

Effectiveness of Art Therapy on Aggressive Behavior and Self-Esteem Among Children with Learning Disorders

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Abstract

Children with learning disorders are often apathetic, inattentive, and have low self-esteem; additionally, aggressive behavior is still a common occurrence that can impair their social, emotional, psychological, behavioral, and intellectual development. The current study aimed to investigate the effect of art therapy on aggressive behavior and self-esteem among children with learning disorders. **Methods:** A quasi-experimental (one group pretest -posttest design) was utilized in this study. The study was conducted at Shebin Elkom, Menoufia Governate. The selected centers (Al Basma Association center and Ebny center for children with special needs) are both centers for children with disabilities. **Sample:** A purposive sample of 60 children who attended previously selected centers for treatment and follow-up. Data were gathered by the following tools (1) The Modified Overt Aggression Scale (MOAS), (2) The child Rosenberg Self-Esteem Scale (CRSES), in addition to demographic characteristics as child age, gender, academic level and parent age. **Results:** Following art therapy, the majority of the children of learning disorder (85%) displayed little aggressiveness. In addition, 61% of children show normal self-esteem post intervention, and there was a statistically significant difference in self-esteem before and after art therapy. **Conclusion:** Art therapy reduces aggressive behavior and increases self-esteem in children with learning disorders. **Recommendation:** Rehabilitation pediatric nurses and parents of children with learning disorders should receive in-service training on the value of art therapy and how to use it to reduce violent behavior and enhance children's self-esteem.

Keywords: aggressive behavior, art therapy, children with learning disorders, self-esteem

Introduction

Children with learning disorder or learning disability (LD) severely struggle in the areas of reading, writing, and mathematics despite having adequate cognitive and sensory abilities. Also, the memorization of vocabulary, word decoding ability, phonics awareness, and comprehension abilities will be difficult for children with reading impairments. Over the period of their lives, 10% of children will experience a learning disability, which boys are more likely than girls to have learning disabilities. A variety of different risk factors can lead to learning difficulties, Low birth weight, premature delivery, neonatal difficulties, language delay, and epilepsy are significant risk factors for learning difficulties in children. [Johnson, 2017]. Between 2016 and 2018, 14% of children aged 3 to 17 were estimated to have obtained a diagnosis a learning disability [Zablotsky, & Alford,

2020]. School age children students have a significant frequency of learning disabilities, Dysgraphia was present in 2.7%, math difficulties in 4.6%, and reading difficulties in 5.0%. Children with learning disabilities have chronic academic underachievement and significant stress. Learning-disabled students have more anxiety compared to their peers [Thakkar et al., 2016; Zhen et al., 2022].

Research's found that common neurodevelopmental problem that manifests in school-age children is specific learning disorder (SLD) and sometimes may not be noticed early. Its prevalence in school-aged children differs between 5% to 15% [American Psychiatric Association (APA), 2021]. SLD is an umbrella term that covers challenges with learning and employing academic skills in one or more domains (reading, writing, and mathematics) based on the criteria of the diagnostic and statistical

manual of mental disorders, Fifth Edition and is frequently accompanied with motor, linguistic, and attention deficits [APA, 2021].

Learning disorders are frequently referred to as hidden disorders because they are not physically apparent in children with learning problems and they do not seem to have any physical limitations. Because they are frequently misunderstood and accused of being inattentive, slow, or sloppy,. Therefore, one can assume that a child has a learning disability if there is a significant educational gap between the child's expected intellectual capability and actual academic achievement that cannot be explained in terms of intellectual potential. Many other skills, such as concepts, speaking, listening, reading, understanding, spelling, and arithmetic computations, may be difficult for these children. Children with learning impairments have ordinary intelligence, and occasionally even above average intelligence. [Muktamath, Hegde & Chand, 2021].

Learning disabled students struggle academically and are frequently anxious and stressed. Compared to children who don't have academic difficulties, they have more behavioral, emotional, and social problems, have low motivation, self-confidence, and self-esteem [Johnson, 2017]. Self-esteem is a general evaluation of one's value or worth as a person. [Thompson et al., 2016]. The longer-term pattern of development into adulthood is influenced by levels of self-esteem during childhood. [Robins & Trzesniews, 2018]. In this regard, Coopersmith (1981) noted that self-esteem as self-worth, a consequence of development, and acts as a crucial protective element for positive development. [Linares et al., 2016].

Children with LD have a tendency to perceive much higher levels of risk at school, and LD appear to be associated with internalizing and externalizing issues such emotional symptoms and hyperactivity as well as bullying victimization [Boyes et al., 2020; Dasioti & Kolaitis, 2018]. Increased psychological discomfort in children with Specific Learning Disorders (SLD) is more likely to include internalizing symptoms like worry or externalizing symptoms like aggressive behavior [Ghislanzoni, et al., 2022].

According to a socio-psychological perspective, aggression is a psychological phenomenon that describes a broad range of deliberate behavior involving physical or verbal attacks intended to cause harm to another person or oneself. Aggressive conduct has the potential to result in violent acts including suicide, self-harm, murder, and bullying at school. It has been shown that bullying as a childhood is linked to increased aggression as an adult. [Yu, et al., 2020]. The behavior, emotional and psychological health, social and academic development of other children may be harmed by children's violence, which continues to be a serious global concern. [Kim & Lee, 2020].

All children with learning issues should be carefully examined as soon as possible in order to detect learning disorders. Giving children scientific direction and intensive one-on-one therapy instruction can successfully address their learning deficiencies [Johnson, 2017]. Activities in the visual arts benefit both learners with and without special needs, these exercises give children with special needs ,the chance to openly express their emotions, conflicts, psychological issues, and artistic inventiveness, visual arts are said to stimulate thinking and learning, as well as provide joy, contentment, and a sense of accomplishment [Al-Yahyai et al., 2021]

Art is the visual representation of a concept or application using multimedia that complies with aesthetic criteria [Abdulkareem & Majeed, 2019]. As a result, the visual arts largely depend on the shape language, which creates a universal language. [Al-Ajmi, 2016]. Painting, drawing, sculpture, architecture, photography, and cinematography [Al-Senan & Al Issa, 2018], ceramic and clay crafts, fashion, interior and graphic design [Stolar, 2018], and digital painting [Shukran & Ragabi, 2018] are all examples of visual arts [Al-Ameri, 2018] Art therapy is a successful intervention to reduce anger and its dimension because children who receive it learn coping strategies, new skills or problem-solving techniques, increased sense of belonging, and can express unpleasant feelings and experiences in a non-threatening way [Mousavi & Sohrabi, 2014].

Nowadays, a career as a learning disability nurse takes place and has the responsibility of providing safe and good-quality health care for

children with learning disabilities. The role of the LDN is based on three key elements, clinical patient care, strategic organizational development, and education, and practice development, with emphasize on improving and maintaining children's physical and mental health, improving their well-being and social health, and encouraging them to express their feelings through the use of a variety of updated skills and techniques [Tuffrey et al., 2015].

Significance of the Study:

According to data from public schools in the USA, 2.4 million students were classified as having LDs, with an estimated 5% prevalence among school-aged children. [National Center for Learning Disabilities (NCLD), 2016]. Also [Ismail et al., 2019] in cross-sectional study on elementary school at Behira Governorate, Egypt, revealed that 16.5% of the studied sample had learning disorders, where the most frequent developmental disability is learning disorders.

Learning disability children eventually drop out of school early after feeling dissatisfied at their lack of academic achievement. Furthermore, these children are more likely to develop disorders like depression, anxiety, and delinquency if their difficulties are not acknowledged and appropriate intervention program are not offered [Nel & Grosser ,2016]. Without the proper care or support, individuals with learning disabilities may also have emotional and behavioral issues, such as low self-esteem, suicidal thoughts, unstable families, substance abuse, depression, psychological illnesses, and unemployment [El-Keshky & Emam, 2015]. So, for early school-age children, learning difficulties are a severe problem. The implementation of interventions and suitable teaching method modifications can be helped by the early identification of these students. Children's self-esteem will rise as their academic performance improves. Early detection and management of learning disabilities therefore are essential.

Comprehensive assessments should be performed by experts in the field of learning difficulties, and these children should be assisted in developing individualized education plans [Schulte, 2015; Fawzi & Mahmoud, 2021]. Their findings showed that art therapy is consistently effective in raising children' positive

self-esteem, getting them ready for school, and decreasing violent behavior in children with. Also, according to Baljon [2011], Imagination and creativity can aid in transforming negative aggression into empowering strength.

There hasn't been any in-depth research on how art therapy affects aggressive behavior and self-esteem in children with learning difficulties. Insufficient research has been done in this area. Therefore, the purpose of this study was to evaluate the effect that art therapy had on aggressive behavior and self-esteem of children with learning difficulties.

Operational Definitions:

Learnings Disabilities (Disorder): is a neurodevelopmental disorder that impairs a person's capacity to receive, process, store, and respond to information in the brain "[Claus-Ehlers, 2010]. In this study, learning disabilities refer to children who have poor academic performance and require a different teaching method and attending the rehabilitation center for behaviors modification therapy.

Aggression Behavior: Described as a psychological phenomenon that shows a broad range of deliberate action intended to cause harm to another person or oneself through physical or verbal attacks. Intentional physical force is what damages things, oneself, or other people. Hitting, pushing, kicking, throwing things, head butting, biting, and scratching are some examples of aggressive behavior [Yu, et al., 2020]. In existing study measured by The Modified Overt Aggression Scale (MOAS), which was adopted from [Kay et al, 1988].

Self Esteem: is one of the most important characteristics for growth, talent, and innovation. It is clearly described as how people perceive themselves in social and intellectual settings, as well as how closely and harmoniously their own ideal self and actual self [Mirzaei-Alavijeh, et al., 2018]; in the present study measured by the child Rosenberg Self-Esteem Scale(CRSES), was adopted from Wood et al, [2021].

Art Therapy: a form of expressive therapy whereby the creative process enhances a person's physical, mental, and emotional well-being. By addressing the source of the problem

in a number of ways, such as through metaphorical or symbolic representation, expressing emotions that underlie or hide anger, engaging in anger management techniques, or substituting creativity for anger, art therapy can effectively handle anger. Lowering hostility can be accomplished by implementing these methods during art therapy sessions [Liebmann, 2008]

Aim of the study:

The aim of the existing study was to investigate the effect of art therapy on aggressive behavior and self-esteem among children with learning disorders.

Hypotheses:

- Children with learning disorders will exhibit less aggressive behavior after the implementation of an art therapy program than before the intervention.
- Children with learning disorders will have normal levels of self-esteem after the implementation of an art therapy program, than before the intervention.

Methods

Design:

A quasi-experimental (one group pretest - posttest design) was utilized in this study.

Setting

The research was carried out in Shebin Elkom, Menoufia Governate. The selected centres (Al Basma Association centre and Ebny centre for children with special needs) are both centres for children with disabilities.

Sample

A purposive sample of 60 children who met the met the following criteria and attended previously selected centers for treatment and follow-up. the inclusion criteria: boys and girls aged 7–12 years with learning disorder Showing intensely aggressive behaviors, which were registered during the past two months. the exclusion criteria, children with additional physical disabilities.

Tools of data collection:

Two tools were used for data collection:

Tool one: consists of two parts.

Part one: Social characteristics structure interview questionnaire of children; it includes questions about child age, gender, academic level and ordering in the family and types of learning disorders.

Part two: The Modified Overt Aggression Scale (MOAS), which was adopted from (Kay et al, 1988), is a behavior rating scale used to evaluate the frequency and severity of aggressive episodes over the past week. The scale is made up of four categories; verbal aggression, aggression against property, auto aggression, and physical aggression; Each category consists of five responses to track the child's aggressive behavior. Each checked statement receives 1 point, and the points from each section are summed. Section scores are weighted as follows: (Scores of "verbal aggression " multiplied by 1). (Scores of "Aggression Against Property" multiplied by 2) (Scores of "auto aggression" multiplied by 3) (Scores of "physical aggression" multiplied by 4) A scoring summary was added to the bottom of the scale to aid in the interpretation of responses, and weighted scores are then added together to produce the total score. with higher scores indicating more aggressive behavior as follows: (no aggression = 0, minimal aggression = 1–10, mild aggression = 11–20, moderate aggression = 21–30, and (severe aggression = 31–40. The reliability was tested using Alpha Cronbach's ($r = 0.81$).

Too two: The child Rosenberg Self-Esteem Scale (CRSES), was adopted from Wood et al,(2021) To describe, predict, compare and evaluate changes in self-esteem, it contains a 10-item scale that measures self-esteem by measuring both positive and negative feelings about the self (I am happy with myself, There are lots of good things about me, Sometimes I think I'm no good at all, I can do things as well as most other children, I don't have much to be proud of, I wish I cared about myself more, I feel useless at times, I often feel like a failure, I feel that I'm as good as everyone else,-I feel good about myself, am happy with myself). All items are answered using a 4-point likert scale

format ranging from (very true" "true, not true," and "definitely not true). **Scores are calculated as follows** :(1) for items 1, 2, 4, 9, and 10: very true = 3 true = 2 not true = 1 definitely not true = 0. (2) For items 3, 5, 6, 7, and 8 (which are reversed in the valence): very true = 0 true = 1 not true = 2 definitely not true = 3. The scale ranges from 0 to 30. Scores between 15 and 25 are within the normal range; scores below 15 suggest low self-esteem. The Alpha Cronbach's test ($r = 0.83$) was used to determine the reliability.

Tools Reliability

The internal consistency of the questionnaire was calculated using Cronbach's alpha coefficients. The reliability of the tools were done using test - retest reliability and proved to be strongly reliable was between (0.81) for modified Overt Aggression Scale (MOAS)and at (0.83) for the child Rosenberg Self-Esteem Scale(CRSES).

Validity

For validity assurance, instruments were provided to a jury of professors, including two professors of psychiatric nursing, two professors of pediatric nursing, and one assistant professor in pediatrics. The modifications were done to ascertain their relevance and completeness.

Ethical Considerations

- An approval of the faculty of nursing ethical research committee was obtained.
- Informed consent was obtained from the parents of the children who participated in the study. An initial interview was conducted with parents to inform them about the purpose and benefits of the study. Also, they were told that the study is voluntary and harmless and that they can withdraw from it at any time.

Pilot Study

It was conducted on 10% of children to test the applicability of the instruments and detect obstacles and problems that may be encountered during data collection. It also helped estimate the time needed to fill in the instrument. The pilot sample was excluded from the total sample.

Procedure:

Field work:

Official permission was obtained from the head of the center for children with after submitting official letters from the Faculty of Nursing about the purpose of the study and the method of data collection. Data collection was conducted for a period of 4 months, starting from the 1st of October 2021, and ending on January 31, 2022.

Assessment phase:

- Children who met the criteria were invited to take part in the research.
- To gain their cooperation to participate in the study, the researchers introduced themselves and explained the purpose, nature of the study, and overall goal of the program to the children.
- The time it took to complete each questionnaire was approximately 15 minutes, and the time it took to complete the game session was 1 hour.
- Evaluating the social characteristics of the studied children (pre intervention).
- Using tool one; determine the frequency and severity of aggressive episodes (pre-intervention).
- Tool two is used to assess self-esteem(pre-intervention).

Implementation phase (intervention)

- Children with learning disorders participated in group therapy, which included (three to five children).
- This study was carried out twice a week.
- The researcher conducts the program with presence of a behavior modification therapist.
- The program is divided into nine sessions (for art therapy) and session for evaluation .
- The first session: It started with explanations about the period of the art therapy program, the privacy of information, and the definition of rules. For example, time and preparing supplies, including watercolor paint and finger paint,

- The second session was started immediately after the first (the imaginary drawing game). asks the children to do an imaginary drawing to improve self-expression and establish a sense of pertinence, engages children in the art-making task without any drawing tools, and children start to imagine and draw whatever they prefer in their imaginary area, along with this game, other children are asked to guess what he or she has drawn.
- The third session was based on the detection of children's feelings and then classifying them as good or bad things. So, researchers ask children to draw these feelings in a group setting.
- The fourth session contains the topic of "looking in the mirror." The goal was to explore how they see themselves and improve self-awareness in children, after sharing drawings through discussion
- The fifth session was based on the impact of aggression and anger on children's lives. children responded to this topic by being asked to draw and comment.
- The sixth session focuses on peer relationships. It was done by taking a small group of children (between 2 and 3) and involving them in the same art task to give them a chance to build a friendship and learn new skills.
- The seventh session: determining negative family relationships with children through exploring how the family treats children's anger, in addition to if the family uses physical punishment as a consequence of family conflict.
- The eighth session: It was based on children's responsibilities, the aim was to explore issues related to how to make self-control instead of aggressive behavior.
- In the Ninth session: In this session, all children worked together on a major collective art project, they draw together with comments about the end of the art therapy program.

Evaluation phase:

The last session: children were assessed for their level of aggression and their level of self-esteem by using instruments (1) and (2) post-intervention.

Data analysis:

Data were collected, tabulated, and statistically analyzed using an IBM personal computer with Statistical Package for Social Science (SPSS) version 19 (SPSS, Inc, Chicago, Illinois, USA). Quantitative data were presented in the form of mean, standard deviation (SD), range, and qualitative data were presented in the form numbers and percentages. The Shapiro-Wilk normality test was used to determine whether the data was normally distributed. The Mann-Whitney U test is used to compare two groups with non-normal distributions and quantitative variables. Kruskal Wallis (K) is used for comparison between three or more groups that are not normally distributed and have quantitative variables. Wilcoxon signed rank test (a nonparametric test for comparing two related groups that are not normally distributed and have quantitative variables). A Marginal homogeneity test is used for comparison between two related groups that are not normally distributed and have qualitative variables. The significance level was set at p value <0.05 .

Results

Table 1: Shows socio demographic characters of the children with learning disorders. As revealed from the table that the mean age of children was (9.66 ± 2.13), more than half (53.3%) were female. and 25% were in third and fourth grade and 41.7% were ranked second in their family.

Figure (1): Represent types of learning disorder among the children with learning disorders, As revealed from the figure that, dyscalculia, Dyslexia, dysnomia, dysgraphia were the most prevalent type of learning disorder among studied children.

Table (2): Shows comparison of means aggressive behavior in children with learning disorders before and after intervention, as Illustrated in the table the total mean aggression was before intervention was (32.7 ± 4.20) whereas post intervention reduced to (5.60 ± 4.93), there was a highly significant statistical difference between before and after intervention when comparing the overall mean

score of aggression among children with learning disorders ($P < 0.001$).

Figure (2): Shows comparison of aggressive behavior in children with learning disorders before and after intervention, as illustrated in the figure that the majority of the children (85%) displayed little aggressiveness following the art therapy intervention.

Table (3): Represent comparison of mean self-esteem in children with learning disorders before and after intervention. As indicated that there was a highly statistically significant difference in mean self-esteem between before and after the intervention among children with learning disorders. ($p < 0.001$).

Figure (3): shows Distribution of self-esteem level in children with learning disorders before and after intervention. As illustrated in the figure that the 61 % of children have normal self esteem post intervention instead of 30% pre intervention.

Table (4): Shows relation between means aggressive behavior and the socio-demographic characteristics of students with learning disorder following the intervention. As indicated, there was no significant association between aggressive behavior and the socio-demographic characteristics of students with learning difficulties following the intervention.

Table (5): Represent relation between means self-esteem post intervention and socio demographic characters of the children with learning disorders, As illustrated in the table , there was no significant association between self-esteem and the socio-demographic characteristics of children with learning difficulties following the intervention.

Table (6) and Figure (4): showed that, there was a highly statistically significant negative correlation between self-esteem subscales and total mean score of aggressive behavior among children with learning disorders. ($p = 0.001$).

Table (1): Socio demographic characters of the children with learning disorders (N=60):

Socio demographic characters	No.	%
Age		
Mean±SD	9.66±2.13	
Sex		
Male	28	46.7
Female	32	53.3
Educational level		
Grade 1	6	10.0
Grade 2	10	16.7
Grade 3	15	25.0
Grade 4	15	25.0
Grade 5	8	13.3
Grade 6	6	10.0
Family ordering		
First	10	16.7
Second	25	41.7
Third	18	30.0
Fourth	7	11.7

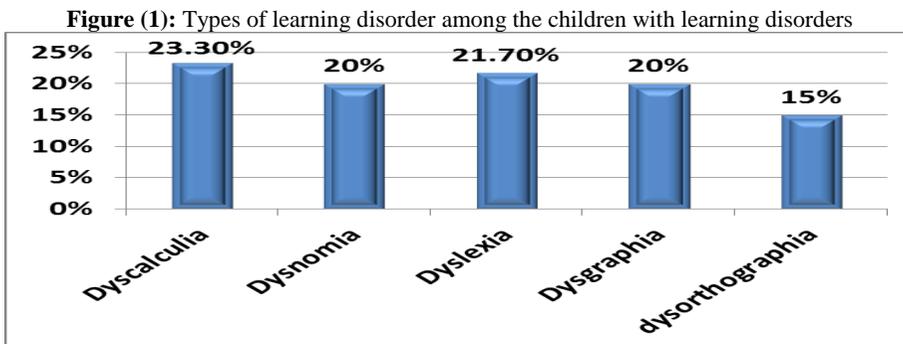


Table (2): Comparison of mean aggressive behavior in children with learning disorders before and after intervention (N= 60):

aggressive behavior	Pre intervention	Post intervention	Wilcoxon test	P value
Verbal aggression				
Mean ±SD	3.26±0.86	0.55±0.53		
Range	1.00 – 4.00	0.00 – 2.00	6.63	<0.001*
Aggression against Property				
Mean ±SD	3.13±0.85	0.57±0.64		
Range	1.00 – 4.00	0.00 – 2.00	6.63	<0.001*
Auto aggression,				
Mean ±SD	3.43±0.76	0.49±0.84		
Range	1.00 – 4.00	0.00 – 4.00	6.65	<0.001*
Physical Aggression				
Mean ±SD	3.21±0.76	0.60±0.84		
Range	1.00 – 4.00	0.00 – 4.00	6.71	<0.001*
Total aggression				
Mean ±SD	32.7±4.20	5.60±4.93		
Range	23.0 – 39.0	0.00 – 21.0	6.74	<0.001*

Figure (2): Comparison of aggressive behavior in children with learning disorders before and after intervention (N= 60):

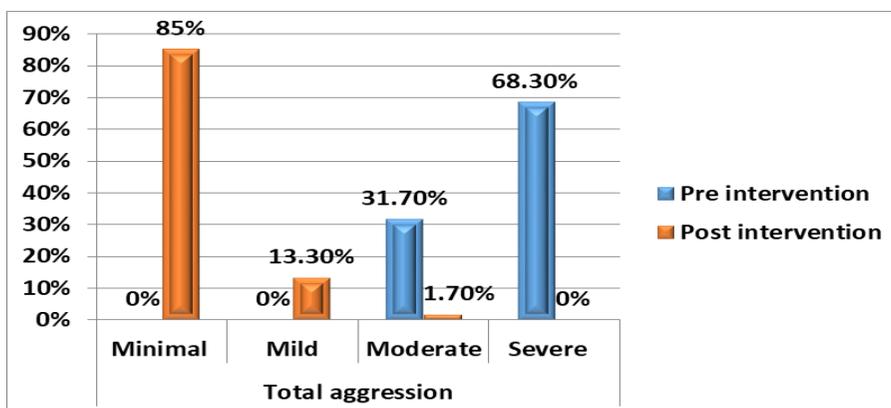


Table (3): Comparison of mean self-esteem in children with learning disorders before and after intervention (N= 60):

Self-esteem	Pre intervention	Post Intervention	Wilcoxon test Paired t-test	P value
Mean ±SD	4.53±1.53	23.5±2.62		
Range	2.00 – 8.00	17.0 – 28.0	6.74	<0.001*

* significant

Figure (3): Distribution of self-esteem level in children with learning disorders before and after intervention.

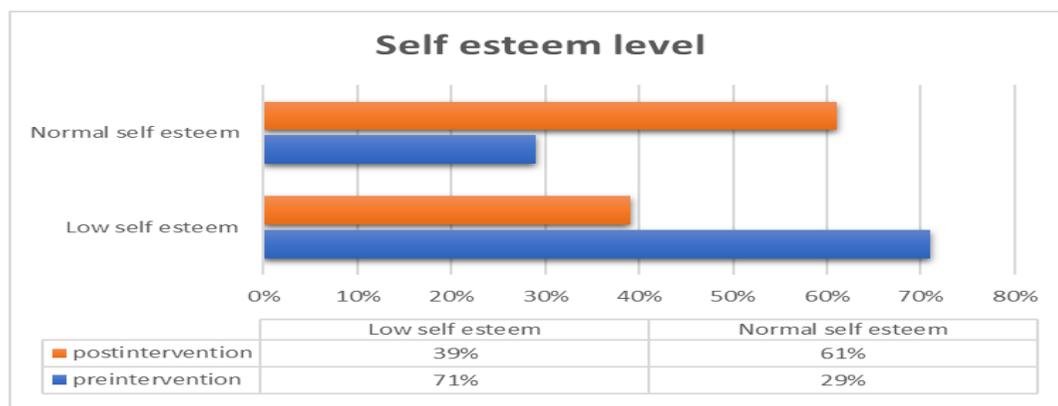


Table (4): Relation between means aggressive behavior and the socio-demographic characteristics of students with learning difficulties following the intervention (N=60):

Socio demographic characters	Aggressive behavior	Test of sig	P value
	Mean±SD		
Sex		U	
Male	5.75±4.69	0.432	0.666
Female	5.53±5.27		
Educational level		K	
Grade 1	7.00±7.09	3.34	0.764
Grade 2	5.60±3.97		
Grade 3	4.69±3.68		
Grade 4	7.70±6.34		
Grade 5	5.50±3.33		
Grade 6	3.16±2.31		
Family ordering		K	
First	4.20±5.37	6.27	0.099
Second	7.20±5.31		
Third	5.00±4.61		
Fourth	3.71±2.69		

U: Mann Whitney test K: Kruskal Wallis test

Table (5): Relation between means self-esteem post intervention and socio demographic characters of the children with learning disorders (N=60):

Socio demographic characters	Self esteem	Test of sig	P value
	Mean±SD		
Sex		U	
Male	23.3±2.99	0.067	0.946
Female	23.6±2.29		
Educational level		K	
Grade 1	23.6±2.33	8.68	0.192
Grade 2	25.6±1.81		
Grade 3	22.8±1.77		
Grade 4	22.8±2.89		
Grade 5	23.6±1.99		
Grade 6	22.5±3.56		
Family ordering		K	
First	23.3±3.46	1.15	0.763
Second	24.0±1.82		
Third	23.1±2.93		
Fourth	23.1±3.23		

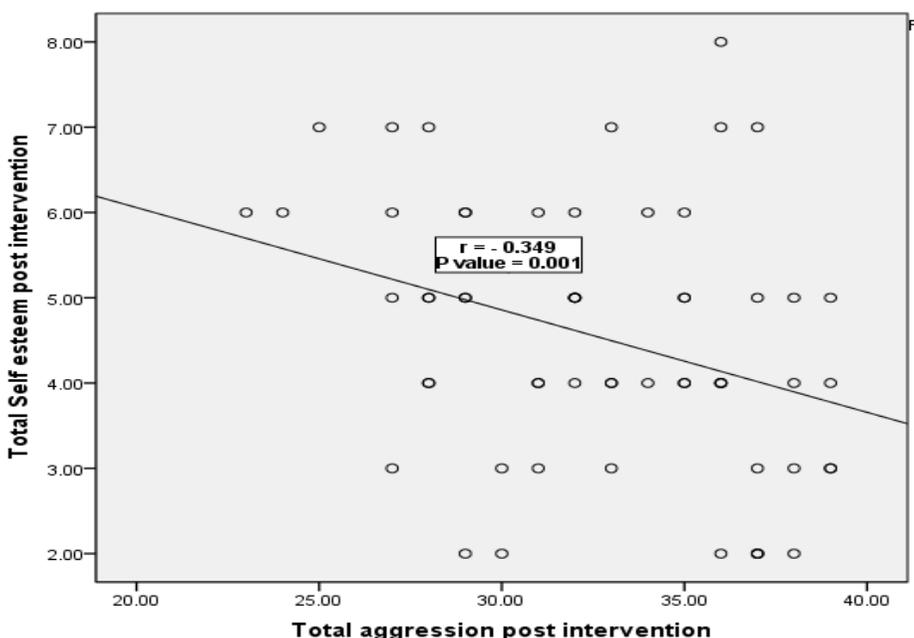
U: Mann Whitney test K: Kruskal Wallis test

Table (6): Correlation between self-esteem subscales, and total aggressive behavior among the children with learning disorders (N= 60):

Studied variables	Self esteem	
	R	P value
Verbal aggression	-0.447	0.001*
Aggression against Property	-0.225	0.084
Auto aggression	-0.310	0.016*
Physical Aggression	-0.349	0.006*
Total aggression	-0.349	0.001*

r: Spearman’s correlation

Figure (4): Correlation between total aggressive behavior and total self-esteem among the students with learning disorders (N= 60):



Discussion

Learning disorder is a common neurodevelopmental disorder that starts at school age and sometimes may not be recognized until adulthood for many years, now art has been widely used in schools’ curriculums. The art therapy offers the students a creative and enjoyable method to communicate without restrictions or worries of being judged. This process gives the children a sense of accomplishment and builds their self-confidence (Hacmun et al., 2021). Art therapy is therapeutic approach that helps children with specific learning disability or problems to exhibit less aggressive behavior. Art therapy gives them an alternative pathway to express themselves, which

also allows for the outward expression of unspoken thoughts and emotions through various art forms such as painting, which allows for the visual representation of mental imagery (Srolovitz et al., 2022).

This study set out to investigate the effectiveness of the art therapy program in improving positive self-esteem, and reducing aggressive behavior of children with learning disorders who exposed to the art therapy program. And this study hypothesized that the children with learning disabilities will exhibit less aggressive behavior and will have higher levels of normal self-esteem following exposed to the art therapy program.

Regarding the distribution types of learning disorders among the children, the present study demonstrated that a proximately quarter of the studied children (23.3 %) were had dyscalculia and dyslexia was the next more distributed type of learning disorders among them. This finding was contrary with **Muktamath et al., (2021)** who reported that Dyslexia (reading disability) accounts for at least 80% of all learning disorders and is the most widespread learning disability.

In additionally, this result was in line with **Aminjafary and Bagherilori (2019)** who illustrate that the children who struggle in school class often develop anxiety and exhibit aggressive behavior, they are children with dyslexia and can't read well. Moreover, this finding was consistent with **Khodeir et al., (2020)** they reported that, dyscalculia, dyslexia, and dysnomia are learning problems in children who exhibit symptoms like lack of self-awareness, inattention, difficulties in self-expression and rigid behavior.

This result could be related to the children with inadequate arithmetic skills (Dyscalculia) may only rely on rote memorization for the first two or three years of elementary school and factors like schooling, low-income households and anxiety are causative factors of poor mathematical abilities. Art therapy is necessary method used for learning them.

The present study revealed that the total mean score of the aggression and its subdomains (aggression against property, auto-aggression, verbal aggression and physical aggression) among the children with learning disorders was decreased post art therapy program with highly statistically significant. This finding was consistent with **U-Seman and Chethiyar (2021)** they suggested that using art therapy to alleviate adolescents' aggressive tendencies was successful in the Pakistan context.

Furthermore, this result was appear to be in line with **Moula et al., (2022)** and **Shambhavi & Kenchappanavar (2018)** they found that there was a statistically significantly regress of aggressive behavior among studied children and there was significant increased in self-esteem, self-confidence and anger reduced through the children's art works after intervention. And they emphasized that the art therapy program is the most appropriate method to educate the children

with special need. Children can use painting to communicate their emotions, such as self-aggressive, verbal aggression, and physical aggression, as well as to present their subjective opinions of their surroundings.

In addition, this finding was in accordance with **American Art Therapy Association (2022)** and **(Zhang et al., 2021)** who emphasized that there was significant aggressive behavior regress of children with learning disabilities in the post-intervention used with art therapy than pre-intervention with statistically significant in most of variables (aggression against property, auto-aggression, verbal aggression and physical aggression, ($p = 0.001$).

This result indicated that art therapy program intervention which introduced by the researchers occurred an improvement of children behavioral toward themselves, against property, verbal aggression and physical aggression than before art therapy program. The art work group of children, along with conversations on their beliefs and learning coping mechanisms encouraged to draw their stories together and express opinions. When children paint a story, presenting the subject and its aspects may be successful and diminish their aggressiveness and resistance.

Concerning subscales of aggressive behavior of studied children with learning disorders, the current study revealed that most of them (85%) had minimal aggressive behavior post-intervention, compared to highest percentage of the them (68.30%) had severe and moderate aggressive behavior pre intervention as about all of them had regress their aggressive behavior. This finding was in line with **Joschko et al., (2022)** & **Canevska and Akgün (2022)** they reported that there was a highly significant differences among their studied children after intervention with art therapy in relation to regress of aggressive behavior.

Furthermore, this result reflects the efficacy and effectiveness of art therapy intervention which contribute in converting destructive aggressiveness into positive strength in the researched children. In this study, art therapy was used to handle challenging emotions like aggression and teach the children the coping mechanisms, new skills or problem-solving approaches, to strengthen their sense of

belonging. Art therapy was used as a non-threatening manner to express unpleasant feelings and experiences by the studied children.

Concerning the comparison between the self-esteem level pre and post art therapy program among children with learning disabilities; the current study revealed that the level of self-esteem increased after art therapy program than before. This difference was high significant statistically ($P < 0.0001$). This result was consistent with recent findings by **Metzl, (2022)** who reported that, post art therapy program intervention, the majority of studied children had an improvement of self-esteem level and they had increased the level of subjective mental self-esteem which gives them a sense of self-worth.

Furthermore, the results of our research similarly agreed with the results of **Ruchi., et al (2021)** and **Nasseri & Keraskian (2017)**, all of them stressed in their studies concerning the effectiveness of art therapy for studied children that, there is no "right" or "wrong" method to make art, therefore promoting creative expression could enhance children's self-confidence, which could be an obvious explanation for improved self-esteem. The majority of the children who participated in the study also reported that the artwork-focused sessions helped them feel more confident and improved their self-esteem.

In additionally, **Jalambadani (2020)** has conducted a study among autistic children in Iran where, founded that a significant improvement in the level of self-esteem among the studied children which give them a sense of self-worth. Also emphasized that, the group art therapy has a great influence on children's co-operation skills by which, the group painting can transforms new thoughts among children, enhance their collaboration and interaction with each other. This means that children with learning disabilities who receive art therapy program are better able to make friends, communicate with others, and improve their academic performance.

Therefore, the findings of this study indicate that the art therapy program improves studied children level of self-esteem on post intervention sessions as they build a friendship, increase self-control and learn new skills instead of aggressive behavior. Art therapy is the best methods of aggressiveness expression could provide for

children with learning disorders, which improves their self confidence and self-esteem level (**Harpazi et al., 2020**).

The results of this study showed that no significant relationship between aggressive behavior post-intervention and the socio demographic characteristics of the children with learning disorders. The findings are similarly with **Krauss et al., 2020** where no relation between aggressive behavior post-intervention and the socio demographic characteristics of the students with learning disorders. The non-significant findings from the current study regarding aggressive behavior and the socio demographic characteristics may be due to the lack of a non-intervention comparison group.

The recent study founded that, there was no significant relationship between post-intervention self-esteem and the socio-demographic characteristics of children with learning disorders. This finding was in accordance with **Beghida and Ahmad (2021)** who reported that, there was a positive effect of using art therapy in enhancing low self-esteem, and reducing aggressive behavior among studied children. In beside that "There are no significant relationship between post-intervention self-esteem and the socio-demographic characteristics of the study sample. This result may be related to art therapy program can provide a harmonious and suitable environment for the children with learning disorders to vent their emotions, enhance their self-esteem and build good interpersonal relationships, regardless to their age or gender.

Concerning the correlation between self-esteem and total aggressive behavior among the children with learning disorders, the present study founded that, there was a highly negative significant association between self-esteem, and total aggressive behavior among the children with learning disorders which means that when self-esteem improved the total aggressive behavior reduced.

This finding was similarly with **Rointan et al. (2021)** who suggested that there was highly significant negative correlation between self-esteem, subscales, and total aggressive behavior among the studied students post art therapy sessions than pre-intervention with statistically significant difference in most of variables (total

aggression, auto aggression, physical aggression and verbal aggression. This indicated that art therapy program which introduced by the researchers occurred decreased the aggressive behavior of the students with learning disorders than before the intervention which lead to improvement of their self-esteem. The researchers and therapists should be explore the benefit of using art to heighten self-esteem, self-image, and identity, while at the same time decreasing depression, anxiety, anger and fear.

The present study showed that there was a high significant negative association between total aggressive behavior and total self-esteem among the children with learning disorders. This finding seem to be reliable with **U-Seman & Chethiyar (2021)** and **Berberian & Davis (2020)**, they reported that art therapy interventions are effective in reducing the aggressive behavior and increased their level of self-esteem among children and adolescents in the Pakistan context. And there were a highly significant negative correlation was detected between the total aggressive behavior and total self-esteem evidenced by ($P=0.000$) among the children with special need.

Furthermore, these findings are supported by previous study by (**Cui & Wang, 2022**), on art therapy intervention program and its effect on studied children self-esteem and aggressive behavior. This intervention program has significant influence in the self-esteem level of the children. Self-esteem is highly correlated with aggression, anger, learning disabilities, and group co-operation. Changing schemas about themselves and improve self-awareness in children after sharing drawings in group session are a powerful program to overcome anger and accept self-confidence which is a great indicator of good self-esteem.

In this study, studied children can use art therapy to cope with difficult emotions like anger, control their aggressive behavior and improvement their self-esteem. Art therapy program has been demonstrated to be an effective technique for improving self-esteem and decreased aggressive behavior.

Conclusions

The current study's findings found the majority of the children displayed little aggressiveness

after application of art therapy. Also, there was a highly statistically significant difference in self-esteem between before and after the intervention among children with learning disorders. Art therapy has appositive effect on reducing aggressive behavior and improving self-esteem among children with learning disorders.

Recommendations

1. The curriculum of the student's school should include the art therapy as an intervention for students with learning difficulties.
2. An in-service training program for pediatric rehabilitation nurses on the importance of art therapy and how to apply it to reduce violent behavior and improve students' self-esteem.
3. The following areas, however, should be the focus of future study. First and foremost, expand research on expressive art therapy and art therapy in special education and learning disorders. Second, group drawing therapy's depth and breadth should be expanded even more. Thirdly, more research on painting as art therapy is required.

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