

Research Paper: The Effectiveness of Cognitive-Behavioral Therapy on Internalizing Problems of Children With Externalizing Disorders



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Citation: Daryabeigi M, Pourmohamdreza-Tajrishi M, Dolatshahi B, Bakhshi E. The Effectiveness of Cognitive-Behavioral Therapy on Internalizing Problems of Children With Externalizing Disorders. *Iranian Rehabilitation Journal*. 2020; 18(2):193-202. <http://dx.doi.org/10.32598/irj.18.2.948.1>

doi <http://dx.doi.org/10.32598/irj.18.2.948.1>



Article info:

Received: 29 Aug 2019

Accepted: 02 Nov 2019

Available Online: 01 Jun 2020

Keywords:

Externalizing disorders,
Coping cat program,
Cognitive-Behavioral Therapy,
Internalizing problems

ABSTRACT

Objectives: The present study aimed to determine the effectiveness of cognitive-behavioral therapy on internalizing problems of children with externalizing disorders

Methods: It was an experimental study with a pre-test/post-test control group design. Among the students of elementary schools of Tehran City, Iran, 90 boys were selected based on the mothers' report and the Child Behavior Checklist (CBCL) by convenience sampling method. Fifty students whose scores equaled 63 or higher in the externalizing scale were diagnosed as individuals with externalizing disorders. Afterward, 32 individuals who acquired T-score ≥ 60 were assigned randomly in the experimental and control groups (each with 16 students). The experimental group was divided into two subgroups (8 individuals in each subgroup) and participated in 16 cognitive-behavior therapy (Coping Cat program) sessions (1 hour, twice a week). The control group received only the mainstream Program of the school. After the last session, their mothers completed the CBCL again. The obtained data were analyzed by One-way Analysis of Covariance (ANCOVA).

Results: The results of One-way ANCOVA showed that the internalizing problems, i.e. withdrawn/depressed, somatic complaints, and anxious/depressed symptoms of the experimental group have reduced significantly after participating in the cognitive-behavioral therapy sessions.

Discussion: Cognitive behavioral therapy (Coping Cat Program) is an effective method for reducing internalizing problems of children with externalizing disorders. Therefore, the program can be used to prevent the negative consequences of internalizing problems such as poor academic performance and social adaptation of the students with externalizing disorders.

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Highlights

- Comorbidity of internalizing and externalizing problems is an important and common problem.
- Internalizing problems are neglected in the evaluation and treatment of children with behavioral disorders.
- Internalizing problems exacerbates externalizing problems; it also has consequences like increasing in compatibility, and academic failure.

Plain Language Summary

Externalizing problems are important predictors for internalizing problems. Among the problems of internalizing, anxiety is more common and is more connected with other internalizing problems. So treating these problems should be considered in children with the externalizing disorder. Many previous studies have examined cognitive-behavioral therapy. The results of our study showed that cognitive-behavioral therapy (Coping Cat Program) has reduced internalizing problems, especially anxiety in children with externalizing disorders. As a result, this can be prevented the undesirable consequences of behavioral disorders.

1. Introduction

Children constitute a major part of any community. Based on research, at least 5% to 10% of children and adolescents in school-age have underlying and persistent behavioral or emotional problems, and a significant percentage of these problems may continue for years. Because usually, these problems do not decline, special attention is paid to prevent and treat childhood disorders [1]. In early childhood, behavioral problems of internalizing and externalizing origin are psychiatric problems [2]. Classification of childhood disorders in the form of internalizing versus externalizing disorders is one of the most widely-used classifications for childhood. Internalizing disorders have an intrinsic nature and can make the child angry. They come up in the form of anxiety, depression, physical complaints, and withdrawal. Externalizing disorders are interpersonal, they manifest as impulsivity, hostility, violations of law, and aggression [3].

Comorbid psychiatric disorders happen more often and are associated with increasing severity of the syndrome and poor prognosis [4]. Many studies have shown that externalizing and internalizing problems simultaneously occur in close relation with each other. Internalizing problems are often associated with externalizing problems. On the other hand, aggression and behavioral extraversion problems are other forms of internalizing problems [5]. Externalizing behavioral problems are important predictors for internalizing problems [2], and the association of internalizing problems with externalizing

problems can increase social problems [6]. This condition will lead to serious injuries, dysfunctions, increased adjustment disorders, depression, withdrawal from social relationships, and behavioral problems [7]. Studies on behavioral and anxiety disorders show an increase in delinquency and antisocial behavior in subsequent years [6]. Comorbid anxiety disorders and destructive behavior disorders have similar risk factors [8].

The correlations between externalizing disorders and internalizing problems and anxiety have consequences such as academic failure, low social competence, increased delinquency, and poor social skills. There is also a high correlation between anxiety, depression, and physical complaints in childhood [9]. So paying attention to the internalizing problems and anxiety in children and adolescents with externalizing disorders is essential to design and select appropriate treatment interventions and to prevent the onset of symptoms in later years [6]. Numerous treatment programs have been used to treat child internalizing disorders. The most notable ones comprise psychoanalysis, family therapy, and cognitive-behavioral therapy. Cognitive-behavioral therapy, however, is the most widely-used treatment program, that is supported by much empirical evidence [10].

Cognitive-behavioral treatments are based on this assumption that feelings and behaviors are the results of recognition. Cognitive-behavioral therapy contains the key elements of cognitive-behavioral theories and among them, Kendall's cognitive-behavioral treatment program (Coping Cat) is one of the pioneering therapeutic methods in the treatment of comorbid disorders in childhood.

It was prepared based on theoretical concepts and research findings on common aspects of internalizing disorders [11]. This program is implemented in 16 sessions for children and adolescents and it is applicable in individual or group forms. This is the first coherent step-by-step program designed based on a cognitive-behavioral approach to reduce anxiety in children and adolescents and numerous studies have confirmed its effectiveness [12-14]. This intervention has two parts. The first 8 sessions of the therapeutic program include training in basic concepts and skills such as cognitive reconstruction, de-stressing, problem-solving, and self-rewarding. The second part of the treatment in the 8 sessions includes active engagement with skills learned in anxiety-inducing situations. This phase focuses on the child's exposure to the motivating position through the skills that the child has learned in the first 8 sessions [15].

A review of the literature shows that cognitive-behavioral therapy has been approved as an effective treatment to reduce anxiety and internalizing disorders. But according to research studies, the effectiveness of Kendall's cognitive behavioral therapy has been reviewed in a few studies that had some limitations. First of all, the studied children with externalizing disorders have been analyzed in clinical centers according to problems such as disobedience, aggression, or lawbreaking and they have received medical interventions in this area and their internalizing problems were being largely ignored. Second, choosing a program that alleviates all aspects of internalizing problems is difficult. Generally, the most common problems experienced in children and adolescents are related to anxiety symptoms that are not transient and have a long-term impact on the child's emotional levels. If these problems do not receive a proper intervention, they may lead to other internalizing disorders. Thus, there may be a gap in the research that examines the effectiveness of cognitive-behavioral therapy in reducing internalizing problems (especially anxiety) in this group of children. By considering that Kendall's method helps children to understand better their tasks, enable them to change their cognition, and equip them with calming methods; and the focus of recent studies on anxiety disorders, we tried to find the right answer to the question of whether Kendall's cognitive-behavioral therapy can reduce internalizing problems in people with externalizing disorders who are cognitively impaired through changing their cognition and creating peace. If this method is effective for reducing the calm problems of children with externalizing disorders, the results of the research can be considered in designing and applying complementary therapies by psychologists and other specialists to reduce internalizing problems. Besides, reducing the children's problems prevents future problems in adulthood.

2. Methods

The present research was an experimental study with a pre-test/post-test control group design. The statistical population included all students aged between 7 and 10 years (Mean±SD: 8.56±1.014 years) enrolled in elementary schools in Tehran City, Iran for the school year 2018-2019. The study sample was selected based on the cluster sampling method (according to district and school clusters) along with a convenience sampling method. The inclusion criteria were obtaining a T-score ≥ 63 and being diagnosed for externalizing disorders based on the Child Behavior Checklist (CBCL), earning a T-score ≥ 60 , and being identified for internalizing behaviors based on the CBCL, as well as having normal Intelligence Quotient (IQ). The exclusion criteria were having physical disabilities, sensory processing problems, and other psychological disorders. Based on the sample size formula, with 80% test power and 5% test error, 14 individuals were randomly assigned to each group and finally, 16 children (32 individuals in total) were selected in each group considering the possible sample loss. The Achenbach System of Empirically Based Assessment (ASEBA) was also utilized to collect the data in this study.

Achenbach system of empirically based assessment

The CBCL was used to measure externalizing disorders and internalizing the problems of children. It should be noted that the CBCL along with teacher report form and youth self-report constitute a comprehensive collection entitled ASEBA. In this study, the CBCL comprised two distinct parts. The first part was associated with competence and functions, and the second part was related to symptoms of disorders such as emotional disorders, physical problems, Attention Deficit Hyperactivity Disorder (ADHD), coping behaviors, and conduct problems scored in two separate forms. According to this checklist, a set of individual problems could be assessed [16]. This 113-item checklist has been designed for individuals aged 6-18 years and could be completed by parents or legal guardians. Accordingly, respondents could mark each item based on the status of children in the past 6 months in the form as "false", "somewhat or sometimes true", "completely or mostly false" and scored 0, 1, and 2, respectively.

Factor analysis studies by the Achenbach system led to the formation of 8 factors, including withdrawal/depression, anxiety/depression, social problems, somatic complaints, thinking problems, rule-breaking, ADHD, and aggressive behaviors. Also, 9 items were not included

in these 8 subscales, which were categorized as other problems. In this respect, factors such as withdrawal/depression, anxiety/depression, and somatic complaints represented internalizing behaviors and those related to rule-breaking and aggressive behaviors constitute externalizing disorders.

Finally, the sum of the scores for 8 subscales could yield the total score as the highest and the most important factor. In addition to these scales, a child could also be placed in a clinical, borderline, or normal domain after converting the raw scores into T-scores through referencing to the Iranian norms in terms of age and gender. Accordingly, the Cronbach alpha coefficients from 0.65 to 0.85 have been reported for competence scales. Considering the small number of items and differences in their forms, the alpha values were expected and favorable. The Cronbach alpha coefficients for the scales and subscales have been already obtained between 0.87 for the externalizing scale and 0.73 for social problems. The Cronbach alpha for externalizing disorders and internalizing behaviors have been also reported as 0.59 and 0.65, respectively [17].

The overall reliability coefficients of the CBCL using the Cronbach alpha and test-retest reliability have been further reported as 0.97 and 0.94, respectively [16]. It should be noted that this checklist has been translated in Iran in 2005 and its cutoff point for externalizing disorders and internalizing behaviors has been determined as 63. In this respect, a score of 63 could indicate a clinical domain, and scores of 60-63 and those lower than 60 could show borderline and normal domains, respectively. Moreover, Minaei (2006) estimated the internal consistency coefficient of the ASEBA as 0.63-0.95. The temporal stability of the scales ranged from 0.32 to 0.67 calculated by the test-retest method with an interval of 5 to 8 weeks [16].

Research procedure

After receiving the code of ethics, a letter of introduction was obtained from the University of Social Welfare and Rehabilitation Sciences to be submitted to the Office of Education in the Tehran City. Then, School District No. 15 and 2 schools of Faghihi Rezaei School and Arab Ameli School were randomly selected. Upon acquiring permissions, visiting schools, and explaining research objectives for school authorities as well as signing consent forms by mothers, the teachers were asked to distribute the CBCL among mothers whose children had been reported with symptoms of behavioral problems such as aggressiveness, stubbornness, oppositional defiance, restlessness, violence, and sabotage during school hours. At this point, 90 boys were identified and their

mothers were correspondingly requested to complete the given checklist. After scoring the collected checklists, 50 students who scored high (T-score ≥ 63) in the externalizing scale were diagnosed with externalizing disorders, and then their mothers were asked to complete the internalizing scale of the CBCL. After that, 32 students who scored high (T-score ≥ 60) in the internalizing scale and met the inclusion criteria, were selected and randomly assigned to two experimental and control groups (16 individuals in each group).

To avoid any interactions between the experimental and control groups, they were selected from different schools in the same school district and were further matched based on grade, age, and family socioeconomic status. To determine the effectiveness of CBT (the Coping Cat program), the experimental group was divided into two sub-groups (8 students in each subgroup) and received the mentioned intervention in 16 one-hour sessions (twice a week) by the researcher who was holding a workshop attendance certificate on CBT based on Kendall and Hedtke's approach (2006) (i.e. the Coping Cat program). However, the control group only received routine school programs. To observe ethical considerations, students and their parents were assured in terms of confidentiality of the data and also allowed to withdraw from the treatment sessions at any stage of the program. Following the last intervention session, the mothers in both experimental and control groups completed the CBCL once again. To act in accordance with ethical principles, a briefing session was held for the control group after the intervention sessions to allow them to know about the content of CBT. The data obtained before and after CBT were also analyzed using univariate ANCOVA.

The intervention package of CBT was developed based on the Coping Cat program by Kendall and Hedtke (2006) [18], translated into Persian by Zarghami and associates. This program was based on cognitive-behavioral assumption, i.e. combining a set of effective techniques such as coping tasks, relaxation training, role-plays, as well as practices and rewards and also techniques to improve cognitive factors affecting information processing. In other words, the main purpose of this program was to teach children to recognize signs of anxiety and arousal automatically and learn how to cope with anxiety-inducing situations and events. The implementation of the program could be also flexible due to individual differences in children. Although it was crucial to observe the main principles of the treatment, including cognitive restructuring and behavioral components, tasks or activities could be focused on goals and guidelines. The content of the program was as follows. At the first 8 sessions, basic concepts and skills were taught

Table 1. The content of CBT sessions (i.e. the Coping Cat program by Kendall & Hedtke, 2006)

Sessions	Objectives	Activities
1 st	Introduction, briefings, and familiarity with treatment goals	Greetings, briefings, familiarity with the program, encouraging students for participation, engagement in a pleasant task, and assigning "I can" task for the next session
2 nd	Familiarity with anxiety	Using skills learned in a variety of anxiety-inducing situations and events from mild to severe levels through role-plays, mental imagery coping, and exposure to real-life anxiety-inducing situations
3 rd	Identification of physical reactions to anxiety	Identifying and practicing special physical reactions in response to anxiety, introducing the first phase of the program (1. Do you feel fear?), preparing children for parents' session, engagement in a pleasant task, and assigning "I can" task for the next session
4 th	Engagement and partnership with parents	Meeting parents, providing complementary information on treatment and answering their questions in this regard by the researcher
5 th	Relaxation training	Familiarizing children with the association of anxiety with muscle tension, introducing and practicing relaxation techniques, engagement in a pleasant task, and assigning "I can" task for the next session
6 th	Identification of anxiety-inducing self-talk and its associated challenges	Introducing the concept of thinking (self-talk) about anxiety-inducing situations and events, differentiating anxiety-inducing from adaptive self-talk, introducing the second phase of the program (2. Do you think something bad will happen?), engagement in a pleasant task, and assigning "I can" task for the next session
7 th	Review of anxiety-inducing and adaptive self-talk along with problem-solving skills	Reviewing the first two phases of the program, introducing the third phase (3. methods and useful activities), teaching the concept of problem-solving, practicing problem-solving in anxiety-inducing situations and events, engagement in a pleasant task, and assigning "I can" task for the next session
8 th	Introduction of self-assessment and rewarding system	Introducing the fourth phase (4. consequences and rewards), discussing the concept of self-scoring and self-rewarding, reviewing programs, practicing fear coping program, discussing coping tasks, preparing children for parents' session, engagement in a pleasant task, and assigning "I can" task for the next session
9 th	Parental engagement and participation	Providing complementary information to parents about the second half of the treatment (e.g. coping tasks) and putting emphasis on the importance of practicing skills learned by children, answering questions, meeting concerns, as well as responding to comments raised by parents
10 th -15 th	Exposure to anxiety-inducing situations	Using skills learned in different anxiety-inducing situations and events from mild to severe levels through role-plays, mental imagery coping, and exposure to real-life anxiety-inducing situations
16 th	Review and wrap-up	Allocating time to review the program content along with playing games and doing fun activities as rewards for success in the program

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to children, then children and therapists adjusted a series of anxiety-inducing situations and events and finally coped with the given situations and events using a 4-phase treatment protocol. [Table 1](#) presents the details of the sessions.

3. Results

Confirming by the Chi-square test, both experimental and control groups were matched in terms of age, level of education i.e. grade, and family socioeconomic status (based on monthly income) ([Table 2](#)).

As shown in [Table 2](#), the Chi-square values revealed no significant difference between the experimental and control groups considering all three variables of age, level of education (grade), and family socioeconomic status ($P > 0.05$).

Descriptive indices of internalizing behaviors in both the experimental and control groups in the pre-test and post-test stages are illustrated in [Table 3](#). Also, to conform to the assumptions of the univariate ANCOVA, the normal distribution of the variables was examined using the Kolmogorov-Smirnov test ([Table 3](#)).

According to [Table 4](#), pre-test and post-test scores had no significant difference in the control group but there was a decline in post-test scores compared with pre-test ones in the experimental group. Based on the results in [Table 4](#) and with regard to the P value of less than 0.05 calculated for all variables, the assumption for normal distribution of the scores was accepted, too. To verify the homogeneity of variances, we used the Levene's test and the assumption of homogeneity of variances for both groups was not significant. To address the research hypothesis, i.e. "CBT improves internalizing behaviors

Table 2. The Chi-square test results to evaluate matched groups in terms of age, level of education (grade), and family socioeconomic status

Variables	Groups	7 Years Old	8 Years Old	9 Years Old	10 Years Old	χ^2	df	Sig.
Age (y)	Control	3	5	5	3	0.545	3	0.909
	Experimental	2	6	4	4			
	Total	5	11	9	7			

Variables	Group	Second Grade	Third Grade	Fourth Grade	χ^2	df	Sig.
Level of education (grade)	Control	8	5	3	0.254	2	0.881
	Experimental	8	4	4			
	Total	16	9	7			

Variables	Group	Poor	Moderate	Good	χ^2	df	Sig.
Family socioeconomic status	Control	4	7	5	0.678	2	0.713
	Experimental	5	8	3			
	Total	9	15	8			

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Table 3. The descriptive indices of internalizing behaviors in the experimental and control groups and the results of the Kolmogorov-Smirnov test to examine the normal distribution of scores in the control and experimental groups

Groups	Variables	Pre-test			Post-test		
		Mean±SD	Kolmogorov-Smirnov Test Z-score	P	Mean±SD	The Kolmogorov-Smirnov Test Z-score	P
Control	Withdrawal/depression	9.19±2.257	0.780	0.577	9.44±2.032	1.061	0.211
	Somatic complaints	17.56±2.529	0.938	0.342	17.63±3.897	0.966	0.308
	Anxiety/depression	21.31±3.240	1.125	0.159	20.88±2.825	0.702	0.708
	Internalizing behaviors	48.06±5.916	1.053	0.218	47.94±7.541	0.722	0.674
Experimental	Withdrawal/depression	9.63±1.668	-	-	8.56±1.632	-	-
	Somatic complaints	18.19±4.053	-	-	15.31±2.469	-	-
	Anxiety/depression	22.38±3.096	-	-	19.88±2.473	-	-
	Externalizing disorders	50.19±7.332	-	-	43.75±5.779	-	-

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of children with externalizing disorders”, we employed univariate ANCOVA (Table 5).

According to the results of univariate ANCOVA in terms of comparing the internalizing behaviors, withdrawal/depression, somatic complaints, and anxiety/depression of experimental and control groups in the post-test stage considering the F-statistic of 19.300 and P value of less than 0.001 for internalizing behaviors, the research hypothesis was confirmed. Therefore, receiving CBT using the Coping Cat program (Kendall & Hedtke, 2006) by the experimental group had significantly improved the internalizing behaviors of students with externalizing disorders. Given the effect size, it was established that 40% of the changes in internalizing behaviors

in students with externalizing disorders resulted from their participation in the intervention program i.e. CBT. Moreover, the symptoms of withdrawal/depression, somatic complaints, and anxiety/depression in the experimental and control groups in the post-test stage were significantly different ($P>0.01$). According to the effect size, respectively 23%, 20%, and 30% of the changes in the symptoms of withdrawal/depression, somatic complaints, and anxiety/depression in children with externalizing disorders in the experimental group resulted from their participation in CBT sessions.

Table 4. The results of Kolmogorov-Smirnov for examining the normality of scores distribution in control and experimental groups

Variable	Pre-test	P value	Post-test	P
withdrawal/depression	0.780	0.577	1.061	0.211
Somatic complaints	0.938	0.342	0.966	0.308
Anxiety/depression	1.125	0.159	0.702	0.708
Internalizing behaviors	1.053	0.218	0.722	0.674

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Table 5: Univariate ANCOVA results to compare internalizing behaviors in the experimental and control groups

Variables	Sources of Change	Sum of Squares	df	Mean Squares	F-statistic	P	Effect Size
Internalizing behaviors	Pre-test	936.829	1	936.829	65.134	0.001	0.692
	Group	277.599	1	277.599	19.300	0.001	0.400
Withdrawal/ depression	Pre-test	64.134	1	64.134	49.281	0.001	0.630
	Group	11.321	1	11.321	8.669	0.006	0.231
Somatic complaints	Pre-test	99.357	1	99.357	13.107	0.001	0.311
	Group	55.638	1	55.638	7.340	0.011	0.202
Anxiety/depression	Pre-test	154.012	1	145.012	77.691	0.001	0.728
	Group	24.053	1	24.053	12.134	0.002	0.295

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4. Discussion

Externalizing disorders are highly correlated with aggressiveness (outer manifestation of anger). Concerning the results of previous studies, the relationships between anger and anxiety and internalizing behaviors can be delineated [19]. Studies of behavioral disorders and the subsequent feeling of anxiety also represent an increasing trend in crimes and anti-social behaviors in later life [6]. There are also similar risk factors for comorbidity of anxiety disorder and destructive behaviors [8]. The correlation between externalizing disorders and internalizing behaviors and anxiety can further result in consequences such as academic failure, poor social competence, increased crime rates, and lack of social skills. Therefore, attention to internalizing behaviors and anxiety in children and adolescents with externalizing disorders as well as the design and adoption of appropriate treatments along with the prevention of symptoms in later life is of utmost importance [6].

Among the treatments used to reduce behavioral problems, evidence has supported the effectiveness of CBT, especially the Coping Cat program developed by Kendall and Hedtke (2006) to improve internalizing behaviors and anxiety. Moreover, the stability of the treatment ef-

fects has been confirmed in the long-term follow-ups [11, 20]. This program helps children in terms of recognition of somatic symptoms, identification of maladaptive cognition, learning new skills, and practicing exposure to anxiety-inducing situations [21].

The findings of the present study showed that CBT using the Coping Cat program could reduce the internalizing problems of children with externalizing disorders. These findings were also consistent with those in previous research [11, 22] which verified the effectiveness of this treatment to improve internalizing behaviors, anxiety, as well as associated disorders. Moreover, this study results agreed with the results of other investigations [11, 23-26] which confirmed the effectiveness of CBT using the Coping Cat program to moderate anxiety and its symptoms, somatic complaints [27], as well as depression [12].

To account for the results of the present study, it can be stated that internalizing behaviors, including anxiety and depression, are underlying externalizing disorders, or at least the comorbidity of internalizing behaviors can deteriorate externalizing ones [28]. Psychological disorders also highly overlap in childhood and adolescence, so they are not only facing one disorder in most cases

but also usually a set of symptoms. On the other hand, due to the multifactorial nature of psychological disorders, changes in one component can lead to variations in other ones. Generally, CBT using the Coping Cat program emphasizes three areas of thinking, emotions, and behaviors, so intervention in each of these three areas and their interrelationships can result in the formation of new skills and pave the grounds to reduce symptoms and increase adjustment with different situations and events.

According to cognitive-behavioral assumption, false cognitive patterns can be learned and activated; and in turn, affect feelings and behaviors. Psychological inflexibility is the most common cognitive-behavioral process in the formation and sustainability of psychological disorders. An overview of the content of CBT using the Coping Cat program developed by Kendall and Hedtke (2006), raises the possibility that this intervention as a transdiagnostic approach in the field of psychological disorders in children and adolescents seeks to reconstruct anxiety-inducing situations and events, fulfill psychological adjustment, and reduce recurrent negative thoughts through mental imagery and reality testing of some distorted beliefs common in internalizing behaviors and externalizing disorders [11].

To explain the effectiveness of the Coping Cat program in improving internalizing behaviors in children with externalizing disorders, it can be said that children with externalizing disorders are continuously blamed, punished, and rejected by those around them because of their destructive behaviors, aggressiveness, and rule violations. However, feelings and emotions such as anxiety, depression, and withdrawal experienced after these behaviors—that are also highly damaging and can have serious consequences—are usually ignored. However, the Coping Cat program provides a context for children to talk about these problems, to know about their internalizing behaviors, to learn skills for realizing their feelings and challenging them, and to acquire techniques to soothe themselves.

Since some researchers have mentioned that psychological disorders in children's behaviors are caused by ineffective parenting styles, lack of parent-children emotional bonds, high levels of behavioral inhibition by parents, excessive use of harsh and inflexible disciplinary methods, failure to strengthen independence and autonomy in children, and finally absence of adequate monitoring of behaviors in children [29, 30], it seems that changes in parents' perceptions of internalizing problems during treatment sessions can help in reducing stress in their children and also aid them to manage their emotions to improve their damaged relationships.

Limiting the results of the present study to male students aged 7 to 10 years, lack of follow-up tests, as well as the absence of a self-report form for parents could call for more caution in terms of generalizability of the results. Therefore, it is suggested that follow-up tests be implemented and multiple methods be used to evaluate internalizing behaviors and the stability of the effectiveness of CBT be examined in future studies to provide a complete profile of children with externalizing disorders.

5. Conclusion

Based on the results, CBT using the Coping Cat program by Kendall and Hedtke (2006) was effective in improving internalizing behaviors and its associated symptoms because of the use of techniques such as relaxation training, mental imagery, problem-solving, self-talk correction, role-plays, real-life exposures, as well as practicing and rewarding system. With regard to the need to utilize an appropriate intervention (i.e. Coping Cat program) to reduce internalizing problems in children with externalizing disorders, this study results can be promising. It will prevent the continuation of academic and social problems in these groups of children in later life and will also draw the attention of researchers to the adoption of a comprehensive intervention program focusing on all factors affecting the persistence of internalizing behaviors, leading to their full and in-depth improvement.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by Ethics Committee of University of Social Welfare and Rehabilitation Sciences (Code: IR.USWR.REC.1396.421). The informed consent was obtained from all mothers of children for being included in the study.

Funding

This article was extracted from the MA. thesis of Mozhdeh Daryabeigi of the Department of Psychology and Education of Exceptional Children, University of Social Welfare and Rehabilitation Sciences.

Authors' contributions

All authors contributed in preparing this article.

Conflict of interest

The authors declared no conflict of interest.

Acknowledgments

The researchers express their gratitude to the respected school principals in School District No. 15 in the city of Tehran, the studied children, as well as their mothers who contributed to the implementation of this project.

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