



# EFFECTIVENESS OF DANCE THERAPY IN ENHANCING EMOTIONAL REGULATION AND INTERPERSONAL RELATIONSHIP AMONG ADHD CHILDREN

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## ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is a complex neurodevelopmental condition that affects children's ability to focus, control impulses, and manage behaviors, often leading to challenges in emotional regulation and interpersonal relationships. Dance therapy, an expressive form of therapy that combines movement with psychological benefits, has gained attention for its potential to improve emotional well-being and social skills in children with ADHD. The aim of this study was to assess the effectiveness of dance therapy in enhancing emotional regulation and interpersonal relationships among children with Attention-Deficit/Hyperactivity Disorder (ADHD). A quasi-experimental design was employed, with a sample of 8 children from a special children's center in Chidambaram. The Emotional Regulation Checklist (ERC) by Shields & Cicchetti (1997) and Children's Interpersonal Relationships and Attitudes Assessment (CIRAA) by Holliman & Ray (2013) was used to measure interpersonal relationships, respectively. Participants underwent a structured dance therapy program over 8 sessions during four weeks. To analyze the pre- and post-intervention data, a paired-sample t-test was employed to determine statistical significance in changes in emotional regulation and interpersonal relationship scores. Results indicated that after the intervention, there was a statistically significant improvement in emotional regulation and interpersonal relationships among the

ADHD children. These findings suggest that dance therapy could be an effective complementary approach in enhancing emotional and social outcomes in children with ADHD. Further research with larger samples and control groups is recommended to validate these findings and explore the mechanisms underlying the benefits of dance therapy in this context.

**Key words:** Dance therapy, emotional regulation, interpersonal relationship, ADHD

## INTRODUCTION

Attention-Deficit/Hyperactivity Disorder (ADHD) involve a persistent pattern of inattention and /or hyperactivity-impulsivity that disrupts functioning and development. Inattention is characterized by behaviors such as being easily distracted, lacking persistence, struggling to maintain focus, and being disorganized. It is important to note that these behaviors are not due to defiance or a lack of comprehension. Hyperactivity refers to excessive motor activity, such as running around, fidgeting, tapping, or excessive talking. In adults, hyperactivity may present as restlessness or constantly keeping others engaged with their activity. Impulsivity involves acting without thinking, often leading to potential harm. This can include impulsive actions in the moment and difficulty delaying gratification. Impulsivity may be evident through social intrusiveness, like interrupting others excessively, or making important decisions without considering long-term consequences. ADHD typically begins in childhood, and symptoms should have been present before the age of 12. However, specifying an exact age of onset can be challenging due to recall biases. Ancillary information and observations from different settings are important for an accurate diagnosis as symptoms may vary depending on the context. Consultation with informants who have observed the individual in various settings can help confirm the presence of significant symptoms (Diagnostic Statistical Manual of Mental Disorders, 2013).

The American Dance Therapy Association (ADTA) defines Dance/Movement Therapy (DMT) or Dance Therapy as the psychotherapeutic use of movement to develop emotional, social, cognitive, and physical integration in the individual with the goal of enhancing health and well-being (American Dance Therapy Association, 2020). It emerged as a field in the 1940s, when early pioneers, many of whom were talented dancers, recognized the potential of using dance and movement as a kind of psychotherapy. It is a holistic approach to healing based on the experimentally verified claim that mind, body, and spirit are inextricably

linked; changes in the body mirror changes in the mind, and vice versa. DMT, being an embodied, movement-based method, is frequently difficult to define because it is important to actively engage in the process.

Interpersonal relationships form the cornerstone of human experience, shaping our emotions, behaviors, and overall well-being (Rubin, Bukowski, & Parker, 2006). From infancy to adulthood, individuals navigate a complex web of social connections, ranging from familial bonds to friendships and romantic partnerships. These relationships serve as conduits for emotional support, validation, and personal growth, profoundly influencing our sense of identity and belonging. At the heart of interpersonal relationships lies the intricate interplay between individuals' thoughts, feelings, and behaviors (Reis & Shaver, 1988). Whether characterized by intimacy, reciprocity, or conflict, these interactions reflect the dynamic interdependence between people's needs, desires, and expectations. Through communication, empathy, and shared experiences, individuals forge connections that transcend physical proximity, fostering a sense of connection and belongingness.

In the intricate tapestry of human experience, interpersonal relationships weave the threads of connection, intimacy, and belongingness. These relationships, ranging from familial bonds to friendships and romantic partnerships, serve as vital sources of support, validation, and personal growth. However, for individuals grappling with challenges such as communication barriers, social anxiety, or unresolved conflicts, forging and maintaining meaningful connections can prove to be a daunting task. In such instances, the integration of dance therapy emerges as a promising avenue for fostering authentic interpersonal relationships, offering a unique blend of movement, expression, and relational exploration. Dance therapy, grounded in the belief that movement is a potent vehicle for self-expression and communication, offers a holistic approach to addressing the complexities of human relationships (Koch et al., 2019). By inviting individuals to engage in embodied movement experiences within a therapeutic context, dance therapy provides a safe and supportive space for exploring relational dynamics, enhancing emotional attunement, and cultivating empathy (Koch et al., 2019; Payne, 2006).

Emotional regulation encompasses the complex interplay of cognitive, behavioral, and physiological processes involved in the management of emotions. It involves the ability to recognize, understand, and modulate one's emotional responses in accordance with situational demands and personal goals. Effective emotional regulation enables individuals to navigate through life's challenges, cope with stressors, and

maintain psychological well-being. This multifaceted process is essential for fostering adaptive functioning and positive interpersonal relationships (Gross, 2015).

## OBJECTIVE

To examine the effective of dance therapy on the development of positive emotional regulation and interpersonal relationships among ADHD children.

## REVIEW OF LITERATURE

Shilpa, J., & Shetty,A, P. (2015) investigated the effectiveness of dance therapy on ADHD aged between 6-12 years. The dance movement therapy lasted ten sessions and took place once a week during three months. Using quasi-experimental design, the data was collected by using demographic proforma, SNAP IV (Swanson Nolan and Pelham, version IV) teaching and parent rating scale and opinionnaire of the parents for parents of 200 children and 10 class teachers for screening phase. The samples were selected by lottery method of simple random sampling technique. Among these, 30 children who met the criteria of ADHD according to SNAP IV teacher and parenting rating scale were selected. This dance movement therapy consisted of specific child aerobic exercises lasting for 20 minutes. The phases of this therapy was divided into three phases as warm up, moderate intense moves and cool down. The moderate phases consist of 28 moves, were repeated for a maximum of 16 times. Parents after the end of the therapy stated their opinions. The parents strongly agreed their child started to perform daily activities on their own, developed patience, improved social relationship with peers, improved communication. The study findings conclude that Dance Movement Therapy is highly effective as a therapy to treat children with ADHD.

The study of Inbavanan, R., & Sathiyaseelan, A. (2017) discusses the rising prevalence of neurodevelopmental disorders like Attention Deficit Hyperactivity Disorder (ADHD) in children and adolescents. The challenges in diagnosing and managing ADHD due to comorbid disorders, lack of bio markers, and poor awareness are highlighted. The study explores the alternative therapies like Neurolinguistic Programming (NLP), Sensory Integration (SI) therapy, Play Therapy, Dance Therapy, drama, music, art therapy, yoga, and mindfulness therapy as effective interventions for managing ADHD symptoms. The importance of early diagnosis and interventions to minimize the impact of ADHD on children's lives and suggests a collaborative approach involving parents, teachers, and therapists for optimal outcomes are



emphasized. It also discusses the cost-effectiveness and better management of parents training in alternative therapies.

Effectiveness of a dance program, dance with a B-E-A-T! (Behaviour Analysis and Therapy), is a study conducted by Kalil, D. (2022) aimed to improve motor skills, social skills, emotional regulation, and self-coping through a blend of recreational dance and behavioural therapy components. Five participants diagnosed with ADHD/ODD aged 7-9 were engaged in an intensive five-day dance program, where they learned three dance combinations. Pre-test and post-test observations measured the percent of dance skills completed correctly, while interviews with the counsellor and elementary school teacher assessed program satisfaction. Results indicated positive impacts on physical and social skills, increased physical activity, and enhanced socio-emotional skills. Feedbacks helped identify successful components and areas of improvement, informing future iterations of the program.

Adolescents with ADHD are at risk of abusing substances, underachievement, demoralisation and low self-esteem where as children with ADHD are at risk of developing difficulties such as cognitive, emotional and social issues. The study conducted by Alrazain, B., Zubala, A., & Karkou, V. (2018) suggests that therapeutic approaches should focus on enhancing self-regulation, emotional regulation, and social skills. As a promising alternative therapy Dance Movement Therapy arises providing a non-verbal medium for expression and communication, which can be particularly beneficial for children with ADHD who often struggle with verbal communication. The Movement-Based Art Therapy as an alternative therapy supported children with ADHD in Kingdom of Saudi Arabia by playing a crucial role in mitigating the cognitive, emotional, and social difficulties associated with ADHD that go beyond medication.

Winn, A. (2016) conducted a study that delves into eight-week therapeutic process involving four child-caregiver dyads, exploring movement-based drama therapy as a means to enhance connection and communication between children with ADHD/ODD and their caregivers. The elements of dramatic play and dance movement are combined together, focusing on improving eye contact, physical closeness, cooperative behaviour, kinaesthetic attunement, and shared imaginative play. The repeated exercises facilitated emotional, empathic, and playful connections within child-caregiver dyads. This movement-based drama therapy in addressing the challenges faced by children with ADHD/ODD and their caregivers, offered insights into creating more effective alternative therapeutic interventions for improving child-caregiver relationships.

## METHODOLOGY

### Research design

The present study has employed quasi-experimental research with pre-test and post-test design.

### Hypothesis

The following hypothesis was formulated based on the objective of the study

1. There will be a significant difference in the effectiveness of dance therapy in enhancing emotional regulation among ADHD children in pre-test and post-test.
2. There will be a significant difference in the effectiveness of dance therapy in enhancing interpersonal relationship among ADHD children in pre-test and post-test.

### Sample

The sample for this study was selected by purposive sampling technique. Purposive sampling is a non-probability sampling method where researchers deliberately select participants or cases based on specific criteria relevant to the research objectives (Kothari, C. R., 2004). Purposive sampling was employed to select participants who met the specific criteria of being diagnosed with ADHD, aged between 6 to 12 years, from a special children centre in Chidambaram, Cuddalore district. The special children centre consisted of 22 children diagnosed with ADHD. Out of 22 children, 14 children's parents were accepted willingly to participate in the study. Each child's medical records are reviewed to confirm the diagnose of ADHD. From these, 8 children are randomly selected to participate in the study. The sample consists of the 8 selected ADHD children who meet all the inclusion criteria. Given the qualitative nature of the research and the depth of analysis required for each participant, a smaller sample was deemed appropriate to ensure detailed exploration of individual experiences and outcomes. All the 8 participants were given pre-test and post-test. Prior studies examining similar interventions with ADHD populations typically reported small sample sizes due to the specificity of the intervention and the need for in-depth qualitative analysis. These precedents guided the decision to use a sample size of eight participants in this study.

**Table: Showing distribution of samples based on demographic variables of the selected participants**

<b>Demographic variables</b>	<b>Sub variables</b>	<b>N</b>	<b>Percentage (%)</b>
<b>Gender</b>	Male	6	75
	Female	2	25
<b>Age</b>	6-8	6	75
	9-12	2	25
<b>Birth order</b>	1	5	62.5
	2	3	37.5
<b>Family type</b>	Nuclear family	6	75
	Joint family	2	25
<b>Religion</b>	Hindu	6	75
	Muslim	2	25

(Source: Primary data)

**N = Sample size****Inclusion criteria**

- ADHD children of age 6 to 12
- Both male and female children
- Has never undergone Dance therapy
- Able to undergo Dance Therapy

**Exclusion criteria**

Participants with comorbid conditions in addition to ADHD, such as autism spectrum disorders and intellectual disabilities were included.

## Instrument used

### CHILD INTERPERSONAL RELATIONSHIP AND ATTITUDE ASSESSMENT (CIRAA)

#### Description and scoring method

The CIRAA is comprised of 30 items, five-point Likert-scale (strongly disagree = 1 to strongly agree = 5) that ask parents (or other caregivers) about a child's self-regulation, interpersonal skills, coping skills, and locus of evaluation. The CIRAA contains the following four subscale, self-control (e.g. My child shares with other children); interpersonal relationships (e.g. My child is teased by other children); coping skills (e.g. My child is often upset by minor things); and internal locus of evaluation (e.g. My child enjoys doing things for him/herself). It has four domains, they are, perceptions of self, resilience and coping, social and emotional competence. CIRAA has Cronbach's alpha of .72-.93

The ERC is a parent-report of child emotion regulation. The ERC assessed children's ability to manage emotional experiences using a 24-item, four-point Likert scale (1= Never, 2= Sometimes, 3= Often, and 4= Almost always). The questionnaire yielded two scales: 1) adaptive emotion regulation (e.g. "Can modulate excitement in emotionally arousing situations", range 10-40), which assessed situational appropriateness of affective displays, empathy and emotional self-awareness; and 2) liability/negativity (e.g. "Exhibits wide mood swings", range 14-56), which assessed mood liability, lack of flexibility, dysregulated negative affect and inappropriate affective displays. Samples items for the questionnaire include, higher scores on the first scale indicated more adaptive regulatory processes whereas higher scores on the second scale indicated greater emotion dysregulation. Internal consistency for these scales is high for both the adaptive emotion regulation (coefficient alpha = .79) and the liability/negativity (coefficient alpha = .90) (Shipman et al., 2007). Internal consistency for this sample was adequate (alpha = .69) for adaptive emotion regulation and high (alpha = .84) for liability/negativity.

#### Procedure

The data was collected from ADHD children's parents in Centre for special children, Chidambaram. All the respondents were provided with information about the procedure and the need for the study was explained in the language they understood the best. Consent was taken from both the centre in charge and parents after a



brief explanation about the study. The information was kept confidential. Respondents who were not cooperative and not willing to participate in this study were omitted. The selected participants' parents were seated comfortably and they were interviewed in person about the demographic variables. The respondents were asked to answer Child Interpersonal Relationship and Attitude Assessment.

This dance therapy constituted aerobic dance movements specifically designed to foster interpersonal relationship and emotional regulation lasting for 45 minutes. The phases were divided into three as warm up, moderate intense moves and cool downs. The warm up session include neck, shoulder, toes, body shake, march on spot, and jump on spot. The moderate intense moves include partnered side-to-side step, mirrored arm swing, group circle hand claps, high five jumps, partnered grapevine steps, circle shoulder rolls, partnered twist and tap, team synchronized arm circles, line dance toe taps, partnered skipping, group zigzagging runs circle squat and reach, partnered hand-holding spins, team side shuffle race, group jump rope stimulation, circle kick and punch combos, partnered forward-backward hops team leapfrog jumps, circle rhythmic clapping, partnered leg lifts with support, group hopscotch variations, circle skipping with rope (imaginary), partnered balance and stretch poses, and group jumping jacks. Cool down moves include shoulder stretch, triceps stretch, forward bend, hip flexor stretch, side leg raise, and chest stretch. The selected children were given dance therapy for 8 sessions during four weeks. Parents were also taught these moves to practices in home with their children. The instructions before and during therapy is kept simple and is easily understood by participants who are exposed to dance therapy and give them clear picture of how to cooperate using mirroring technique during the dance therapy session.

- Warm up before the session
- Encouraging them to focus when they lose their concentration
- Deep inhale and exhale during break
- Guide participant through movement exploration
- Conclude each session with cool down moves
- Session concludes with words of encouragement and gratitude for their participation

## Statistical analysis

As a quantitative study, data collected was analysed by applying mean, standard deviation, and paired sample t-test through statistical software IBM SPSS version 20.0.

## RESULTS

**Table 1:**

Comparison between difference of pre-test and post-test emotional regulation score of the participants.

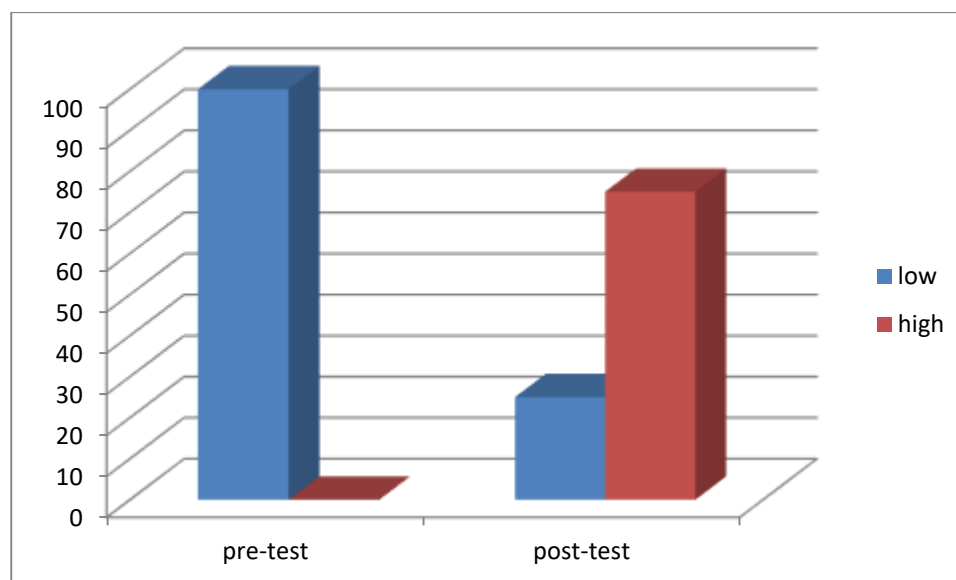
	N	Mean	SD	t-value	P-value
Pre-test of emotional regulation	8	38.88	8.08		
Post-test of emotional regulation	8	49.88	8.66	3.59	0.009 (s)

(Source: Primary data)

N- No. of Samples; SD- Standard Deviation; S – Significant

**Ho There will be a significant difference between the level of emotional regulation in pre-test and post-test after dance therapy intervention.**

The above table 1 shows Mean, SD, and t-value of the pre-test and post-test of emotional regulation. Based on that, it is inferred from the obtained results, the pre-test of emotional regulation obtained a mean value of 38.88 and the post-test obtained a mean value of 49.88. The calculated t-value is 3.59, which is significant and there is a significant difference between two group means. The P-value is 0.009 which is significant at 0.01 level, also proved that there is highly significant difference between the pre-test and post-test of emotional regulation.



**Figure 1:** Comparison of pre-test and post-test of level of emotional regulation among participants regarding dance therapy.

Figure 1 depicts that during pre-test, majority of the participants have low level of emotional regulation, whereas after the implementation of dance therapy intervention, 75% of the participants have high level of interpersonal relationship in the post-test. Hence, dance therapy helps to enhance the emotional regulation in ADHD children. Dance has been found to stimulate the release of endorphins and other neurotransmitters in the brain, such as serotonin and dopamine, which can enhance mood, reduce stress, and promote overall well-being. These neurochemical changes triggered by dance can help regulate emotions and improve mental health.

**Table 2:**

Comparison between difference of pre and post-test of interpersonal relationship score of the participants.

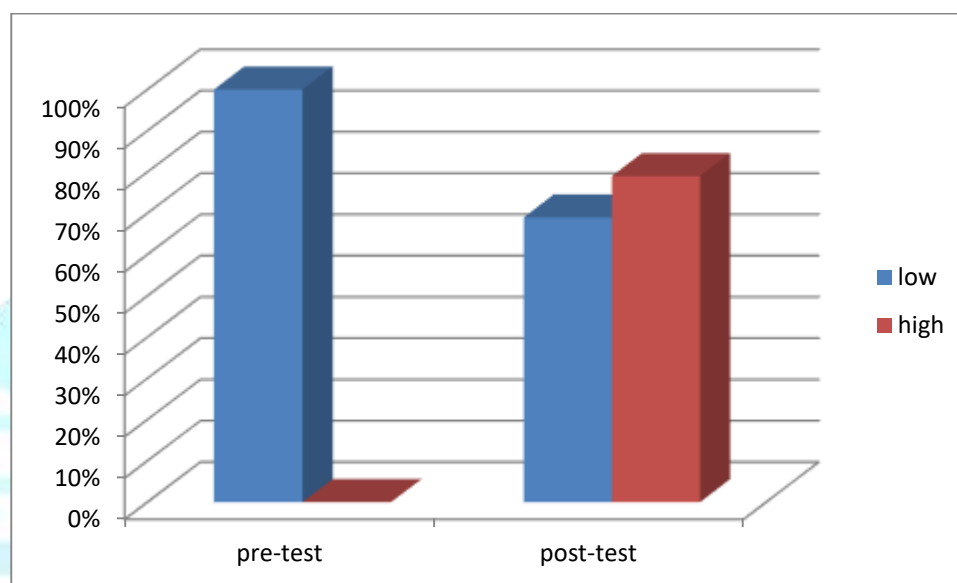
	N	Mean	SD	t-value	P-value
<b>Pre-test of interpersonal relationship</b>	8	61.50	10.86	4.81	0.002 (s)
<b>Post-test of interpersonal relationship</b>	8	76.25	3.24		

(Source: Primary data)

N- No. of participants; SD- Standard Deviation; S – Significant;

**Ho** There will be a significant difference between the level of interpersonal relationship in pre-test and post-test after dance therapy intervention.

The above table 2 reveals Mean, SD, and t-value of the pre-test and post-test of interpersonal relationship. Based on that, it is inferred from the obtained results, the pre-test of interpersonal relationship obtained a mean value of 61.50 and the post-test obtained a mean value of 76.25. The calculated t-value is 4.81, which is significant and there is a significant difference between two group means. The P-value is 0.002 also proved that there is highly significant difference between the pre-test and post-test of interpersonal relationship.



**Figure 2:** Comparison of pre-test and post-test of level of interpersonal relationship among participants regarding dance therapy.

Figure 2 picturizes that during pre-test majority of the participants have low level of interpersonal relationship whereas after the dance therapy intervention, 75% percent of the participants have high level of interpersonal relationship and 25% still have low level of interpersonal relationship. Therefore, dance therapy can enhance a person's interpersonal relationship. The dance therapy exercises which was specifically designed to improve interpersonal relation showed a positive result.

## DISCUSSION

The present study utilized a quasi-experimental research design to investigate the effectiveness of dance therapy in enhancing emotional regulation and interpersonal relationships among children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). Through the implementation of a structured dance therapy program, the study aimed to explore whether participation in dance therapy interventions would lead

to significant improvements in social skills, emotional regulation, and relational competence among the participants.

The study reveals that there is significant positive effect of dance therapy in enhancing emotional regulation and interpersonal relationship among ADHD children. The result indicates a significant difference in the post-test, indicating that there was an improvement in emotional regulation and interpersonal relationship. Based on the finding, it can be concluded that dance therapy is effective as an alternative therapy to treat children diagnosed with ADHD.

Moreover, the study observed improvements in emotional regulation among participants, suggesting that dance therapy may serve as a valuable tool for helping children with ADHD manage their emotions more effectively. Through rhythmic movement and expressive dance exercises, participants learn to connect with their bodies, identify and express their feelings, and develop strategies for self-soothing and emotional self-regulation. This finding underscores the holistic nature of dance therapy as a therapeutic modality that addresses the interconnectedness of mind, body, and emotions (Payne, 2006).

Additionally, the study documented enhancements in relational competence among participants, indicating that engagement in dance therapy interventions can contribute to the development of healthier and more fulfilling interpersonal relationships. By fostering empathy, attunement, and mutual respect, dance therapy creates opportunities for children with ADHD to connect with others on a deeper level and cultivate meaningful connections. These findings align with the fundamental principles of dance therapy, which emphasize the role of movement as a vehicle for relational exploration and interpersonal growth (Karkou & Sanderson, 2006).

## LIMITATION OF THE STUDY

- This study is limited to a sample size of 8 participants under 6-12 years with the ADHD population. This smaller sample size may limit the generalizability of the findings to a larger population of the individuals with ADHD.
- The dance therapy intervention consists of 8 sessions conducted over one month. This limited duration may affect the extent to which long-term improvements in emotional regulation and interpersonal relationships can be observed.



- This study does not include a control group. As a result, it may be challenging to determine whether any improvements observed are solely due to dance therapy intervention or if other factors could be influencing the outcomes.

## **IMPLICATION OF THE STUDY**

Firstly, the study could contribute to the existing body of research on non-pharmacological interventions for ADHD, providing evidence for the efficacy of dance therapy in improving emotional regulation and interpersonal skills among individuals with ADHD. This could open up a new avenues of treatment option beyond medication. Furthermore, this research could raise awareness among individuals with ADHD and their families about the potential benefits of dance therapy. This may encourage more individuals to seek out dance therapy as a complementary approach to managing their symptoms and improving their overall well-being. This study's findings could also inform and guide clinical and educational professionals working with individuals with ADHD that dance therapy could be integrated into existing treatment plans or school-based interventions to provide additional support and enhance emotional regulation and social functioning.

## **RECOMMENDATION FOR FURTHER STUDIES**

The present study indicates the effectiveness of dance therapy among ADHD children. From the present study, it is implied that the dance therapy is effective and it can be used as a technique to enhance emotional regulation and interpersonal relationship among ADHD children. It is hoped that the present study would open new avenue for further research in the area selected for the present investigation. Some of the possible lines which further studies can be undertaken are listed below:

- The further studies can be conducted as a longitudinal study to assess the long-term effects of dance therapy on emotional regulation and interpersonal relationships among individuals with ADHD. This can provide insights into the sustainability and lasting impact of dance therapy interventions.
- Compare the effectiveness of dance therapy with other forms of therapy or interventions in improving emotional regulation and interpersonal relationships among individuals with ADHD. This can help determine the unique benefits and advantages of dance therapy as compared to other approaches.

- Expand the research to include diverse populations within the ADHD spectrum, such as adults, different age groups, or individuals with comorbid conditions. This can help identify potential variations in the effectiveness of dance therapy across different subgroups.

## CONCLUSION

In conclusion, this study sheds light on the potential of dance therapy as a promising intervention for enhancing emotional regulation and interpersonal relationships among children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). Through a quasi-experimental research design, the study demonstrated significant improvements in social skills, emotional regulation, and relational competence among participants following their engagement in a structured dance therapy program.

The findings underscore the holistic nature of dance therapy as a therapeutic modality that addresses the interconnectedness of mind, body, and emotions. By providing a safe and supportive environment for expressive movement experiences, dance therapy offers children with ADHD opportunities to explore their inner world, connect with others, and develop essential social and emotional skills.

In summary, the findings of this study contribute to the growing body of evidence supporting the efficacy of dance therapy as an intervention for addressing the social, emotional, and relational challenges experienced by children with ADHD. By harnessing the transformative power of movement and expression, dance therapy offers a holistic approach to promoting the health, resilience, and interpersonal connections of individuals navigating the complexities of ADHD.

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