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The Effectiveness of a Coping Cat Program on Symptoms of Anxiety Disorders in Primary Schools

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Abstract

Background: Anxiety disorders are the most common disorders in children that affect the psychological and social functioning of the child. Recently, researchers have used the coping cat programs (CCP) as a way to reduce anxiety disorders. Therefore the current study aimed to investigate the effectiveness of a coping cat program on symptoms of anxiety disorders in primary schools.

Method: This study was performed in a pre-test-post-test control group design. The statistical population included all children aged 8 to 11 years with anxiety disorders in five state primary schools in the second district of Bandar Abbas, Iran, in 2019. Using a questionnaire (SCAS), 32 children with anxiety disorders were selected from schools and randomly divided into control (n=16), and experimental (n=16) groups. CCP) training intervention was performed for the experimental group (for 16 sessions, twice a week for 45-minute). The control group did not receive any intervention. The participants' anxiety was assessed in both groups, one week after the intervention by Spence Children's Anxiety Scale (SCAS). Data were analyzed through SPSS version 23.

Results: The experimental and control groups were homogeneous before intervention. The mean anxiety score in the intervention group after the coping cat program including the Separation anxiety disorder (3.56±2.09), Panic disorder (2.12±2.15), Obsessive-compulsive (3.81±2.007), physical injury fears (4.06±3.08) was significantly lower than that in the control group (9.81±3.54), (7±3.07), (9.43±3.28), and (7.37±3.36) respectively (P <0.05).

Conclusion: The results revealed that through a 16-session intervention of recognizing the symptoms of unwanted anxiety in children and using these symptoms to apply anxiety management strategies, CCP leads to a reduction of anxiety disorders in children.

Key Words: Anxiety disorder, Cognitive-Behavioral Therapy, Coping Cat Program, Primary schools.

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1- INTRODUCTION

Adolescence and childhood are the dangerous stages for the growth of anxiety syndromes that may range from temporary slight symptoms to complete anxiety disorders (1). Fear and anxiety are a natural reaction to danger and are part of children's normal development. When the level of a child's anxiety is higher than that of his peers, it causes uncontrollable discomfort in him that is considered abnormal and is known as Anxiety Disorder (2, 3). The most common psychological illness in children is anxiety disorders that significantly disrupt their personal and interpersonal relationships. These problems are not temporary and unstable. Their consecutive period and recurrence cause many problems for the child at home, school, and community (4). In recent years, the clinical psychologists have increasingly attended to the causes, nature, and therapy of childhood anxiety (5).

The evidence during the past few years has demonstrated that about 8 to 12 percent of children and 5 to 10 percent of adolescents meet one of the diagnostic criteria of anxiety disorder, disrupting their routine and daily functioning (6). Children with anxiety disorders have lower education positions, peer relation problems, and display weakness in social abilities. Absence from school and the flawed low relations in future, lead to poor job compatibility and problems related to self-concept and mental disorders in life (7). Studies have also shown that children with anxiety disorders experience significantly more negative events in their life as compared to non-anxious children (8). Anxiety disorders are linked with great tribulation, affecting children's functioning in school (classroom participation and performance, less presence) (9, 10); in family (more struggle and relationship difficulties with parents and siblings (11, 12); and at the social level (raise loneliness, lower self-image, comrade relation difficulties, fewer friends (13, 14). Beneficial treatment and early recognition may reduce the effect of anxiety on social and academic activities in young people and may decrease the permanence of anxiety disorders into adulthood. (15). During the last twenty years, the influence of cognitive-behavioral therapies in the groups of anxiety disorders in children has been well indicated (16). Among the psychological interventions, the results of the randomized clinical experiments indicated the effectiveness of cognitive-behavioral therapy in improving anxiety symptoms. In addition to the positive response to treatment, the amount of treatment effects has also been approved in long-term follow-ups of six years (17, 18, 19, 20, 21). The first program based on the cognitive-behavioral system to diminish anxiety in adolescents and children was the CCP (22). This program consists of 16 sessions which are set according to two parameters. The first eight sessions focus on psychological skills training; and in the second eight sessions, these skills are practiced in children and adolescents to deal with anxiety situations (17, 23, 24). The CCP is one of the most usable and beneficial programs based on cognitive behavioral therapy (25). The relevant studies suggest that CCP has useful techniques such as role modeling, role play, problem-solving, reducing stress, and reinforcement for effective coping. It has been used with stressful situations and for solving psychological problems such as anxiety (26). A study in Taiwan showed the positive effect of CCP treatment on reducing anxiety problems and physical symptoms of anxiety in children and increasing the child's self-confidence (27). Another finding has shown the long-term and lasting effect of CCP therapy in improving the anxiety symptoms of autistic children (28). According to studies on the coping program, and its effect on reducing anxiety symptoms in children and

given that children today face many challenges and problems, this can affect their level of anxiety. It is necessary to intervene and educate these children in time to prevent their anxiety. The aim of the current study was then to evaluate the effectiveness of CCP on the symptoms of anxiety disorders in primary schools, in Bandar Abbas.

2- METHOD

2-1. Study design and population

This quasi-experimental study was conducted in Bandar Abbas, Southern Iran. The study population comprised primary school students from the second district of Bandar Abbas city, in 2019. Regarding the quasi-experimental design of the research, for the sample size, it was calculated as 32 cases based on the study of Shokri mirhosseini et al. in 2018 (29). For each group of 16 cases that were randomly chosen. After determining and choosing the groups for study (an experimental group and a control group), at first, a pretest (SCAS) was taken for both mentioned groups according to the prior planning. Then sixteen sessions of the treatment interventions (twice a week for 45-minute) for the experimental group; however, the control group subjects have not received any intervention. Then, one week after the end of the last training session, the results of the treatment intervention were evaluated.

2-2. Methods

This intervention was mostly done to teach skills such as cognitive reconstruction, stress relief, problem-solving, and coping with anxiety. And the emphasis was more on applying these skills in anxious situations. CCP therapeutic sessions were performed twice a week for 45 minutes each session for the experimental group according to the 16 sessions suggested in the protocol of Kendall translated into Persian by shahrivar and Zarghami (**Table 1**) (30). CCP is a cognitive-behavioral therapy manual-based and general treatment program for children with an anxiety disorder. The goals of the treatment are that children learn to recognize, experience, and cope with anxiety, manage their level of anxiety, and also learn to master developmentally suitable, challenging, and hard tasks (31). The control group did not receive any intervention.

2-3. Measuring tools: validity and reliability

The Spence Children's Anxiety Scale (SCAS): This questionnaire was designed to measure the anxiety of children aged 8 to 15 years in a statistical and diagnostic classification in Australia by Spence 1997. The SCAS consists of 44 items under 6 subscales: Separation anxiety disorder (6, 7, 9, 10. 29, 25), Panic disorder (13, 21, 28, 30, 32, 34, 36, 37, 39), Obsession-compressive disorder (14, 19, 27, 40, 41, 42), and Physical injury fears (2, 18, 23, 25, 33), Social Anxiety (5, 8, 12, 15, 16, 44), and General anxiety (1, 3, 4, 20, 22, 24). Scoring is based on the 4 points Likert scale including never (0), sometimes (1), often (2), and always (3). The total score of the 38 items is (maximum = 114, minimum = 0), which Higher scores indicate greater anxiety. There are 6 residual items serving as positive filler items in an attempt to decrease negative response bias; and Responses to the positive items are ignored in scoring. In this study four subscales were measured (Separation anxiety, Panic disorder, Obsessive-compulsive disorder and Physical injury fears). Internal stability was assessed using a sample of 875 adolescents by Spence in 2003 in Australia. The sample consisted of 403 females (46%) and 472 males (54%). Participants were recruited from six private, independent, and educational schools. The reliability of this scale was calculated as 0.92 and the sub-scales were also tolerable, with coefficient alphas of

0.71 for Separation anxiety, 0.80 for Panic disorder, 0.75 for Obsessive-compulsive, and 0.60 for Physical injury fears (6). Convergent validity was tested through the inter-correlation of SCAS scores with other anxiety measuring instruments. Pearson's correlation between the total scores of SCAS and the total scores of Revised Children's Manifest Anxiety Scale (RCMAS) was 0.75. Each subscale also correlated significantly with the RCMAS total score (Separation anxiety disorder, 0.53; Panic disorder, 0.61; Obsessive-compulsive, 0.60; Physical injury fears, 0.40). Correlations between the SCAS total score and the RCMAS Lie Scale, r= 0.01, and all factor scores were sorely down (32). The validity and reliability of the adjustment questionnaire are evaluated in the study of mousavi et al. (2007). Furthermore, Cronbach's Alpha Coefficient is calculated between 0.62 to 0.89 for this questionnaire (33). In the present study, Cronbach's alpha coefficient for the whole scale was 0.91, and for Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder and Physical injury fears were 0.62, 0.71, 0.77, and 0.61, respectively.

Table-1: Summary of CCP sessions (30)

Content of Sessions Hajmohammadi & Aeini / twice a week for 45 minutes each session / Schools	
Session 1	Communicating with the child, setting treatment goals, identifying anxious situations, and the child's reaction to those situations.
Session 2	Training different emotions, identifying symptoms created in an anxious situation.
Session 3	Teaching the physical symptoms of anxiety, identifying the physical reactions to anxiety.
Session 4	The first face-to-face meeting with parents to increase their cooperation in the treatment process and answer possible questions.
Session 5	Training diaphragmatic breathing and relaxation.
Session 6	Familiarity with self-talk in anxious situations, distinguishing between anxious and adaptive self-talk.
Session 7	Helping children turn anxious self-talk into adaptive self-talk, teaching problem-solving skills to manage anxiety.
Session 8	Introduce children to the concept of reward and teach them to score based on performance.
Session 9	Second face-to-face articles with parents, to increase their cooperation in the treatment process and answer questions.
Session 10, 11	Familiarize children with the logic of coping, design a fear hierarchy, and perform coping exercises in situations that cause little anxiety.
Session 12, 13	Perform coping exercises in situations that cause moderate anxiety.
Session 14, 15	Perform coping exercises in situations that cause moderate anxiety.
Session 16	Practice in Severe Anxiety, Design a summary of treatment sessions in the form of a wall newspaper, movie, or advertisement.

2-4. Intervention

After initial assessments and filling the SCAS with the help of researchers as a pre-test, half of the participants were randomly assigned to the treatment group. This group underwent CCP on the basis of cognitive-behavioral therapy for sixteen 45-minute sessions, two days per week,

under the supervision of the Yas-e-Hormozgan Counseling Center. The training sessions were conducted by the researchers in the children's leisure time in a place provided by the school principals. One week after the end of the last training session, questionnaires (SCAS) were distributed among the experimental and control groups. Before conducting the research, the researchers passed a training course under the supervision of experienced therapists and in the presence of an experienced teacher on 9 and 11-year-old children; and they were approved for administering the course, based on this treatment program.

2-5. Inclusion and exclusion criteria

The following criteria were required for being included in the study: willingness to participate in the project, being in the age range of 8 to 11 years, taking an acceptable anxiety score in the questionnaire (SCAS), and having their parents' written commitment for attending meetings. If the participating children were absent for even one session, and also if they used other counseling and psychotherapy services during the course, they were excluded from the research process.

2-6. Ethical consideration

To adhere to the ethics, first, the necessary permits were obtained from the university and the ethics code (IR.HUMS.REC.1398.127) was received from the ethics committee of Hormozgan University of Medical Sciences. After visiting schools, children's parents were contacted, stating the goals and the process of the work, as well as the benefits their children would achieve from the course. Parental consent was then obtained.

2-7. Data Analyses

In this study, Data analysis was performed using SPSS software version 23.0. The research findings are presented as descriptive and inferential findings. Descriptive findings included reports of mean and standard deviation; and univariate analysis of covariance, Shapiro-Wilk test, and Levene's test were performed to obtain the inferential findings. Shapiro-Wilk test was used to evaluate the normality of the distribution of scores of research variables. Levene's test was used to show the homogeneity of variances. Univariate analysis of covariance was used to compare the mean anxiety scores between the experimental and control groups before and after the intervention. P-values less than 0.05 were considered as statistically significant.

3- RESULT

3-1. Descriptive results

Based on the obtained results, the mean of the participant’s age was 9.37±0.95 in the experimental group and 9.81±1.10 in the control group. The genders of the participants in both groups were 50% females and 50% males.

Meaning of Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder, and physical injury fears for the 32 participants who answered the questionnaire in the control and experimental groups are shown in **Table 2**.

3-2. Check for normality

The purpose of examining the default normality is to examine the normality of the scores consistent with the natural population of the study. The Shapiro-Wilk test was used for this purpose. As can be seen in **Table 3**, the values of the Shapiro-Wilk test are not significant for all variables in the two groups; so it can be concluded that the distributions of scores in these variables are normal.

Table-2: The mean and standard deviation of research variables in experimental and control groups

Variables	the level	Group					
		The experiment, n=16			Control group, n=16		
		Mean ± SD	Min	Max	Mean ± SD	Min	Max
SAD	Before the test	12.12±3.42	6	16	10±3.54	4	15
	After the test	3.56±2.09	0	8	9.81±3.54	4	17
Panic	Before the test	8.62±5.27	3	22	6.87±3.82	1	14
	After the test	2.12±2.15	0	8	7±3.07	2	13
OCD	Before the test	9.25±2.23	6	14	9.62±3.11	4	14
	After the test	3.81±2.007	1	8	9.43±3.28	4	16
Physical injury fears	Before the test	8.06±3.53	0	14	7.06±3.53	1	15
	After the test	4.06±3.08	0	9	7.37±3.36	1	15
anxiety Note SAD= Separation disorder, OCD= Obsessive-compulsive disorder, SD= Standard deviation, Values mean significance level p ≤0.05							

Table-3: Shapiro-Wilk test to check the normality of the distribution of scores of research variables.

Variables	Group	The level	Shapiro-Wilk Test	
			Shapiro-Wilk Test	P-value
SAD	Experimental group	Before the test	0.947	0.510
		After the test	0.959	0.644
	control group	Before the test	0.941	0.362
		After the test	0.979	0.954
Panic	Experimental group	Before the test	0.956	0.591
		After the test	0.977	0.873
	control group	Before the test	0.968	0.809
		After the test	0.947	0.451
OCD	Experimental group	Before the test	0.947	0.449
		After the test	0.935	0.294
	control group	Before the test	0.956	0.590
		After the test	0.941	0.364
Physical injury fears	Experimental group	Before the test	0.970	0.844
		After the test	0.925	0.203
	control group	Before the test	0.968	0.810
		After the test	0.957	0.611
Note SAD= Separation anxiety disorder, OCD= Obsessive-compulsive disorder, Values mean significance level p ≤0.05				

3-3. Levene's test results on the homogeneity of variances

The aim of performing the Levene's test was to determine the presupposition of the equality of variances. The outcomes of the Levene's test for Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder and Physical injury fears were presented in **Table 4**.

F ratio for the variables of Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder and

physical injury fears was respectively calculated as 0.032, 0.253, 2.10, and 0.025, in the pre-test (P <0.05), and respectively 2.96, 1.97, 1.63, 0.001 in the post-test (P <0.05). The results revealed that there was no significant difference between experimental and control groups.

Table-4: Levene's test results on the homogeneity of variances

Variables		*F*	DF1	DF2	P-value
SAD	Before the test	0.032	1	30	0.859
	After the test	2.96	1	30	0.095
Panic	Before the test	0.253	1	30	0.618
	After the test	1.97	1	30	0.170
OCD	Before the test	2.10	1	30	0.157
	After the test	1.63	1	30	0.211
Physical injury fears	Before the test	0.025	1	30	0.876
	After the test	0.001	1	30	0.990
Note SAD= Separation anxiety disorder, OCD= Obsessive-compulsive disorder, SD= Standard deviation, DF= Degree of freedom, significance level: p ≤0.05					

3-4. Results of univariate analysis of covariance

The results showed a significant difference between the experimental and control groups after the Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder, and Physical injury fears. According to the level of F, the variables of Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder and Physical injury fears were significant (132.48), (67.63), (95.24), and (36.12), respectively (P <0.05). According to **Table 5**, the research hypothesis is confirmed, showing that cognitive-behavioral therapy (CCP) has reduced the symptoms of Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder and Physical injury fears in children.

4- DISCUSSION

The aim of this study was to investigate the effectiveness of a coping cat program on symptoms of anxiety disorders in primary schools. The result showed that no statistically significant distinction was seen in anxiety mean scores between the control and experimental groups before the intervention, but there was a significant distinction between the two groups after the intervention. Furthermore, the mean score of anxiety in the experimental group was significantly different from that in the control group. Cognitive-behavioral therapy (CCP) was effective in reducing Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder, and Physical injury fears. This study indicated that (CCP) was effective in decreasing the symptoms of Separation anxiety disorder in children, while the anxiety symptoms of the children in the control group did not change during the waiting period. Compatible with this study, McNally et al. determined that cognitive-behavioral therapy (CCP) could significantly decrease the level of Separation anxiety in these children (28). Also, the results of another research showed a significant reduction in separation anxiety disorder, and children with Separation anxiety disorder were too anxious about being far from home or they were highly dependent individuals (31). The positive and significant effects of (CCP) have been also reported by other studies (e.g. 34, 29, 27). Generally, it

seems that the program has been successful in achieving its goal to help reduce anxiety by teaching children to recognize and control anxiety symptoms (25).

Table-5: Results of univariate analysis of covariance to evaluate the effect of treatment

Variables	Variables	sum of squares	DF	mean squares	*F*	P-value	Eta Squared
Intercept	SAD	1.21	1	1.21	0.377	0.544	0.013
	Panic	14.92	1	14.92	4.18	0.050	0.126
	OCD	3.63	1	3.63	1.54	0.224	0.051
	Physical injury fears	0.022	1	0.022	0.006	0.938	0.001
Pre-test effect	SAD	160.83	1	160.83	49.86	0.001	0.632
	Panic	108.29	1	108.29	30.35	0.001	0.511
	OCD	153.99	1	53.991	65.30	0.001	0.629
	Physical injury fears	209.04	1	209.04	58.48	0.001	0.669
The effect of the treatment group	SAD	427.33	1	427.33	132.48	0.001	0.820
	Panic	241.27	1	241.27	67.63	0.001	0.700
	OCD	224.57	1	224.57	95.24	0.001	0.767
	Physical injury fears	129.12	1	129.12	36.12	0.001	0.555
Error	SAD	93.54	29	3.22			
	Panic	103.45	29	3.56			
	OCD	68.38	29	2.35			
	Physical injury fears	103.64	29	3.57			
Total	SAD	1998	32				
	Panic	1068	32				
	OSD	1880	32				
	Physical injury fears	1447	32				
Note SAD= Separation anxiety disorder, OCD= Obsessive-compulsive disorder, DF= Degree of freedom, significance level: $p \leq 0.05$							

Cognitive Behavioral Therapy (CCP) was also effective in reducing Panic disorder. The results showed that cognitive-behavioral therapy (CCP) could improve the symptoms of Panic disorder in children (34). Echarri et al. used the CCP on children with anxiety of a group setting in the Spanish public mental health system. Their results showed a significant reduction in the level of Panic disorder, proving the beneficial effects of this treatment (35).

The results of the current study showed that Obsessive-compulsive disorder symptoms were reduced in participants. Consistent with this finding, Brief CCP on children with anxiety in Spain indicated a significant decrease in Obsessive-compulsive disorder symptoms (34). Other research has also confirmed the effectiveness of this treatment (36). Based on cognitive-behavioral therapy, the child can learn to make a relationship among thoughts, feelings, behaviors; and experiments have demonstrated that according to their learning, they can have a usable reaction in anxiety situations (26). Some Pre-test and post-test studies have confirmed that the coping cat program has been effective in reducing the symptoms of Physical injury fears (29). CCP is the treatment of anxiety. It teaches children to challenge negative self-talk and to pay

attention to their positive characteristics. Moreover, according to cognitive theory, this program helps children recognize their worrying thoughts and try to solve problems and communicate positively with others at the behavioral level. The therapeutic effect of the CCP includes making changes in the behavior and attitude of the child, which prepares the context to provide for the adoption of new conditions and compliance with anxiety, as well as the development of the child's skill. The treatment method of the CCP, enhancing the ability to correct false beliefs and appropriate behaviors, leads to increased self-esteem and increased cognitive adaptation.

4-1. Study Limitations

The limitations of this study were as follow: (1) Lack of cooperation of some children in doing homeworks, (2) failure to examine all variables affecting the dependent variables studied, (3) Small sample size due to cost and transportation problems, (4) The children's inability to answer the questionnaire alone, so that some of them needed the help and guidance of researchers in answering the questionnaire items.

5- CONCLUSION

Explaining the present results, it can be said that the administration of 16 CCP sessions by affecting all components of anxiety (Separation anxiety disorder, Panic disorder, Obsessive-compulsive disorder, and Physical injury fears) could reduce the anxiety of anxious children aged 8 to 11 years. So it can be used as a useful clinical method in medical centers. To better understand the generalizability of the results, we must pay attention to the limitations.

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