

THE IMPACT OF COGNITIVE- BEHAVIORAL THERAPY (CBT) IN REDUCING ANXIETY AND DEPRESSION IN CANCEROUS CHILDREN

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Abstract

This study aims to investigate the impact of cognitive-behavioral therapy (CBT) in reducing anxiety and depression in children that have cancer in Sari, Iran. The investigation was conducted by experimental research method (ANCOVA test) which had pre-test and post-test. The sample was selected by convenience and contained 25 children from 7 to 14 years old who suffered from cancer and were hospitalized in Sari city. These children were divided into two experimental and control groups. There were 12 patients in the experimental group and 13 patients in the control group. Data collection was done through CDS-A depression questionnaire and Kattell's anxiety questionnaire. The experimental group was treated by CBT (Cognitive-Behavioral Therapy) in 10 sessions and control group received no treatment. For data analysis, descriptive and inferential statistics methods were used (frequency and percentages, mean and standard deviation, bar charts and analytical methods of ANCOVA). The results showed that cognitive-behavioral therapy had influence in reducing anxiety and depression in cancerous children ($p < 0.05$). And therefore, CBT can reduce pathogenic effects of treatment and has an important role in struggling to illness, cancerous pains and increasing mental health in children. Considering the experimental findings and results of this study, it is suggested to conduct and educate CBT treatment programs for cancerous children from the onset of illness diagnosis accompany with medical treatment.

Keywords: cognitive-behavioral therapy, depression, anxiety, cancerous children

1. INTRODUCTION

Anxiety and depression concurrent to cancer are risk factors in reducing life span and important elements for rejecting treatment by the cancerous patients (Bowers & Boyle, 2003). In fact, anxiety and depression have impacts on the function of body immune system and as a result on the cure of cancer, and this predicts the progress of illness and death of patients (Spiegel & Giese-Davis, 2003). Cancers are vast continuum of illnesses that have their special etiology, treatment program and prognosis. Most of individuals who have cancer, experience a period of severe stress. This stress usually appears as a part of an adaptive, major depression or anxious disorder. Also, cure of cancer accompanies different tension some of them reduce life quality and lead to anxiety or depression. For example, most of the time, patients consider the psychic side effects of cure such as anger, anxiety and depression higher than bodily side effects as like hair drop and nausea. Even some of patients quit chemotherapy for its psychological issues (Massie, 2004).

The issue of children's cancer and their increasing physical and psychological pains brings this question to mind what causes these children could not resistance the pain and side effects of cure and surrender themselves to illness. On the other hand, from among different psychological disorders, anxiety and depression are two current psychiatric disorders in cancerous children. So, reducing these two psychological problems can help the cancerous children to accept cure procedure and to endure the pain. For this, therapists have suggested different methods such as play therapy, story therapy and so on.

According to Beck, the pervasive feature of some psychological disorders is negative automatic thoughts which lead to unpleasant and disappointed feelings (Halgin & Whitbourne, 2012). Beck (1970) believes client's thoughts and images contain distortion faults that can reconstruct them by cognitive-behavioral therapy (CBT). In late decades CBT approach has attracted researchers and psychologists for reducing psychological harms arise from cancer. This approach can help patients to decrease the negative psychic effects of their illness to the least.

Rich experimental support about CBT usage for psychic issues which are prevalent in physical illnesses is completely coordinated with presenting modern health care and emphasis on experimental supported treatments (Ayinparast, 2010). Furthermore, CBT in group is effective in reducing depression of patients who have minor depression (Dadgari, 2010). Bijari (2009) believes cognition therapy based on hope therapy approach causes the increase of life expectancy and depression reduction in women with breast cancer. CBT in group also has influence in decreasing depression, anxiety and sensitivity in interactive relationship among MS patients (Mokhtari, 2005). Regarding these evidences, the main question of this study is whether CBT has influence in reduction of anxiety and depression in cancerous children.

2. METHODOLOGY

In this study, the researcher performed treatment sessions of CBT for cancerous children in Sari city to investigate its impact on the anxiety and depression. The research method was of experimental kind and its design had two groups of experiment and control with pre-test and post-test.

Experiment Group	Pre-test	CBT treatment	Post-test
Control Group	Pre-test	No treatment	Post-test

The statistical population of study consisted of all cancerous children (7 to 14) in Sari hospitals of which the researchers chose one hospital (Boali) and the sample contained 25 children from 7 to 14 years old. These children were divided into two groups. Experimental group had 12 children who received group CBT treatment in 10 sessions and control group had 13 children who received no treatment. Data were collected by using (CDS-A) Depression questionnaire and Kattell's anxiety questionnaire.

2.1. (CDS-A) Depression Questionnaire

This questionnaire is a scale for assessing children's depression that Tisher and Lang (1983) developed it in 1983. CDS has 66 items of which 48 items describe negative signs of depression (e.g: I usually feel I'm alone) and 18 items refer to positive signs (e.g: Most of the time I'm happy). This scale was normalized by Golzari (1990) in Tehran Psychiatry Institute. Regarding the conditions and features of analysis method, the short form of the questionnaire (CDS-A) was made in Iran to reduce long items of CDS. Its reliability and validity has been reported 0.98. The short form has 25 items on Likert Scale.

2.2. Kattell's Anxiety Questionnaire

This scale was developed based on vast studies by Kattell (1957). It is probably the most effective tool that is in the form of short questionnaire. It has 40 questions (20 questions for covert anxiety and 20 questions for overt anxiety). The rating of the two parts is done separately.

2.3. Procedure

For performing CBT program in group the following principles were used:

1. The program was based on psychological education (i.e: simplification of treatment and seeing it as an educational procedure).
2. Cancerous children had organized educational experience that during treatment learned skills to reduce their anxiety and depression.
3. A combination of educational materials and daily practices were presented to these children.

4. The children learned to work on their psychological issues.
5. Some skills were presented for coping with anxiety and depression during several sessions.

Contents of performed CBT sessions

1. Reviewing the previous homework
2. Presenting educational subjects
3. Doing practice
4. Assigning homework for next session

The rationale of program for sessions' structure was that necessary information for doing treatment tasks was presented in the form of samples and descriptions. Then participants practiced the required skills for tasks under the observation and guidance of researcher. Thereafter, participants took the homework for doing between sessions. In reviewing homework section, a brief of previous tasks was checked by the researcher. Also, some guidelines were offered which should be in a special task. Educational subjects contained brief lectures, explanations, use of pictures and drawings about session contents. Instructions were informal, simple and understandable for cancerous children.

In the practice section, some training for practices was suggested. In the performed program of the study, the goals of each session, summary of presented subjects, instructions and tasks all were determined clearly and specifically. For administering this program the researcher had two important roles: first, presenting the materials (presenting session contents and guiding practices for the cancerous children in experimental group) and the other role was guiding these children to review their tasks and to do their practices. A summary of performed group CBT in this study and its main structure is presented here:

Session 1:

Task before treatment: A) All children in experimental group who are supposed to receive educational and treatment program should be present. B) To welcome

Presenting educational materials: A) Different kinds of thoughts B) Positive and negative thoughts and their influence on feelings and behavior in the form of playing C) The relationship between thoughts-feelings and behavior using magical circle model.

Practice: practicing magical circle and negative trap for more awareness of children from the relation of thoughts-feelings and behavior.

Tasks: A) Practice of magical circle about a recent activity they have done and have enjoyed it. B) Practice of negative trap in situations or activities they were unpleasant C) Doing if/then technique for awareness of children from the influence of thoughts and feelings on their behavior.

Session 2:

Tasks before treatment: Checking presented previous tasks and assuring that children have understood the relation of thoughts-feelings and behavior

Presenting educational materials: A) Stating understandable materials about positive and negative automatic thoughts and their impacts on behavior (use of comparing automatic thoughts to a tape running in the head) B) Explaining three dimensions of cognition by pictures

Practice: Recognizing a list of good thoughts children have about themselves, thoughts about future and unpleasant thoughts in their notebooks

Session 3:

Tasks before treatment: Review of previous tasks

Presenting educational materials: A) Explaining cognitive distortions with the purpose of being familiar and having access to the negative thoughts B) Exemplifying kinds of cognition distortions pessimism, making catastrophe, failure expectance, emotional thoughts, wrong goals lead to failure)

Practice: performing a cognition distortions play (pessimism glasses, snow ball, foretelling, dustbin label) for familiarizing children to thought mistakes that filter positive events and activities

Tasks: Presenting multiple questions for various thought mistakes (these questions can be answered with the help of parents)

Session 4:

Tasks before treatment: Review of previous tasks to check negative thoughts and the most thought mistakes in children.

Presenting educational materials: A) Recognizing negative thoughts B) Challenging and testing negative thoughts to rationalize and to balance children's thoughts C) Developing balanced thoughts

Practice and tasks: A) Recording a list of negative thoughts, testing them and use of thought thermometer

Session 5:

Tasks before treatment: review of previous tasks to determine to what extent children in experimental group have been familiar to their negative thoughts

Presenting educational materials: A) Recognizing fundamental beliefs B) Use of thought detector for recognizing fundamental beliefs

Practice: Performing downward arrow techniques of *what then?* (by using pictures and group play)

Tasks: A) Noting and drawing two instances of negative beliefs by using what then to access to their fundamental beliefs

Session 6:

Tasks before treatment: Review of previous tasks to determine children in experimental group to what extent are aware of their fundamental beliefs

Presenting educational materials: A) Thought control through distraction, thinking to a riddle, positive self-talking, thought stop B) Anxiety safe (supplying a sample of anxiety box and illustrating its usage)

Practice: Performing the play of *turn off sound recorder* for coping negative thoughts and controlling them

Tasks: A) Recognizing negative thoughts using thought detector and noting or drawing it B) Recording daily a list of positive activities and thoughts in notebook C) Drawing negative thoughts and eliminating them through one of distracting ways, positive self-talking, thought stop D) Making anxiety safe (box)

Session 7:

Tasks before treatment: Review of previous tasks to know children's daily activities and the success of using different thought control ways

Presenting educational materials: A) Training emotions B) Taking care of emotions

Practice: A) Training and informing of emotions through drawing human body and coloring it B) Showing and expressing feelings about prepared pictures and stating feelings most occur C) Performing each feeling goes where technique for informing children from the relation between feelings, places and events

Tasks: A) Recording a list of thoughts cause to form pleasant and unpleasant feeling in notebook B) Recording a list of activities cause to form pleasant and unpleasant feeling in notebook C) Preparing a list of current feelings, important places and events and connecting the related feeling to them D) Drawing pleasant and unpleasant feeling in the form of human body, landscape, ... and coloring it based on each feeling (anger: red, anxiety: yellow, sad: blue, fear: green)

Session 8:

Tasks before treatment: Review of previous tasks to know pleasant and unpleasant places and activities for children and being familiar with their most internal feelings

Presenting educational materials: A) Managing emotions using strong feeling B) Training muscular relaxation in group C) Training controlled breathing in group D) Training imaginary relaxation in group by guiding children's thoughts to a beautiful and fancy scene or a nice memory in their life E) Training anger management through simulating anger to a volcano

Practice: A) Realizing children's unpleasant feelings by strong feeling room that is like anxiety safe B) Practicing 10 minutes muscular relaxation for feeling control C) Practicing controlled breathing D) Practicing imaginary relaxation by guiding children's thoughts to the beautiful scene and nice memories in their life E) Practicing anger management by use of volcano play and preventing its eruption

Tasks: A) Making strong feeling room (like anxiety safe) and putting daily unpleasant feelings inside it B) Doing exercises and games such as walking at home, shaking hands, ... to calm and control thoughts C) Imagining a beautiful scene or memory and imagining themselves in that scene when unpleasant feelings arise D) Drawing

and noting some peaceful activities

Session 9:

Tasks before treatment: review of previous tasks and checking children’s unpleasant feelings and awareness of researcher from doing exercises and games for children

Presenting educational materials: A) Explanation of how thoughts influence on feelings and behavior B) Using ways for increasing delightful activities (use of pictorial media, drawing and noting activities in thought bubble by children) C) Reprogramming activities (note taking daily activities) D) Response prevention (control of behavior and stop of unpleasant habits)

Practice: A) Noting and drawing a list of activities cause arising unpleasant feelings in children B) Practicing next stair of ladder with children (individually and in group) C) Recording a list of daily activities D) Noting or drawing unpleasant habits

Tasks: A) Noting a list of daily activities with the time and feeling towards them B) Noting or drawing unpleasant habits and dividing them in a way habits with easier quitting come first and habits with harder quitting come last

Sessions 10:

Tasks before treatment: Review of previous tasks to inform researcher from daily activities and learning of children about how to remove their unpleasant habits

Presenting educational materials: A) Three reason of problems B) Ways of developing problem solving skills (explanation of traffic light self-learning model (stop, plan, act) C) Practicing new skills

Practice: Performing traffic light technique

Tasks: A) Noting and drawing a list of problems and the ways of problem solving and their negative and positive consequences B) Noting and drawing a list of problem solving ways from others’ point of view and talking about those ways C) Noting or drawing problems and their solutions by the traffic light technique

3. RESEARCH FINDINGS

3.1. Descriptive analysis of data

In descriptive analysis it is paid to present frequency and percentage for gender and age.

Table 1. Distribution of gender & age in participants

Explanation		Number	Percentages
gender	Girl	11	44.0
	boy	14	56.0
age	7 – 8	13	52.0
	9 – 10	10	40.0
	11 – 12	1	4.0
	13 - 14	1	4.0

3.2. Inferential analysis of data

Table 2. Difference of pre-test and post-test for anxiety & depression in groups

Group	Anxiety				Depression			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Experiment	39.42	12.788	21.58	3.679	78.67	9.480	61.33	3.651
Control	38.69	8.159	40.38	6.021	83.23	12.015	80.00	5.244

From examining table 2 it can be seen there is no difference between mean of pre-tests for anxiety in two

groups. But mean of post-tests in experimental group show significant difference and it has been reduced from 39.42 to 21.58. Also, mean of pre-tests for depression does not have so very difference in groups, while mean of post-tests in experimental group show significant difference and it has been reduced from 78.67 to 61.33.

Table 3. ANCOVA Test of hypothesis one

	Changes source	Sum of Squares SS	Freedom Degree	Means Square	Critical F	P value	observed Power	Adjusted R Squared
1	consistent coefficient	879.535	1	879.535	39.628	.000	1.000	.809
2	Group effect	2235.693	1	2235.693	100.731	.000	1.000	
3	Primary effect of anxiety	95.710	1	95.710	4.312	.050	.510	
4	Error	488.284	22	22.195				
5	sum	2789.760	24					

According to table 3, the amount of adjusted R squared is 0.809, so, considering this high value it is concluded the best fit model is appropriate. Also, the group effect has been meaningful because P value is less than significant P ($0.000 < 0.05$) and observed F is more than criterion F (4.30). Thus, group has impact on the post-test measure and this indicates the treatment has had influence on reduction of children's anxiety. Also, the pre-test measure effect is meaningful ($P < 0.05$) because observed F is higher than criterion F. So, children's anxiety figure in pre-test had a little influence on post-test children's anxiety figure. Furthermore, observed power in this table is in the highest degree and shows more impact of treatment on anxiety.

Table 4. ANCOVA Test of Hypothesis two

	Changes source	Sum of Squares	Degree of freedom	Means of Squares	F Ratio	P level	Test Power	R ² modified
1	Fixed coefficient	1683.537	1	1683.537	80.638	.000	1.000	.811
2	Group effect	17.359	1	17.359	.831	.372	.141	
3	Primary effect of depression figure	1994.897	1	1994.897	95.552	.000	1.000	
4	Error	459.308	22	20.878				
5	sum	2650.960	24					

According to table 4, the amount of adjusted R squared is 0.811, so, considering this high value it is concluded the best fit model is appropriate. Also, the group effect has been meaningful because P value is less than significant P ($0.000 < 0.05$) and observed F is more than criterion F (4.30). Thus, group has impact on the post-test measure and this indicates the treatment has had influence on reduction of children's depression. But pre-test measure effect is not meaningful because observed F (.831) is less than criterion F (4.30). So, children's depression figure in pre-test has no meaningful influence on their depression figure in post-test. Furthermore, observed power in this table is in the highest degree and shows more impact of treatment on depression.

4. Discussion and Conclusion

4.1. Hypothesis 1: CBT is effective in reducing anxiety of cancerous children

The result of this study showed that CBT is effective in reducing cancerous children's anxiety. Very similar results were presented by Bashiri (2009), Zamiri (2008), Yaghoobi (2003), Pirl (2004) and Linden et al. (2005). Regarding the findings, one of the global reasons for the results of hypothesis one is useful effects of group therapy in comparison to individual therapy, because group therapy helps individual to learn social and personal

skills. Also, group therapy causes children to be aware of other children's problems and as a result feel convenience and assurance. The second reason of obtaining these results is using techniques such as internal peace, relaxation, mental visualization. Generally, anxiety continues by bias and excessive thoughts and increases by distortion of data processing and this can be decreased by special ways of CBT.

4.1. Hypothesis 2: CBT is effective in reducing depression of cancerous children

The results of study indicated CBT has impact on the reduction of depression in cancerous children. The findings are supported by the findings by Dadgari (2010), Bashiri (2009), Mokhtari (2005), Yaghoobi (2003), Asarnoo et al. (2001) and Stark et al. (2004). Considering these findings it can be concluded using CBT in group is effective in the treatment of depression. Graham (2008) believes the key point in use of this approach is that group therapy has many advantages which lead to facilitation and speed of cure procedure. For example, most of depressive patients have a kind of uniqueness feeling about themselves in respect to their problems and thoughts. This uniqueness feeling causes aggravation of social isolation in them. Group therapy enables these patients to gather in a place, interact to each other and talk about their similar problems. Removing this uniqueness feeling not only causes peace and comfort in patients but also expands their relationship outside the treatment environment. Furthermore, the group members help each other and during treatment support, assure, suggest and insight each other. In total, it seems using CBT is useful and effective clinically and it is economical and suggestive for cancerous children.

With due attention to experimental evidences of this research and obtained results, it is suggested to perform and educate CBT treatment programs for cancerous children from the onset of diagnosis to the end of cure accompanied and in accordance to medical treatment.

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