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The Effects of Dance and Dance Movement Therapy on Children with Autism Spectrum Disorder: A Narrative Review

AUTHORS & AFFILIATIONS

Katarzyna Pagacz (Corresponding Author) ORCID: 0009-0000-1973-8433 Email: pagkat2000@gmail.com The Lower Silesian Centre for Oncology, Pulmonology and Haematology, Wrocław, Poland

Wiktoria Kolasa ORCID: 0009-0005-4809-7053 Email: lekwicktoriakolasa@gmail.com Wrocław University Hospital, Wrocław, Poland

Aleksandra Stadnik ORCID: 0009-0005-4764-3980 Email: aleksandrastadnik2@gmail.com Wrocław University Hospital, Wrocław, Poland

Monika Lis ORCID: 0000-0003-4021-919X Email: monikalis1267@gmail.com Mazovian "Bródnowski" Hospital, Warsaw, Poland

Maria Jędryka ORCID: 0009-0000-9052-8914 Email: mjedryka2000@gmail.com Public health care institution in Oława, Oława, Poland

Marta Kaczorek ORCID: 0009-0007-1406-2076 Email: kaczorek.marta1@gmail.com Institute of Psychiatry and Neurology, Warsaw, Poland

Julia Gatniewska ORCID: 0009-0001-1463-7497 Email: juliaanna177@gmail.com
Regional Hospital in Poznań, Poznań, Poland

Olga Kowalczyk ORCID: 0009-0008-5105-3301 Email: kowaalczynkk@gmail.com Rev. J.
Glowatzki County Hospital, Strzelce Opolskie, Poland

Bożena Kielbasa ORCID: 0009-0002-1667-124X Email: bozena.kielbasa00@gmail.com
Tytus Chałubiński District Hospital in Zakopane, Zakopane, Poland

Abstract

Background. Autism spectrum disorder (ASD) is one of the most common neurodevelopmental disorders. The symptoms of ASD affect a child's functioning in many areas of life, including motor, cognitive, emotional and social development. Alongside standard therapeutic methods, there is growing interest in non-pharmacological interventions that support the development of children with ASD. One such intervention is Dance Movement Therapy (DMT), which is a multidimensional form of activity combining movement, music, emotional expression and social interaction. In recent years, an increasing number of studies have been published on the impact of both dance and Dance Movement Therapy on the functioning of children with ASD. The results of these studies are promising and offer hope for supporting the development of these children.

Aim. The aim of this narrative review is to present and analyse the current scientific literature on the impact of dance and Dance Movement Therapy on the functioning of children with autism spectrum disorders.

Material and methods. This study is a narrative review of the scientific literature on the impact of dance and Dance Movement Therapy (DMT) on the functioning of children with autism spectrum disorder (ASD). The literature search was conducted in the PubMed database and on the ResearchGate platform using the following keywords: 'autism spectrum disorder', 'ASD', 'dance' and 'dance movement therapy'. The review included original research articles published in English, involving children with ASD and assessing the impact of dance-based or DMT interventions.

Results. The studies analysed indicate that dance and Dance Movement Therapy (DMT) improve the functioning of children with autism spectrum disorder (ASD). The beneficial outcomes relate primarily to social skills, communication, emotional regulation, sensory-motor integration, as well as a reduction in repetitive behaviours. At the same time, the therapeutic effects achieved can lead to an improvement in the quality of life for these children and their families.

Conclusions. Dance and Dance Movement Therapy (DMT) appear to be a promising form of therapeutic support for children with autism spectrum disorder (ASD). Owing to its accessible, engaging and child-friendly nature, DMT may serve as an effective and valuable complement to the therapeutic process.

Key words: ASD, autism spectrum disorder, DMT, dance movement therapy, dance

HIGHLIGHTS

- ▶ Dance Movement Therapy (DMT) significantly improves social competence, communication skills, and emotional regulation in children with Autism Spectrum Disorder (ASD).
- ▶ Structured dance interventions effectively reduce restricted repetitive behaviors (RRBs) and stereotyped movements while enhancing sensory-motor integration.
- ▶ Non-verbal movement-based communication serves as a critical therapeutic bridge for minimally verbal or non-speaking individuals with ASD.
- ▶ Emerging technologies, including Mixed Reality DMT and parent-mediated home programs, demonstrate potential to enhance traditional therapeutic outcomes.
- ▶ Traditional and cultural dance forms (e.g., Greek Traditional Dance, Odissi) yield comparable benefits to clinical DMT in fostering social initiation and motor coordination.
- ▶ Current evidence is limited by small sample sizes and heterogeneous methodologies, necessitating larger RCTs with standardized assessment tools to validate long-term efficacy.

1. Introduction

1.1. Dance Movement Therapy (DMT)

Dance Movement Therapy (DMT) is a form of psychotherapy that uses movement and dance as tools to support the therapeutic process. Its fundamental premise is the inseparable link between the body and the mind, according to which changes in the motor sphere can influence a person's emotional, cognitive and social functioning. In DMT, movement is treated not only as a physical activity, but also as a form of communication and expression of inner experiences, which are often difficult to put into words (Koch et al., 2019). Therapists using a dance and movement-based approach draw on a wide range of techniques, including, amongst others, creative and expressive dance, various forms of movement, elements of role-play, and exercises developing gross motor skills and perceptual-motor coordination (Shuper-Engelhard & Vulcan, 2022).

The first concepts of dance therapy emerged in the 1940s. It is such an important, significant and effective form of therapy that it has gained formal recognition and professionalisation at an international level, as evidenced by the work of organisations such as the American Dance Therapy Association (ADTA), founded in the 1960s, and the European Association for Dance Movement Therapy (EADMT), founded in the 1990s. During this period, the therapy spread throughout the world.

Group dance and movement therapy is used in working with children and young people from various clinical groups and in different life situations. The literature indicates that this form of therapy can be used, amongst others, with children on the autism spectrum (ASD), children with emotional difficulties, patients in psychiatric wards, people experiencing the aftermath of trauma, young people participating in prevention programmes, teenagers exhibiting social withdrawal, and refugee children (Shuper-Engelhard & Vulcan, 2022).

1.2. Autism spectrum disorder

Autism spectrum disorders (ASD) are neurodevelopmental disorders. It is believed that the development of ASD is determined by the interaction of numerous genetic and environmental factors. Among the most significant factors cited in the literature are: maternal diabetes during pregnancy, exposure to medication, exposure to environmental pollutants, hormonal disorders and advanced parental age (Alharbi, 2023).

Autism was first described by Leo Kanner in 1943. In describing the behaviour of eleven children aged between 2 and 8, Kanner used the term ‘early infantile autism’. In his paper, Kanner wrote that we must “assume these children have come into the world with the innate inability to form the usual, biologically provided contact with people, just as other children come into the world with innate physical or intellectual handicaps” (Harris, 2018).

Until 1971, autism was regarded as a childhood psychosis falling under the diagnostic category of schizophrenia. In that year, Kolvin (Kolvin, 1971) published groundbreaking research which clarified the differences between autism and schizophrenia. These findings played a significant role in the recognition of autism as a distinct developmental disorder and contributed to its inclusion in the DSM-III (Diagnostic and Statistical Manual of Mental Disorders, 1980) and the ICD-9 (International Classification of Diseases, 1978) of the category of early childhood autism, based on the original description provided by Leo Kanner. This disorder was clearly distinguished from childhood schizophrenia and classified within the group of pervasive developmental disorders (Ousley & Cermak, 2014).

Currently, two main classification systems are used in the diagnosis of ASD: • ICD-11 (International Classification of Diseases, 11th revision, WHO; 2022); • DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th edition, APA; 2013).

There has recently been an increase in the number of diagnoses, driven by greater public awareness and the introduction of more precise diagnostic criteria (Moszyńska, 2025). Studies involving large groups of patients estimate that autism spectrum disorder (ASD) may affect between 2.2 and 2.6% of the population, depending on the location of the study (Dunalska et al., 2021). Analysing the prevalence of ASD in children, the Barwon Infant Study (BIS) cohort study estimates that in the Barwon region of Victoria, Australia, 74.8 cases per 1,000 children (7.48%) up to the age of 11.5 years have ASD (Holland et al., 2026). Alwin Issac et al. undertook a global meta-analysis (Issac et al., 2025). Based on an analysis of approximately 22,000 articles, data on over 21 million patients were included. The results indicated that the prevalence of ASD varied by continent: • Australia – 2.18% (the highest recorded prevalence of ASD), • Africa – 1.51%, • the Americas – 1.10%, • Europe – 0.71%, • Asia – 0.28%.

ASD is defined by two fundamental psychopathological dimensions:

1. deficits in communication and social interaction,

2. the presence of restricted, repetitive patterns of behaviour, interests and activities.

The diagnosis of autism spectrum disorders should be carried out by a multidisciplinary team. An important part of the process is ruling out the co-occurrence of somatic conditions in the child. The most commonly used diagnostic tools are the ADOS-2 and the ADI-R (Lebersfeld et al., 2021). The diagnostic process is further supplemented by an assessment of language development and intellectual functioning, as these factors can significantly influence the clinical presentation of the disorder and the extent of support required. Most people on the autism spectrum also have co-occurring mental health or neurodevelopmental disorders. According to a meta-analysis by Micai et al. (Micai et al., 2023), the most commonly observed conditions include: • developmental coordination disorder (DCD) – 87% of patients, • sleep disorders (sleep problems) – 43% of patients, • ADHD (attention-deficit/hyperactivity disorder) – 37% of patients, • anxiety disorders – 35% of patients, • intellectual disability – 33% of patients, • feeding and eating disorders – 32% of patients, • depressive disorders – 18% of patients.

1.3. Treatment methods and therapeutic interventions for autism spectrum disorders

Nowadays, a variety of methods are used in the treatment of children with ASD to support the development of cognitive, emotional and social functions, and comprehensive patient care is based on the collaboration of a multidisciplinary team of specialists. Treatment for autism spectrum disorders encompasses both non-pharmacological and pharmacological approaches. To date, no effective and safe medication has been developed for the causal treatment of ASD. Pharmacotherapy aims to reduce the severity of co-occurring disorders, such as anxiety disorders, hyperactivity or sleep problems, thereby improving the patient's functioning in everyday life (Wang et al., 2023). Two antipsychotic drugs, risperidone and aripiprazole, have been approved by the US Food and Drug Administration for the symptomatic treatment of irritability and aggression in children and adolescents with ASD. However, their use is limited by potential adverse effects, including, amongst others, weight gain, metabolic disorders and extrapyramidal symptoms (Goel et al., 2018).

The rise in the prevalence of autism spectrum disorders and the limited options for effective pharmacological treatment are contributing to growing interest in, and wider use of, non-pharmacological interventions. These include behavioural and psychological therapies. They aim to improve emotional regulation, social interaction and verbal communication (Wang et al., 2023).

In addition to psychological and educational interventions and pharmacotherapy, increasing attention is being paid to therapies utilising physical activity. One such method is dance therapy.

Given the heterogeneous nature of ASD, as well as the general atypicality of social communication, dance and movement therapy can play a unique role due to its focus on bodily movement as a tool for communication and expression. Approximately 33% of individuals with autism spectrum disorder have an intellectual disability, and some are minimally verbal or non-speaking. Consequently, the ability to communicate non-verbally may be particularly important for this population (Moo & Ho, 2023).

2. Materials and Methods

2.1. Eligibility Criteria

This study is a narrative review, the aim of which was to present and analyse recent scientific articles on the impact of dance and Dance Movement Therapy (DMT) on the functioning of children with autism spectrum disorder (ASD). The review included research studies from various regions of the world (see Table 1), published in English, which assessed the impact of dance-based or DMT interventions on children diagnosed with ASD. Studies involving children of developmental age, regardless of gender, which analysed the impact of interventions on social functioning, communication, motor skills, cognitive functions and other aspects of development were included.

2.2. Information Sources

A literature search was carried out using the PubMed and ResearchGate databases. Combinations of keywords related to the subject of the study were used, including, amongst others: “autism spectrum disorder”, “ASD”, “dance” and “dance movement therapy”. Studies involving adults were excluded from the analysis.

3. Results

This chapter presents the results of the analysis of the publications included in the literature review. Due to the nature of the interventions analysed, the results have been divided into two groups. The first comprises studies on the impact of Dance Movement Therapy (DMT) on children with autism spectrum disorder (ASD), whilst the second focuses on the impact of dance and movement activities other than DMT on children with ASD.

3.1. The impact of Dance Movement Therapy on children with autism spectrum disorder

The use of Dance Movement Therapy (DMT) with children with autism spectrum disorder is the subject of a growing body of scientific research. An analysis of the available literature suggests that participation in DMT sessions may, among other things, contribute to the development of social skills. One study analysing the effectiveness of DMT is that conducted by Aithal et al. (2021), who introduced this therapy to children diagnosed with ASD. To assess the study's outcomes, the Strengths and Difficulties Questionnaire (SDQ) developed by Goodman and the Social Communication Questionnaire (SCQ) by Rutter et al. were used. The SDQ is used to assess a child's behaviour from the teacher's perspective, providing information on their emotional and social functioning. The SCQ questionnaire, in turn, enables the assessment of a child's social and communication skills from the parents' perspective. The lesson plan developed included techniques such as mirroring – which involves imitating other people's gestures – and sensorimotor therapy combined with movement, play and rhythm. During the exercises, each child contributed their own individual form of physical expression. It is worth noting that a child using a wheelchair took part in the DMT programme and was also encouraged to express themselves in a way suited to their abilities. Analysis of the results showed that the DMT programme produced clinically and statistically significant effects. The greatest impact was observed in the areas of social competence and communication. The children also benefited in terms of emotional functioning, including improved emotional regulation and greater emotional independence.

Dance therapy as a form of psychomotor intervention was also described in an article by Souissi et al. (Souissi et al., 2026). The authors introduced this form of therapy to a group of 14 boys aged around 10. It was noted that DMT has a positive effect on the functioning of children with autism spectrum disorders, supporting the development of motor coordination, body awareness and motor control. The therapy also promotes the development of non-verbal communication, social skills and emotional regulation. Thanks to the combination of movement, music and expression, children are more willing to engage in the sessions and find it easier to interact with those around them. The authors emphasise that the use of dance therapy not only helps to reduce undesirable behaviours, but also contributes to improving the social functioning of children and young people with autism spectrum disorders.

The findings presented here are complemented by a study conducted by Ma and Wang (Ma & Wang, 2025). A total of 28 children with autism from an intellectual rehabilitation centre in Shanghai, China, were selected for the study. They were divided into an experimental group receiving dance and movement therapy (17 children) and a control group (11 children). The authors investigated whether dance therapy would help reduce restricted repetitive behaviours (RRBs). RRBs refer to a range of very frequent and seemingly purposeless behaviours. The results were assessed using the ABC (Autism Behaviour Checklist) symptom scale, which describes a series of typical behaviours in people with ASD, the RBS-R scale, the Social Responsiveness Scale (SRS) and the Social Communication Questionnaire (SCQ). It was observed that DMT has a positive effect on typical behaviours, reciprocal responses, social responsiveness and social communication skills in children with ASD. In addition to the positive study results, the authors also highlighted the importance of communication with parents during therapy; from the preparatory phase right through the entire 11-month study period, they remained in constant contact, providing feedback at every stage of the study.

Similar findings were reported by Kumar (Kumar, 2025), who introduced dance therapy sessions for a group of 30 children with ASD. The sessions were led by certified dance therapists and included activities such as mirroring exercises, rhythmic movements and group dances. The effectiveness of the intervention was assessed by comparing pre- and post-programme results using standardised assessment tools, as well as data from therapists' observations and interviews with parents. Analysis of these findings revealed significant improvements in Sensory Processing (SPM), Social Responsiveness (SRS) and Emotional Regulation (CBCL).

In their study, Ren et al. (Ren et al., 2022) assessed the impact of dance and movement therapy combined with music therapy (MT), with the intervention being carried out by parents and children in a home setting. A set of exercises was developed for the study and provided to parents in the form of a video recording. For three months, they were to carry out the tasks shown in the video together with their child. The CARS and ATEC scales were used to assess the effects of the therapy, with patients being evaluated before and after the therapy began. These scales are commonly used to assess the severity of symptoms of autism spectrum disorders and to monitor patients' ongoing development and the effects of therapy. The results obtained were not surprising. Children who underwent the therapy showed a reduction in the severity of autism symptoms and improved social functioning. In contrast, analysis of the control group's results revealed no significant differences between the assessments carried out

before and after the study. It should also be noted that the therapy was conducted with the active involvement of the parent, which may have yielded additional therapeutic benefits.

The studies presented here highlight the beneficial impact of Dance Movement Therapy on the functioning of children with ASD. At the same time, it is worth noting that the development of new technologies opens up opportunities for the further development of this method. An example of this is the study by Liu et al. (Liu et al., 2024), who, in their study, modernised traditional Dance Movement Therapy by applying Mixed Reality DMT. The therapy utilised an interactive virtual twin agent to guide the training of a child with autism spectrum disorder. The study's results showed that this approach contributed to improved therapeutic outcomes, particularly in terms of the quality of movements performed and the effectiveness of motor tasks.

3.2. The impact of dance and movement activities other than DMT on children with autism spectrum disorder

In their study, Souza-Santos et al. (2018) assessed the impact of participation in standard dance classes on the development of children with ASD. It should be emphasised that the intervention was not based on the principles of Dance Movement Therapy, but involved standard dance classes. The study also included a comparison with Equine-Assisted Therapy (EAT). In the first study group, the children took part in a special dance programme designed for people with disabilities. The dance programme culminated in a performance in front of an audience. In the second group, the children took part in sessions with horses, whilst in the third group they took part in both activities. Participants were assessed before the start of therapy and after its completion using three research tools: the Functional Independence Measure (FIM), the World Health Organisation Disability Assessment Scale – version 2.0 (WHODAS 2.0) and the Childhood Autism Rating Scale (CARS). The study results showed beneficial effects on the severity of autism, as well as improvements in the children's level of functioning, communication and psychosocial adjustment. However, the greatest improvement in functioning was observed in the group combining dance with Equine-Assisted Therapy (EAT).

The literature also includes studies describing the impact of more traditional forms of dance. Marouli et al. (Marouli et al., 2021) conducted a study among children with ASD attending a special school in Greece. The control group attended only the physical education lessons included in the school's curriculum. The experimental group additionally took part in Greek

Traditional Dance (GTD) classes. Two teaching methods were used: the first, in which the teacher demonstrated the dance and the pupils imitated it; and the second, in which the children explored movement independently through freedom, creativity and spontaneity. The aim of the study was to investigate the impact of dance on the social skills of children with ASD. Pre- and post-tests were conducted on all participants. Children in the experimental group showed a significantly higher level of improvement in social skills than those in the control group. Improvements were observed in the following areas: eye contact, parallel activity, social initiation and rules.

A similar approach, incorporating traditional dance, was proposed by Dawn (Dawn, 2024). As part of her study, children with ASD took part in Odissi dance lessons, a form of Indian classical dance (ICD). The findings are consistent with those of previous studies. Children taking part in the dance programme showed improvements in their general health, including physical well-being, as well as improvements in sensorimotor coordination, cognitive functions and social functioning.

The beneficial effects of dance classes were also demonstrated by Ziadat et al. (Ziadat et al., 2022). Their study focused on reducing stereotyped behaviours. Each exercise session included various dance and movement activities, such as shuffle dance, jumping dance, synchronised dance and mirroring. The main assessment tool used in the study was observation. The study author and carers were tasked with recording any stereotyped behaviours exhibited by the children. Furthermore, the carers carried out daily assessments for one month following the end of the intervention. The results showed that stereotyped behaviours were reduced in the children participating in the sessions. Additionally, continuing the exercises helped to maintain the results achieved.

Teixeira-Machado et al. (Teixeira-Machado et al., 2019) obtained similar results. They demonstrated that children taking part in a dance programme showed significant improvements in, amongst other things, communication, social relationships, language skills, non-verbal communication and overall functioning.

A further study conducted by Adorno et al. (Adorno et al., 2022) involved children with Down's syndrome and autism spectrum disorders. The participants took part in a series of sessions based on a specially developed dance programme. The Functional Independence Measure (FIM) was used to assess functioning and independence, whilst the Quality of Life Short Form Survey Questionnaire (SF-36) was used to assess quality of life. Meanwhile,

parents or carers provided information regarding the participants' quality of life (QOL). The results of this study showed that the dance sessions led to improvements in functional independence and quality of life. Beneficial changes were demonstrated in the areas of self-care, continence, mobility and communication, as well as in the physical, social and vitality domains.

Table 1 presents the characteristics of the studies included in the analysis.

Table 1: Characteristics of the studies included in the literature review

Study	Country	Sample size	Age of participants	Intervention	Duration
Aithal et al. 2021	Great Britain	26	8-13 y.o.	DMT	5 weeks
Souissi et al. 2026	Tunisia	14	8-12 y.o.	DMT	11 months
Ma, Wang 2025	China	28	6-12 y.o.	DMT	11 months
Ren et al. 2022	China	30	5-8 y.o.	DMT and MT	3 months
Kumar 2025	India	30	6-16 y.o.	DMT	12 weeks
Souza-Santos et al. 2018	Brazil	45	5-12 y.o.	Dance/EAT	72 weeks
Marouli et al. 2021	Greece	8	6-14 y.o.	Greek Traditional Dance	8 weeks
Dawn, 2025	India	27	4-14 y.o.	Odissi dance	6 months
Ziadat et al. 2022	Jordan	30	9-15 y.o.	Dance	not specified
Teixeira-Machado et al. 2019	Brazil	36	8-15 y.o.	Dance	6 months
Adorno et al. 2021	Brazil	11	3-12 y.o.	Dance	8 weeks

4. Discussion

The studies discussed above consistently suggest that both dance and Dance Movement Therapy may have a beneficial effect on the functioning of children with ASD. In most of the studies discussed, improvements were noted primarily in the areas such as social functioning, communication, emotional regulation and sensory-motor integration. Additionally, one study (Ziadat et al., 2022) reported a reduction in stereotyped behaviours. This points to the effectiveness of dance and DMT as interventions supporting the development of children on the autism spectrum. Importantly, these results are consistent regardless of methodology, cultural differences or the patients' place of residence, which further strengthens their reliability.

The variety of activities involved in dance and DMT may increase children's motivation and engagement in therapeutic sessions, which is particularly relevant when working with children with ASD who may experience difficulties maintaining attention. Furthermore, it has been suggested that movement-based interventions facilitate non-verbal forms of emotional expression, which may offer a valuable alternative to traditional therapeutic methods. Spontaneous dance and free movement are a natural part of childhood, enabling children to express themselves and their experiences. They help children develop a sense of their own identity and shape their belief in their own agency (Tortora, 2019).

Nevertheless, the analysed studies present several methodological limitations. Most importantly, many studies involved relatively small participant groups, which may have reduced statistical power and increased the risk of random error. Another limitation was the variation in ASD symptom severity among participants, which restricts the generalisability of the findings to the broader population of children with ASD. Furthermore, differences in the assessment instruments used to evaluate children's functioning before and after interventions make direct comparisons between studies more difficult.

5. Conclusions

Despite the limitations identified, the findings suggest that dance and Dance Movement Therapy (DMT) may provide a valuable complement to therapeutic interventions for children

with autism spectrum disorder (ASD). Further research is needed, involving larger groups of participants, using standardised diagnostic tools and allowing for long-term observation of the effects of therapy. This will enable a more reliable assessment of the effectiveness of these methods and allow the results to be generalised to the population of children with ASD.

Dance-based and DMT interventions warrant further investigation and development, as they may represent valuable components of a comprehensive therapeutic approach for children with ASD.

Disclosure

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