR	NR
Ahvaz Branch et al. (2024)	Play therapy – individual sessions	Play therapist	Individual	15 sessions	NR	30–45
Liu et al. (2023)	Sand play therapy	Therapist	Individual	20 weeks	1× per week	NR
Hamidifard et al. (2023)	Cognitive-behavioural play therapy (CBT-PT)	Therapist	Individual	10 sessions	NR	NR

Study	Intervention Modality	Delivered By	Mode of Delivery	Duration	Frequency	Intensity (min)
Brefort et al. (2022)	3i intensive play therapy	Trained therapist + parents	Individual (intensive)	2 years	Multiple per week	NR
Bhatt et al. (2014)	Augmented reality (AR)-based games	Researcher	Individual	Multiple sessions	NR	NR
Kiasari et al. (2023)	Puppet play therapy with social stories	Therapist	Group	16 sessions	NR	NR
Barghi et al. (2023)	DIR/Floortime play therapy	Therapist	Individual	23 sessions	NR	20
Khanzadeh et al. (2017)	Music therapy + play therapy (combined)	Therapist	Group	7 weeks	NR (15 sessions total)	NR
Kent et al. (2020)	Play, Language and Friendship programme	Trained facilitator	Group (ASD + neurotypical peer)	10 weeks	1× per week	NR
Schottelkorb et al. (2020)	Child-centred play therapy (CCPT)	Play therapist	Individual	24 sessions	NR	NR

NR = Not reported

Table 4. Summary of Results

Study	Social	Behavioural	Emotional	Motor	Communication	Other
Quadri (2014)	↑ (+) [observation]	—	↑ (+) [observation]	—	↑ (+) [observation]	—
Bakhshi et al. (2018)	↑ (+)* [SSRS, VABS]	—	↑ (+)* [DERS]	—	—	—
Sabet & Abadi (2021)	—	—	—	↑ (+)* [Lincoln-Oseretsky]	—	—
Jalambadani (2020)	↑ (+)* [SSRS]	—	↑ (+)* [PANAS]	—	—	—
Huili et al. (2023)	↑ (+) [CARS, observation]	—	—	↑ (+) [motor assessment]	↑ (+) [language assessment]	↑ (+) attention, spatial awareness
D'Amico & Lalonde (2017)	↑ (+) [SSIS-RS]	↓ (+) [SSIS-RS]	—	—	—	↑ (+) concentration, self-assurance
Zlomke et al. (2017)	—	↓ (+) [ECBI, DPICS]	—	—	↑ (+) [DPICS]	↑ (+) parent–child relationship

Study	Social	Behavioural	Emotional	Motor	Communication	Other
Ahvaz Branch et al. (2024)	—	↑ (+) [observation]	—	—	—	↑ (+) response to effective stimuli
Liu et al. (2023)	↑ (+)* [SSRS]	—	—	—	—	↑ (+) sleep quality; ↓ (+) parental stress
Hamidifard et al. (2023)	↓ (+)* social anxiety [SASC-R]	↓ (+)* self-harm [SIB-Q]	↑ (+)* [SASC-R]	—	—	—
Brefort et al. (2022)	↑ (+)* [CARS, ADI-R]	↓ (+)* repetitive [CARS, ADI-R]	—	—	↑ (+)* [CARS, ADI-R]	—
Bhatt et al. (2014)	—	—	↓ (+) anxiety [observation]	↑ (+) [observation]	—	↑ (+) focus, imagination
Kiasari et al. (2023)	↑ (+)* [SSRS]	↑ (+)* self-control [SSRS]	—	—	↑ (+)* [SSRS]	↑ (+) assertiveness, cooperation
Barghi et al. (2023)	↑ (+)* [VABS]	—	↑ (+)* [VABS]	—	—	—
Khanzadeh et al. (2017)	↑ (+)* [SSRS]	↓ (+)* withdrawal [SSRS]	—	—	—	—
Kent et al. (2020)	↑ (+)* [PPVT, observation]	—	—	—	↑ (+)* [PPVT, observation]	↑ (+) play skills; gains at 3-month f/u
Schottelkorb et al. (2020)	↑ (+)* [SSRS, CBCL]	↓ (+)* [CBCL]	—	—	—	—

Results Key

↑ = Positive trend,↓ = Reduction in unwanted behaviour/symptom, **(+)** = Improvement, ***** = Statistically significant ($p < 0.05$), **—** = Not assessed, **f/u** = Follow-up

Outcome Measurement Tools

VABS = Vineland Adaptive Behaviour Scales, **SSRS** = Social Skills Rating System, **SSIS-RS** = Social Skills Improvement System Rating Scale, **CARS** = Childhood Autism Rating Scale, **DERS** = Difficulties in Emotion Regulation Scale, **PANAS** = Positive and Negative Affect Schedule, **ECBI** = Eyberg Child Behavior Inventory, **DPICS** = Dyadic Parent–Child Interaction Coding System, **SASC-R** = Social Anxiety Scale for Children–Revised, **SIB-Q** = Self-Injurious Behaviour Questionnaire, **ADI-R** = Autism Diagnostic Interview–Revised, **CBCL** = Child Behavior Checklist, **PPVT** = Peabody Picture Vocabulary Test, **Lincoln–Oseretsky** = Motor Development Scale

Outcomes

The outcome of all the studies is positive. Interventions such as art therapies and play therapies help children with ASD greatly and reduce their symptoms. Improvements in skills can be seen in different areas in children, such as social, motor, and behavioural skills.

Social outcomes

From all studies, 15 give the outcome of improvement in at least one social outcome.

Studies by Jalambadani (2020) show significant improvement in their social skills with the help of painting therapy with peer and parental involvement, and other studies, such as Bakhshi et al. (2018) and Huili et al. (2023), also show improvement in socialising, adaptive behaviour and body movement, language improvement, respectively. Whereas in play therapy studies by Kent et al. (2020) show improvement in interpersonal skills, play and communication skills. Liu et al. (2023) show how sand therapy helps in controlling parental stress and found that the benefits extend from the child to further family members.

Khanzadeh et al. (2017) found that such an intervention has a positive impact on social interactions. Kiasari et al. (2020) measure how puppet therapy helps in the development of social skills. Schottelkorb et al. (2020) found improvement in social skills such as social openness.

Behavioural outcome

From all the reported studies, 14 show the improvement in behavioural skills as outcomes in areas like repetitive behaviour, emotion control, self-harming, and anxiety. These studies, like Brefort et al. (2022) and Hamidifard et al. (2023), show improvement in the sustained impact on ASD symptoms and overcoming issues like self- harm. Zlomke et al. (2017) show improvement in child behaviour and in the family context. Zlomke et al. (2017) report improvement in behaviour skills of the children, and also highlight the importance of the family. Bakhshi et al. (2018) show how art therapy in interventions can help in emotional regulation of the self. Bhatt et al. (2014) report the effectiveness of the game therapy in reducing anxiety and improving concentration and creativity. D'Amico & Lalonde (2017) show how play therapy helps in the improvement of concentration and reduces the restlessness of children.

Motor outcomes

Out of all the 18 studies, 5 studies show how art and play therapy help with symptoms related to motor skills. Sabet et al. (2021) report shows the improvement in coordination and balance through art therapy. Huili et al. (2023) found that art-based game therapy helps body coordination and movement in spatial senses. Bhatt et al. (2014) report how play therapy helps in improving balance and motor demand. Barghi et al. (2023) with DIR/ floor time therapy show improvement in perceptual-motor interaction.

Discussion

This review paper aims to evaluate the effectiveness of art therapy and play therapy on children with ASD. There are in total 18 studies, of which 6 are of art therapy, and 12 are of play therapy, with an age range between around 4-12 years, but some studies didn't mention the exact age; they mention school-going children with ASD. The research papers show improvement in areas like social, behavioural, and motor skills majorly whereas some studies also show improvement in areas such as emotional and cognitive abilities. The quality of the selected papers is from high to moderate, which means they have low bias and some concerns, such as sample size, selection process, etc.

Diagnostic criteria

Studies in this review paper use different methods to diagnose ASD, and those methods sometimes make it hard to compare the studies. The most used and acceptable standard is the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) (American Psychiatric Association [APA], 2022). According to this, autism spectrum disorder is a brain-based condition that involves things such as interaction problems, social engagements, recurring actions and limited interests. Whereas there is another way to diagnose it, that it through the International Classification of Diseases, 11th Revision (ICD-11; World Health Organisation [WHO], 2022). As there is no single method to use ASD, it became difficult to diagnose and then compare them afterwards. For the future, there should be one

method for diagnosis that can be used to make the comparison feasible.

Interventions

This review paper studies both art and play therapy as their modalities are very diverse,
even though they have the same common goal, and that is Autism Spectrum Disorder (ASD) in children. Interventions of art therapy, such as painting, drawing, and visual art-making, with sessions lasting around 12-44 with parental support, help the child to grow in different areas (Bakhshi et al., 2018; Jalambadani, 2020; Quadri, 2014; Sabet & Abadi, 2021; Huili et al., 2023; D'Amico & Lalonde, 2017). Whereas play therapy with interventions like sand-play therapy, social stories, DIR/floortime therapies with sessions around 10 to 100 across two
years (Zlomke et al., 2017; Ahvaz Branch et al., 2024; Liu et al., 2023; Hamidifard et al., 2023;
Brefort et al., 2022; Bhatt et al., 2014; Kiasari et al., 2023; Barghi et al., 2023; Khanzadeh et
al., 2017; Kent et al., 2020; Schottelkorb et al., 2020). Both therapies were for a single person and for a group, which helps them integrate things beyond the clinical settings.

Outcome measure

To evaluate the outcome, the researchers use different types of assessment tools such as the Childhood Autism Rating Scale (Schopler et al., 1980; 2010), the Social Skills Rating System
(Gresham & Elliott, 1990), the Social Responsiveness Scale (Constantino & Gruber, 2005; 2012), and the Vineland Adaptive Behaviour Scales (Sparrow et al., 1984; 2016). Some studies that happen in Iran use their own scale to measure, so such things make the comparison very difficult. As there is a lack of a standardised tool for art and play therapy for evaluation, this also became a hurdle. For the future, there should be the development
of a standardised tool, as only a few studies include follow-up interventions such as Bakhshi et al. (2018), Kent et al. (2020), and Zlomke et al. (2017).

Participants and generalizability to the desired population

The generalizability of the findings was restricted because of several reasons, such as geographical factors, as studies in countries like Iran raise questions, such as interventions, family, education, etc., the effectiveness may be affected due to such issues. Here, gender can also be the issue as the main population in children with ASD is male, who have different social and behavioural issues (Loomes et al., 2017; Hull et al., 2020). The therapies are more tested on males, which leads to less data on female children to determine the effectiveness of the therapies. And the third thing is the small sample size in certain studies, such as (e.g.,
Kiasari et al., 2023, n = 15; Zlomke et al., 2017, n = 17), which leads to less statistical data and increase risk of error.

Strengths and limitations

From the 18 studies, 6 of art therapy and 12 of play therapy, they show positive outcomes in the areas of children with ASD, such as emotional, social, motor, and behavioural. The outcomes are similar as the art therapy helps in interpersonal communication, self-expression, body movement, and emotional expression. whereas play therapy helps in
parent-child interaction, social, behavioural and motor abilities. The limitations of the studies are the small sample size, different tools for assessments, and some studies lack comparison groups.

Implications for clinical practices

In the health care sector, with an increase in the number of cases of children with ASD, the need for better interventions also increases, so research on therapies such as art and play therapy plays an important role in the implementation of such interventions into practice. The evidence for the impact on areas such as behavioural, emotional, social and motor skills of such therapies helps the clinical practitioner to enhance their therapies for children with ASD. Implications for future research
The findings of this research paper have directions for future research, such as using consistent and reliable measures, as many studies use different tools, which makes it difficult to compare, so there is a need to create a tool specifically for such therapies. Secondly, the assessments should include follow-up assessments. Thirdly, explore different digital and technological-based therapies, and lastly researches should use mixed research methods such as qualitative and quantitative for a better understanding.

Conclusion

This study aims to evaluate the effectiveness of play and art therapy for children with ASD. The outcomes for both therapies were positive as they helped in reducing the symptoms, including social, behavioural and motor skills. There are some issues in the research, such as the use of different tools, which makes the outcome evaluation difficult, but in the future, it will strengthen the evidence for art and play therapy in different practices.

Disclosure statement

The author(s) reported no conflicts of interest.

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