

The Effectiveness of Play Therapy on Anxiety and Specific Learning Disorders of Elementary-School Students in Isfahan, Iran

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Abstract

Background: Anxiety and specific learning disorders (SLDs) are two problems faced by some elementary-school students, resolving of which is a challenge for elementary teachers. The present study aimed to investigate the effectiveness of play therapy on anxiety and specific learning disorders of elementary-school students.

Methods: The research method was quasi-experimental with pre-test post-test design and control group. The statistical population comprised of all the male elementary-school students aged 9-10 years in Isfahan, Iran, in 2020. Using convenience sampling, we selected 30 students and randomly divided them into experimental and control groups (n= 15 per group). The experimental group underwent nine sessions of play therapy (two 30-minute sessions per week), while the control group received no intervention. The research instruments included Spence Children's Anxiety Scale (SCAS) and the Colorado Learning Difficulties Questionnaire (CLDQ). First, both groups completed the pre-test questionnaires, and the intervention program was evaluated in the last training session. As the children could not complete the questionnaires, their parents were asked to collaborate with the research. Analysis of covariance (ANCOVA) was performed in SPSS software version 22.0 to analyze the data.

Results: The mean \pm standard deviation (SD) of the post-test scores of anxiety and specific learning disorders were 64.73 ± 1.30 and 41.73 ± 3.06 in the experimental group and 71.64 ± 1.80 and 49.73 ± 3.33 in the control groups. The results showed that play therapy was effective in reducing the anxiety of elementary-school students in Isfahan. It was also highly effective in alleviating their SLD-related problems ($P= 0.001$).

Conclusions: Based on the results, the play therapy intervention can reduce anxiety and ameliorate the SLD problems of elementary-school students.

Key Words: Anxiety, Child, Learning disabilities, Play therapy.

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1-INTRODUCTION

Attention to the child's development is a major issue during childhood. In this period, the child faces numerous problems and may behave inappropriately when dealing with them. Lack of attention to these problems causes disorders that will have irreversible effects on the child; therefore, the early treatment of these disorders improves children's psychological state and returns their developmental process to the natural state (1, 2).

One such disorder experienced by most elementary-school students is anxiety. Although anxiety in children forms part of their normal development, if it becomes severe and prolonged, it becomes a serious problem and a real threat. If left untreated, anxiety will negatively affect daily activities and expose the child to low self-esteem, poor social relationships, and academic failure (3). Children with anxiety disorders over-estimate the probability of hazards and the incidence of negative consequences. These children evaluate a potentially threatening stimulus as dangerous and, thus, experience anxiety and severe distress (4, 5).

In children, like adults, anxiety changes the heart rate, raises blood pressure, and causes respiratory crises. Vasoconstriction leads to a dry mouth and pallor. The other signs and symptoms of anxiety in children include headaches and stomachaches, nausea, nail-biting, involuntary hand movements, playing with the hair, and unnatural and reflexive behaviors in general (6). Various methods help anxious children to express their thoughts, emotions, and imaginations, and understand the relationship between their unconscious feelings, emotions, and their performance. One such method is play therapy (7).

Another problem faced by elementary-school students is specific learning

disorders (SLDs). As defined by the law of education for people with disabilities, SLD is a disorder in one or more basic cognitive psychological processes that include the perception/use of language. This disorder manifests itself as the inability to listen, think, talk, read, write, spell, or do calculations (8). However, it does not include learning-related problems that are the result of visual, auditory, and motor disabilities, intellectual disabilities, emotional disorders, or inappropriate environmental, cultural, or economic conditions. Some students cannot perform reading, writing, and calculation in a manner appropriate for their age and education, despite having natural intelligence. This group is regarded as having SLDs (9). SLD is a neurological developmental disorder with a biological origin which is the basis of cognitive-level disorders and is associated with behavioral symptoms. It is characterized by one of the following symptoms: 1) inaccurate or effortful word reading, a problem with comprehension, spelling problems, difficulty writing, difficulty calculating, and problems with mathematical perception; 2) disrupting his/her academic activities, job performance, or daily activities, affected by the person's age; 3) being initiated during school years, and 4) lack of proficiency in the academic education language, or psychological problems not overlapping with intellectual disability, visual/auditory acuity, and other psychological or neurological disorders, (10).

Children with SLDs cannot express their emotions and feelings due to their low levels of abstract thinking ability. Repression and lack of skills for expressing their feelings, especially negative feelings, threaten these children's mental health, cause anxiety and psychological stress, and reduce their positive emotions and adjustment (11). Therefore, it is essential to find a way to enable children to express their emotions

via non-verbal methods. Play is a tool with which children express themselves; it is an appropriate tool for emotion release and self-expression for any child, regardless of race, language, and nationality (12).

Play therapy is a technique that translates the children's nature via expressions, and is a method for dealing with emotional stress. It is also used for children with distress caused by family and social problems (7). Therapists that perform play therapy interventions believe that this technique, using play, allows children to express problems they cannot discuss in their daily environment, and demonstrate their hidden emotions as directed by the therapist. In play therapy sessions, the therapists accept children's behavior unconditionally, without surprising them, arguing with them, or reminding them of their wrong behavior. Compared to other treatments for children, play therapy has a major advantage of notable attraction. It is more effective when combined with other therapies such as family therapy and Bach flower remedies. Emotional disorders, which cannot be significantly alleviated with other treatment methods, are mainly treatable with play therapy. As it directly deals with children's feelings and affects their emotions, play is the best treatment for helping children who have this kind of disorder (13).

Studies in recent years demonstrate researchers' focus on play therapy and introduce it as a technique to reduce anxiety and SLDs (14, 15, 16, 17, 18). Play therapy is an effective treatment method for decreasing anxiety and improving SLD-related problems. Play can help children's control over the surrounding objects, and allows them to reveal the experiences, thoughts, feelings, and desires that seem threatening to them (15). It improves cognitive characteristics such as the quality of imagination and emotional characteristics such as the abundance and attraction of expressed

feelings, both of which help improve the skill of divergent thinking (18). Divergent thinking, in turn, improves children's adjustment skills and helps them use diverse coping strategies. Still, there are differences between confrontational flexibility and divergent thinking. For instance, in confrontational flexibility, one can interact with multiple problem-solving strategies when negotiating in a challenging situation; however, in divergent thinking, there are capacities for flexible thinking and the person may not show confrontational behaviors when dealing with challenges (17).

Shen (19) showed that, compared to the control group, anxiety was considerably reduced in the experimental group after play therapy. According to Baggerly (20), child-centered play therapy significantly improves children's self-respect, anxiety, and depression. Bratton et al. (21) also reported that anxiety, self-esteem, behavioral adjustment, social skills, and emotional adjustment are significantly and positively correlated with play therapy. It should be stated that this research was necessary due to the paucity of studies on anxiety and specific learning disorders of elementary-school students. Accordingly, this study aimed to investigate the effectiveness of play therapy on anxiety and specific learning disorders of elementary-school students.

2- MATERIALS AND METHODS

2-1. Study design and population

The research method was quasi-experimental with a pre-test post-test and control group design. The statistical population comprised of all the male elementary-school students aged 9-10 years in Isfahan (Iran) in the winter of 2020. A sample of 30 was selected via convenience sampling from those visiting Chatr-e Niki counseling center in District 5 of Isfahan. Fifteen students were included in each group by the use of G*Power

software and based on Afroudeh and Saidzanozi's (22) study.

2-2. Procedure

After receiving the necessary approvals, a sample (boys aged 9-10 years with SLDs and anxiety based on low scores on the Spence Children's Anxiety Scale and the Colorado Learning Difficulties Questionnaire) of the clients of this center was selected. As the children could not complete the questionnaires, their parents were asked to collaborate with the

research. The sample of 30 was divided into two groups of 15 (control and experimental groups). First, both groups completed the pre-test questionnaires. Then, the children of the experimental groups received play therapy training for nine sessions (two 30-minute sessions per week). **Table 1** presents the activities of the play therapy sessions. The training was offered individually, and the parents accompanied their children in all the treatment stages.

Table-1: The structure of the play therapy training sessions (23)

Sessions	Content
Session 1	Before starting the sessions, the children were directed towards the play therapy room individually to reduce their sensitivity to and become familiarized with the playroom. In this way, a better relationship could also be established between the children and the therapist, which helped them have a sense of peace and safety for better participation.
Session 2	The focus was on the child's adaptation to the environment. Any play the children suggested was performed to establish rapport and a sense of safety. The therapist mediated the relationship between children.
Session 3	First, to prepare the children for participation in the game, usual childhood plays were used to excite the children for the next games. The thread drawing game was performed with the children who had low self-esteem or fear of criticism due to anxiety. In this game, there is no right and wrong pattern, and children can represent whatever they think.
Session 4	The use of toy animals and dolls: The goal of using toy animals and dolls was to encourage children to talk and bring to the surface the quality of their relationship with others. Moreover, their concerns about their future relationships, the main sources of anxiety and SLD, their fear/avoidance of relationships with others, and factors that have distanced them from the normal developmental process could be discovered. At the end of this session, the child was asked to design a play between the animals and show it in the play therapy room the next session.
Session 5	The game with animals and dolls in the previous sessions was reviewed. The children dramatized the plays they wished to present in this session. The goal was to examine the causes of SLDs because children choose plays that are compatible with their current mental state.
Session 6	The children were involved and their opinions were asked when performing dramatic plays. The goal was to familiarize them with different events and teach them their solutions, so that they would experience less anxiety when another problem occurs.
Session 7	Playdough: Playdough is a valuable tool in playing with children. It creates new ways for the child's expression. The playful and familiar features of colorful dough entertain children, while also reducing their defensive forces. It is also used as a metaphor for changing due to its reshaping ability.
Session 8	The imaginary trip game: Imaginary trips are useful mostly because they encourage children to narrate their stories, have a look inside themselves and others' behaviors, and realize the possible causes of some past events. Some of the goals of the imaginary trip include: letting children feel that they have an active and effective role in life; allowing them to identify and experience more appropriate behaviors with better outcomes; and helping them gain insight into their and others' behaviors.
Session 9	In addition to reviewing the imaginary trip game, the children were assisted in presenting solutions for the problems occurring in the imaginary trip.

After one month, the intervention program repeated for the experimental group. The intervention sessions were conducted at Chatr-e Niki counseling center in Isfahan by a researcher who had received specialized courses and workshops. No treatment intervention was offered to the control group; they were placed on the waiting list so that they would receive the treatment at the end of the study. The respondents were ensured that the information provided in the questionnaires would remain confidential.

2-3. Measuring tools: validity and reliability

Spence Children's Anxiety Scale (SCAS): This scale was developed by Spence et al. (24) to evaluate anxiety among children aged 8-15 years based on the DSM-IV classification. This scale has two versions: a child version (45 items) and a parent version (38 items). The version used in this study was the 38-item parent version. Scoring is performed on a 4-point Likert scale: never (0), sometimes (1), often (2), and always (3). The scale examines six sub-scales of separation anxiety, social phobia, obsessive-compulsive disorders, agoraphobia, generalized anxiety, and fears of physical injury. The score of the scale ranges from 0 to 114. Higher scores indicate higher anxiety. Zhao et al. (25) evaluated its reliability as 0.78. Fereydooni et al. (24) reported an alpha Cronbach coefficient of 0.84 for the scale. In the present study, Cronbach's alpha was 0.78 for the scale.

2-4. The Colorado Learning Difficulties Questionnaire (CLDQ): CLDQ was developed by Willcutt et al. (27) and regards SLDs as having five main factors of reading, math, social cognition, social anxiety, and spatial difficulties. This 20-item questionnaire is filled out by students' parents. The responses vary from never (1) to always (5) on a 5-point Likert scale. The score of the questionnaire ranges from 20 to 100. Higher scores indicate greater

levels of perceived academic difficulty. The validity of the questionnaire and its components was examined by the developers via internal consistency and test-retest methods, and acceptable values were obtained (27). Hajloo and Rezaie Sharif (26) reported alpha Cronbach coefficient of 0.94 for the questionnaire. In the present study, Cronbach's alpha was 0.86 for the questionnaire.

2-5. Ethical consideration

The respondents were ensured that the information provided in the questionnaires would remain confidential. For ethical considerations, the researchers received written consent for participation in the research from the participants.

2-6. Inclusion and exclusion criteria

The inclusion criteria were: the parents of the students had at least middle school education, and provided written consent for participation in research; the students had no mental illness and no simultaneous psychological or pharmaceutical treatment was performed for them. The exclusion criteria were: more than two absences from the treatment sessions and reluctance to continue the treatment process.

2-7. Data Analyses

Data were analyzed by descriptive and inferential statistics, such as mean, standard deviation, and analysis of covariance. Bonferroni post hoc test was utilized to investigate the difference between the means of anxiety and SLDs between the pre-test, and post-test phases. Cronbach's alpha was calculated to specify the reliability of the questionnaires. SPSS version 22.0 was used to analyze the data.

Ethics: The study was approved by the Ethical Committee of Payame Noor University (code: 14803831).

3- RESULTS

The participants included 30 elementary-school students, aged 9-10

years. The demographic variables of the participants are shown in **Table 2**.

Table 2. Demographic variables of the participants.

Mother's education level	Experimental group		Control group		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Middle school education	7	23.33	7	23.33	14	46.67
High school education	5	16.67	4	13.33	9	30.00
Associate degree	2	6.67	1	3.33	3	10.00
Bachelor and master's degree	1	3.33	3	10.00	4	13.33
Father's education level						
Middle school education	4	13.33	4	13.33	8	26.67
High school education	3	10.00	7	23.34	10	33.33
Associate degree	5	16.67	3	10.00	8	26.67
Bachelor and master's degree	3	10.00	1	3.33	4	13.33
Maternal employment status						
Housewife	9	30.00	13	43.33	22	73.33
Employed	6	20.00	2	6.67	8	26.67
Economic status of the family						
Poor	5	16.67	7	23.33	12	40.00
Medium	6	20.00	4	13.33	10	33.33
Good	4	13.33	4	13.33	8	26.67

Table 3 presents the means and standard deviations (SD) of studied variables in the experimental and control groups in the pre-test and post-test. According to **Table 3**, the post-test scores of anxiety and SLDs decreased in the experimental group, compared to those of the pre-test scores, but they remained almost constant in the control group.

According to **Table 4**, the play therapy educational program created a significant difference between the mean posttest

anxiety scores of the two groups ($P=0.0001$). Therefore, the mean anxiety scores were reduced by the play therapy educational program with an effect size of 0.49. This means that 49% of the changes in the dependent variable can be explained based on group membership. The mean difference of anxiety was 6.73 between the play therapy group and the control group. This finding indicated that play therapy affected anxiety in elementary-school students ($P=0.0001$) (**Table 5**).

Table 3. Mean and standard deviation (SD) of dependent variable in experimental and control groups in pre-test and post-test

Dependent variable	Phase	Experimental group	Control group	P-value
		M ± SD	M ± SD	
Anxiety	Pre-test	73.80 ± 1.71	72.40 ± 1.89	0.236
	Post-test	64.73 ± 1.30	71.64 ± 1.80	0.001
Specific learning disorders	Pre-test	52.73 ± 3.50	49.53 ± 3.52	0.748
	Post-test	41.73 ± 3.06	49.73 ± 3.33	0.001

M ± SD: Mean ± Standard deviation

Table 4. Results of analysis of covariance on the post-test score of anxiety

Variables	Source	SS	df	MS	F	P-value	η^2	Statistical power
Anxiety	Pre-test	436.64	1	436.64	21.69	0.0001	0.44	0.99
	Group	557.62	2	278.81	13.04	0.0001	0.49	0.99

SS: Sum of squares; df: Degrees of freedom; MS: Mean square; F: F-distribution; η^2 : Eta-Squared

Table 5. Bonferroni post-hoc test for pairwise comparison of the anxiety in the post-test phase

Variable	Groups	Mean difference	SE	P-value	95% CI	
					Lower limit	Upper limit
Anxiety	Play therapy - Control	6.73	1.70	0.0001	-4.18	11.53

SE: Standard error; CI: Confidence interval

Based on **Table 6**, the post-test mean score of the specific learning disorders significantly differed between the two groups ($P= 0.0001$). Therefore, the mean scores of specific learning disorder were reduced by the play therapy with an effect size of 0.69. This means that 69% of the changes in the dependent variable can be

explained based on group membership. The mean difference of learning disorder scores was -8.00 between the play therapy group and the control group. This finding indicated that play therapy affected specific learning disorders in elementary-school students ($P= 0.0001$) (**Table 7**).

Table 6. Results of analysis of covariance on the post-test scores of specific learning disorders.

Variables	Source	SS	df	MS	F	P-value	η^2	Statistical power
Specific learning disorders	test	3917.57	1	3917.57	276.68	0.0001	0.91	1.00
	Group	886.26	2	443.13	31.29	0.0001	0.69	1.00

SS: Sum of squares; df: Degrees of freedom; MS: Mean square; F: F-distribution; η^2 : Eta-Squared

Table 7. Bonferroni post-hoc test for pairwise comparison of the specific learning disorders in the post-test phase

Variable	Groups	Mean difference	SE	P-value	95% CI	
					Lower limit	Upper limit
Specific learning disorders	Play therapy - Control	-8.00	1.38	0.0001	-13.62	-7.94

SE: Standard error; CI: Confidence interval

4- DISCUSSION

The present study aimed to investigate the effectiveness of play therapy on anxiety and specific learning disorders of elementary-school students in Isfahan (Iran). The results revealed that play therapy effectively reduces children's anxiety. It was also highly effective in alleviating their SLD-related problems. This finding is consistent with the previous findings (29, 30, 31). Zengin et al. (29) showed that play therapy considerably reduces children's fear and anxiety. Moreover, Godino-Ianez et al. (30) reported that pre-school children's anxiety level was markedly decreased after performing the play therapy. Orouji Aghdam et al. (31) also concluded that play therapy can promote the quality of life and reduce the anxiety disorders of pre-school children.

Children have a special world and unique needs due to their developmental conditions and characteristics. This necessitates the use of different psychotherapy methods for them. If implemented correctly, play therapy can be both preventive and therapeutic. By using this method, we can help children meet their childhood needs before they turn into problems (29). Children can learn the correct way of having social interactions through group, dramatic, and other games. The correct way of venting their feelings, expressing stressful issues, and expressing anger without hurting themselves and others prevent the emergence of other problems; in other words, it is both educational and therapeutic. Through games, therapists teach more adjusted behaviors to children who have poor social or emotional skills (30). By altering cognitive processes to ameliorate psychological problems and unadjusted behaviors, play therapy greatly contributes to anxiety treatment. In play therapy sessions, the therapist teaches the confrontational skills to the child and

creates an opportunity for him to practice these behaviors. These skills are supportive factors in children's anxiety disorders (7).

The results also indicated that play therapy created a significant difference between the mean posttest SLD scores of the two groups. This finding is consistent with the previous findings (32, 33, 35, 35). Karimi Lichahi et al. (32) reported that play therapy can improve the performance of students with dyslexia, dysgraphia, and dyscalculia. According to Abbaszadeh et al. (33), play therapy techniques affect anxiety sensitivity, learned helplessness, and social adjustment. Ogawa (34) mentioned that play therapy is an effective therapeutic intervention for injured children and children with SLDs. According to Jafari et al. (35), the implementation of play therapy can help improve the vocabulary skills of pre-school and elementary-school students compared to conventional methods.

According to psychologists, playing and play therapy are ways towards establishing relationships with the child's world, and a technique whereby one can access the child's internal world and evaluate his/her problems (32). Accordingly, several approaches have paid attention to play therapy and used it for achieving their fundamental goals. Playing is a natural method of learning that enhances children's innovation and concentration and helps them discover the relationships among objects and the surrounding world. It is a child therapy technique used for treating children's problems and disorders.

Children with SLDs face problems with learning, reading, and writing. Therapists, teachers, and parents can use appropriate games to help various aspects of children's development. The present study aimed to introduce the most important aspects of play therapy and some simple and practical exercises to caretakers and teachers of children with SLDs. The proposed

techniques and exercises were inspired by the experimental research in this domain (17). Interested therapists, teachers, and parents can refer to scientific sources to achieve further information and find more exercises with diverse goals. In the present study, the therapist encouraged the children to talk and bring the quality of their relationships with others to the surface by using toy animals and dolls. Moreover, by discovering their concerns about their future relationships, the main sources of anxiety and SLD, their fear/avoidance of relationships, and factors that have distanced them from the normal developmental process, the therapist helped them resolve these problems during the games. The games with toy animals and dolls were also reviewed, and the children dramatized a play they liked. The goal was to examine the causes of SLDs, because children choose plays that are compatible with their current mental state. Involving the children and asking their opinion about the dramatic plays familiarizes them with different events and teaches them the solutions to problems, thereby helping them experience less anxiety if another problem happens.

5- STUDY LIMITATIONS

Since the present study was performed on male elementary-school students in Isfahan city, caution should be observed in generalizing the results to other communities in different time and place situations due to different cultural conditions. The assessment of the variables was only based on the parents' self-reports; if other methods such as interviews or behavior rating were used, more precise and vaster information could be achieved.

6- CONCLUSION

According to the results of the present study, play therapy reduced anxiety in primary school children. Also, this treatment intervention program led to the

improvement of learning disabilities in these students. Based on the results, it is recommended that therapists in counseling centers and other institutes that provide psychological services use this educational program to improve the SLD-related problems and reduce the anxiety of their clients. The play therapy educational program can also be adapted for other children in other age ranges. Upon modifications to match the program to the characteristics of other social groups, this program can also be employed for them. Play therapy should be included in the curriculum to improve SLDs and anxiety in children.

7- CONFLICT OF INTEREST: None

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