

➡ doi:10.15171/icnj.2019.28

Effectiveness of Stress Management With Cognitive-Behavioral Approach on Cognitive Emotion Regulation in Mothers of Children With Cancer

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Abstract

Background: The purpose of this study was to determine the effectiveness of stress management therapy with a cognitive-behavioral approach to cognitive emotion regulation in mothers of children with cancer.

Methods: The research method was quasi-experimental with pre-test, post-test, and follow up design as well as the control group. The statistical population of this study included all mothers of children with cancer who referred to the Qods children's hospital located in Qazvin province. A sample of 30 subjects was selected through purposive sampling and assigned to two groups of experimental (n = 15) and control (n = 15). Both groups were pre-tested using the Cognitive Emotion Regulation Questionnaire (CERQ). Then, the experimental group received 8 sessions of training in stress management skills with cognitive-behavioral approach while the control group did not receive any intervention. Subsequently, both groups administered post-test, and the data were analyzed by SPSS 21 software using single variable one-way ANOVA.

Results: The results showed improvement in the scores of the experimental group mothers in cognitive emotion regulation variable and components of self-blame, acceptance, rumination, positive refocusing, refocus on planning, perspective-taking, catastrophization, and other-blame. However, no significant improvement observed in the component of positive reappraisal in parents of children with cancer (P < 0.01) and this maintained at the follow-up stage.

Conclusion: Based on the findings of this study it can be concluded that teaching stress coping strategies with a cognitive-behavioral approach is an effective way to teach emotion regulation strategies to mothers of children with cancer suffering from emotional distress.

Keywords: Stress management, Cognitive-behavioral, Cognitive emotion regulation, Mothers of children with cancer.

Citation: Hajiseyedjavadi T, Hatami M, Ahadi H, Kraskian A. Effectiveness of stress management with cognitive-behavioral approach on cognitive emotion regulation in mothers of children with cancer. Int Clin Neurosci J. 2019;6(4):151-157. doi:10.15171/icnj.2019.28.

Introduction

Since diagnosis, cancer has significant physical, social, mental, and emotional effects on patients and their caregivers.¹ The occurrence of chronic illness in one of the children can be a critical issue for the whole family affecting all family members.² Previous findings show that illness in children affects the lifestyle of the family and parents, especially the mothers of children with chronic diseases. They consider themselves responsible for the illness and feel anxiety, guilt, helplessness, and emotional distress.³ As a result, family members must reorganize their roles, interactive patterns, and relationships inside and outside the family and work to adapt to the new situation, which affects the functioning of family members and the whole family.⁴

The existence of some characteristics in parents can increase their internal resistance against mental pressure and prevent its negative consequences.⁵ Cognitive regulation of emotions in parents is one of these traits.⁶ Cognitive emotion regulation represents ways to cope with stressful situations or unpleasant events. People facing stressful experiences and situations use different cognitive strategies to maintain their mental and emotional health.⁷ In recent years, health psychology has paid a great amount

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Published online September 23, 2019



of attention to dealing with stress and life challenges to improve the physical and mental health in people. It considers strengthening coping responses and cognitive abilities in people as the most direct way of intervention. Studies have shown that inappropriate emotional response when facing psychological stress factors such as sadness and distress, as well as inadequate strategies of emotion regulation cause short-term emotional distress in people.8 Some of the most commonly used cognitive strategies to regulate emotions when facing unpleasant conditions include self-blame, other-blame, rumination, catastrophization, perspective-taking, positive refocusing, positive reappraisal, acceptance of conditions. Planning successful emotion regulation has positive outcomes, such as the development of social capabilities and health in emotional regulation users.

On the other hand, unregulated emotions associated with a variety of psychopathologies.9 Emotion regulation involves a wide range of internal and external processes that are used to review, evaluate, and modify emotional reactions. Also, emotion regulation encompasses a wide range of cognitive, behavioral, emotional, and physiological responses which used for understanding emotional and behavioral correlates of stress and negative emotional states.¹⁰ Regulation of emotions through cognition is one of the essential requirements of human life and helps people to manage their emotions after experiencing stressful events.11 The theoretical models in this field indicate that successful cognitive emotion regulation correlated with good health outcomes and improved relationships, as well as desired educational and familial performance.

On the other hand, problems in cognitive emotion regulation correlated with psychopathological symptoms such as stress and anxiety,¹² major depressive disorder,¹³ social anxiety disorder,¹⁴ and post-traumatic stress disorder.¹⁵ People experiencing problems are less able to pay attention to their emotions. Therefore, emotional problems experienced by families with chronic diseases may include a lack of awareness of their emotions and an inability to regulate their emotions.¹⁶ Stress management therapy with a cognitive-behavioral approach is a combination of cognitive and behavioral approaches. In this therapeutic approach, the patient is helped to change the instability of his distorted thinking, leading to ineffective behavior, by using regular discussions and well-organized behavioral assignments.17 Cognitivebehavioral therapy is both behavioral and cognitive, and benefits from the strengths in the two approaches of behavioral therapy and cognitive therapy - that is, objectivism, evaluation, and measurement as well as the involvement of memory in reconstruction and modification of information- which make it a practical knowledge approach.¹⁸ Therefore, this study investigates the effectiveness of stress management with a cognitivebehavioral approach for emotion regulation in mothers of children with cancer.

Methods

This study is quasi-experimental with pre-test, post-test, and follow up. The statistical population includes all mothers of children with cancer who referred to Qods children's hospital in Qazvin province from April to June 2016 and selected through purposive sampling. Since the minimum sample size in experimental studies is 15 subjects for each group,¹⁹ here also 15 people are selected for each group. The criteria for inclusion in this study include the informed consent and willingness to participate, the ability to attend meetings and collaborate on doing assignments, cooperation in filling the instruments, age range of 20-55, minimum education of high school diploma, and having appropriate psychological stability and balance in order to participate in the study, as well as physical stability. Exclusion criteria include an unwillingness to attend meetings and absence in more than three sessions during the training, lack of ability to attend meetings and lack of cooperation in doing assignments, or receiving any kind of psychological training or treatment other than this program.

The subjects in this study have selected from all mothers with a child suffering from cancer who referred to Qods children's hospital in Qazvin province. The selection process was non-random and purposive - the subjects who fulfilled the inclusion criteria randomly assigned to experimental and control groups. Before conducting the research, due to ethical considerations, the participants informed about the purpose of the research and the impact of such research on improving their psychological state, and informed consent obtained from all mothers. Afterward, relevant information about the participants collected by the researcher, and they assured that the data would remain confidential. Then, the experimental group received eight sessions of group training in cognitive-behavioral stress management skills, while the control group received no intervention. In the end, both groups administered post-tests, and on Table 1 the stress management training session protocol has presented.

The instruments used in this research were demographic items and Garnefski (2001) Cognitive Emotion Regulation Questionnaire.

Demographic Items

Demographic items included age, education level, and marital status. These items were prepared and evaluated by the researchers.

Garnefski Cognitive Emotion Regulation Questionnaire The Cognitive Emotion Regulation Questionnaire was devised by Hofmann²⁰ to evaluate the way people think after experiencing threatening or stressful events. The questionnaire comprised of 36 items based on the Likert scale, ranging from (1 never to 5 always). Conceptually

Table 1. Stress Management Skills Training Session Protocols

Session	Subject
1 st	Group introduction, familiarity training, stress introduction, stressors, and stress responses, and awareness of physical effects of stress, relaxation training, and diaphragmatic breathing, the definition of emotion regulation and stress management from the cognitive-behavioral approach and their etiology
2 nd	Gaining awareness about the effects of stress and understanding the importance of this awareness, raising awareness about physical responses to stressors, explaining emotions, ways to recognize irrational thoughts and explaining processing errors, training re-evaluating of thoughts and challenging them as ways to change irrational thoughts
3 rd	Explaining the relationship between thoughts, emotions, and bodily feeling and presenting multiple examples in different situations, explaining thinking mistakes and automatic negative thoughts
4 th	Introduction and identification of common negative thoughts and cognitive distortion, examining the effects of awareness about pleasant and unpleasant events on feelings, thoughts and bodily feelings
5 th	Challenging common negative thoughts and cognitive distortions and replacing irrational thoughts with rational thoughts, teaching and discussing anger management, decisiveness, time management, recording daily events, teaching how to use problem-solving skills in conflicts, discussing the skill to say no, delegation
6 th	Training, practicing and implementing effective coping strategies
7 th	Continued training, practicing, and implementing effective coping strategies, stress management training, sleep hygiene
8 th	Teaching the importance and benefits of social support and an overview of the program

the questionnaire consists of 9 distinct sub-scales, each of which is a specific strategy in cognitive emotion regulation with four items. The reliability scores of "positive," "negative," and "total" strategies were obtained using the Cronbach's alpha coefficient equal to 0.91, 0.89, and 93.0, respectively. We tested the reliability of this questionnaire in Iranian culture using a sample of 15 to 25 years old subjects and reported the "total" Cronbach's alpha coefficient equal to 0.82. The internal consistency of the questionnaire in this study reported in Table 2.

In this study, SPSS 21 software was used to analyze the data. The statistical measures for analyzing the research data at the descriptive statistics level were mean, standard deviation, frequency, and percentage frequency. Inferential statistics analysis included the single variable analysis of variance.

Results

As it is shown in Table 3, considering that the Chi-square values [for all three of the investigated demographic variables] are smaller than the critical chi-square value, taking into account a 5% margin of error and 2 degrees

of freedom (5.991), it can be argued with 95% confidence that the null hypothesis assuming the absence of difference between observed and expected frequencies is confirmed. Therefore, the two research groups are homogeneous in terms of demographic variables.

Table 4 presents the mean and standard deviation values of the research variables (emotion regulation strategies) in two research groups (stress management with CBT approach and control) and three test rounds (pre-test, post-test and follow up).

The collected data are continuous with an interval scale. Considering that another assumption for parametric statistical tests is the normality of the data distribution, in order to utilize this category of tests, this assumption should also examine. For this purpose, the Kolmogorov-Smirnov test used. The results indicate the significance values for all the variables in the three rounds of measurement to be greater than 0.05. Therefore, it can argue with 95% confidence that the data distributions of the variables in this study are normal (table 5).

Here, single variable one-way analysis of variance on differential total emotion regulation scores (the

Table 2. Reliability Coefficients of the Research Instrument (n = 30)

Instrument	Subscale	Number of Items	Internal Consistency (Cronbach a Coefficient)
	Self-blame	4	0.620
	Acceptance	4	0.647
	Rumination	4	0.670
	Positive refocusing	4	0.626
Garnefski Cognitive Emotion	Refocus on planning	4	0.705
Regulation Questionnaire	Positive reappraisal	4	0.652
	Perspective-taking	4	0.656
	Catastrophization	4	0.688
	Other-blame	4	0.684
	Total Score	36	0.747



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Variable	Catagorias	Group	-16		0)/-1		
variable	Categories	Stress Management Control		u	Χ-	r value	
Education loval	Diploma or blow	10	6	2	E 204	0.071	
Education level	University education	5	9	Z	5.294		
Marital status	Divorced	1	2	2	2 1 4 2	0.242	
Marital Status	Married	14	13	Z	2.143	0.343	
Incomo lovol	Low	2	2	2	0.450	0.700	
income level	Average/high	13	13	Z	0.450	0.799	

Table 3. Comparison of Demographic Variables in 2 Research Groups

Table 4. Mean and Standard Deviation Values of Research Data (n = 30)

			Stress Management				
Variable	Component	Administration Round	With CBT Ap	With CBT Approach		Control	
			Mean	SD	Mean	SD	
		Pre-test	10.13	1.92	10.80	2.65	
	Self-blame	Post-test	7.40	1.45	11.33	1.99	
		Follow up	8.27	2.40			
		Pre-test	11.07	2.02	10.60	2.17	
	Acceptance	Post-test	6.73	1.62	10.73	1.87	
		Follow up	7.40	1.88			
		Pre-test	12.27	2.09	11.73	1.98	
	Rumination	Post-test	7.07	1.62	10.67	2.53	
		Follow up	9.00	1.77			
		Pre-test	10.20	1.78	8.93	1.75	
Emotion Regulation	Positive refocusing	Post-test	7.07	1.28	9.20	1.86	
		Follow up	8.27	1.83			
		Pre-test	10.47	2.23	9.93	2.52	
	Refocus on planning	Post-test	6.73	1.71	9.93	1.71	
		Follow up	8.07	1.67			
		Pre-test	9.93	1.83	8.67	0.72	
	Positive reappraisal	Post-test	10.33	1.50	10.33	1.95	
		Follow up	9.80	2.04			
		Pre-test	12.00	2.56	11.80	1.78	
	Perspective-taking	Post-test	6.93	1.91	11.07	1.67	
		Follow up	7.67	1.54			
		Pre-test	12.40	1.77	11.80	2.65	
	Catastrophization	Post-test	6.73	1.53	11.53	2.20	
		Follow up	7.20	1.21			
		Pre-test	12.87	2.53	12.33	2.19	
Emotion Regulation	Other-blame	Post-test	6.73	2.22	12.20	1.61	
		Follow up	7.53	1.81			
		Pre-test	101.33	7.29	96.60	5.99	
	Total Score	Post-test	65.73	6.96	97.00	6.41	
		Follow up	73.20	6.16			

difference between pre-test and post-test scores) is used to test the hypothesis whether stress management (with CBT approach) improves emotion regulation (and its components) in mothers of children who have cancer. Due to the lack of a linear relationship between pre-test and post-test scores, as well as unequal regression slopes in analysis of covariances for the components of positive refocus (F = 4.149, P < 0.05) and refocus on planning (F=3.976, P < 0.05), instead of analysis of covariances, differential scores analysis is used to analyze emotion regulation total score (F=0.776, P > 0.05) as well as the components of acceptance (F=0.144, P > 0.05), rumination (F=0.283, P > 0.05), positive refocus (F=0.662, P = 0.05), refocus on planning (F=0.290, P > 0.05), positive reappraisal (F=2.548, P > 0.05), perspective-taking (F=0.404, P > 0.05), catastrophization (F=0.262, P > 0.05), and other-blame (F=3.345, P > 0.05).

The calculated F statistic (64.227) with 42 and 2 (5.15) degrees of freedom is greater than F0.01, so the null hypothesis of equal means is rejected with a 99% confidence. ($\eta 2 = 0.754$, in other words, about 75 percent of the variations in emotion regulation [total score] is explained and influenced by the treatment). Therefore, it has concluded that stress management training with cognitive-behavioral approach (CBT) improves emotion regulation in parents of children with cancer (Table 6).

Discussion

Regarding the aim of this study to investigate the effectiveness of stress management with the cognitivebehavioral approach in improving emotional regulation in mothers of children with cancer, findings from the single variable analysis of variance showed that training in stress management skills had significant effects on improving the components of emotional regulation in mothers of children with cancer. These results are consistent with the findings of Salehi et al,²¹ Ghasemzade Nassaji et al²² who investigated the effect of cognitive-behavioral therapy on improving cognitive emotion regulation as well as the

findings reported by who investigated the effectiveness of emotional schema therapy in improving emotion regulation strategies. Parents of children with cancer have learned maladaptive patterns of cognition and responding to the environment, and lack effective emotion regulation strategies while using automatic and fixed response patterns. By using cognitive-behavioral therapy and cognitive content during treatment sessions and through the perceptual change in patients, their processing style changes, and they learn new emotion regulation techniques to solve problems. Participating in the stress management training courses with a cognitive-behavioral approach helps to rebuild individual cognitions and beliefs, resulting in reduced stress and increased general health.23 Considering the findings and limitations of this research, it can conclude that group stress management training with the cognitive-behavioral approach is beneficial in improving the physical and mental health in parents of children who have cancer. The components of emotion regulation strategies including self-blame, otherblame, and catastrophization are negative emotional strategies which reduced through cognitive-behavioral therapy.

On the other hand, acceptance, positive refocus, and positive reappraisal are positive components. In order to explain the findings of the present research, it can state that cognitive emotion regulation strategies are actions that indicate ways to cope with stressful situations or unpleasant events. Confronted with a chronic illness, people look for meaning in life. After identifying such a meaning, they can organize their goals and plans in a better

Table 5.	Foual Variance	es and Covarian	ces Assumption	(Emotion Regu	lation Components)
abic 5.	Equal variance	.s and Covarian	ccs / issumption	(LINOUOII REEL	nation components)

Assumption		Test	df 1	df 2	F	P Value
Equal covariances		Box	90	4832.557	1.131	0.188
	Self-blame	Levene	2	42	0.210	0.811
	Acceptance	Levene	2	42	0.463	0.632
	Rumination	Levene	2	42	0.694	0.505
Equal covariances	Positive refocus	Levene	2	42	1.028	0.366
	Refocus on planning	Levene	2	42	1.989	0.150
	Positive reappraisal	Levene	2	42	0.496	0.613
	Perspective-taking	Levene	2	42	1.337	0.273
	Catastrophization	Levene	2	42	2.081	0.138
	Other-blame	Levene	2	42	0.455	0.638

Table 6. Single Variable One-Way Analysis of Variance for Comparing Differential Scores of Emotion Regulation [Total Score]

Source of Variations	Sum of Squares	df	Mean Squares	F	Effect Size (Partial Eta-Squared $(\eta 2)$)
Between groups	9794.711	2	4897.356	64.227ª	0.754
Within groups	3202.533	42	76.251		
Total	12997.244	44			
a P < 0.01					

^a P < 0.01.

way and use their emotions to achieve their personal and social goals. Moreover, when facing an obstacle in the path of reaching their goals, people who have found meaning in their lives can maintain their composure better and focus their efforts toward their objectives. Also, in explaining the finding, it can be argued that people with adaptive emotion regulation strategies and emotional autonomy can maintain their psychological health more easily by avoiding maladaptive emotion regulation strategies and thus they are in a better psychological state to cope with the problems related to their illness.²⁴Cognitive distortions such as catastrophization, the feeling of distress, negative evaluation of the situation and the degree of control, and in general distorted cognitive systems and beliefs are generally related to depression in people. This study has had some limitations, including small sample size, data collection using self-report instruments, and lack of control of background and individual factors. Therefore, it has suggested that these limitations considered in future studies. This study did not face any respondent dropouts. However, there is a possibility that people could have overestimated the effects of the program due to their personal inclinations and optimism. Therefore, it has suggested that in future research, placebo programs be used to control for expectation effects. Also, it is suggested to use larger samples in order to obtain a realistic effect size for the program.

Conflict of Interest Disclosures

The authors declare that they have no conflict of interests.

Ethical Statement

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages and signed the informed consent. They also assured about the confidentiality of their information. Moreover, they were allowed to leave the study whenever they wish, and if desired, the results of the research would be available to them.

Acknowledgments

The authors would like to thank the authorities in Qods Children's Hospital of Qazvin province for their assistance. Also, the cooperation by all of the mothers who participated in this study is greatly appreciated.

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