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Psychotherapy in Children: Examining the Effectiveness of Parent-Child Interaction Therapy on Depression, Anxiety and Stress Symptoms in Children

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In recent years, there has been a high concern on childhood disorders among experts and parents. A large number of therapeutic interventions were based on the direct interaction with the child's therapist. The purpose of this study was to investigate the efficacy of parent-child interaction therapy (PCIT) in reducing depression, anxiety and stress in children. This randomized clinical trial was conducted at Bijan Substance Abuse Treatment Center in Tehran, Iran, from December 15, 2013, to November 20, 2014. Fifty children (N=50, aged between 4 and 6 years, and $M = 5.2 \pm .38$) who achieved scores above the cut-off point based on DASS-21 questionnaire, were selected and randomly divided into two experimental (n=25) and control (n=25) groups. Parent-child interaction therapy was performed in terms of the independent variable for ten 45-minute sessions. The data was analyzed using chi-square and MANCOVA model. Also, the qualitative data,

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which resulted from the demographic evaluations, was coded and analyzed by instrument of analyzing qualitative data, Atlas.ti, Version 5.2. The results showed that CPRT had significantly reduced depression, anxiety and stress in children ($p < .001$). The findings of this study, while giving practical solutions in this domain, can be valuable in planning treatment procedures.

***Keywords*:** parent-child interaction therapy (PCIT), depression, anxiety, stress, randomized clinical trial (RCT).

The premature beginning of childhood disorders is associated with more resistant periods during treatment and weaker treatment results during the period (Ramsawh, Weisberg, Dyck, Stout & Keller, 2011; Luby, Lenze & Tillman, 2009). Anxiety disorders are among the most common psychological disorders during childhood and have high similarity to other psychological disorders with regard to their common underlying mechanisms, and are usually associated with pervasive problems in life (Beesdo, Knappe, & Pine, 2009; Rapee, Schniering & Hudson, 2009).

Anxiety disorders affect 9 percent of pre-elementary school children (Wichstrøm, Berg-Nielsen, Angold, Egger, Solheim & Sveen, 2011). The changing nature of these symptoms has caused the rate of these disorders to increase during the time in a way that 25 percent of adolescents complained of an anxiety disorder and 10 percent of them complained of a temperamental disorder last year (Kessler, Petukhova, Sampson, Zaslavsky & Wittchen, 2012). Through determination of anxiety disorder, pre-elementary school children are likely to have depression and interactional disobedience disorders (Birmaher, Ehmann, Axelson, Goldstein, Monk, Kalas et al., 2009; Dougherty, Tolep, Bufferd, Olino, Dyson, Traditi et al., 2013; Lavigne, LeBailly,

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Hopkins, Gouze & Binns, 2009). Not treating anxiety and depression symptoms will lead to family function disorder, absence from school, fall in educational performance and social relation in adulthood (Hopkins, Lavigne, Gouze, LeBailly & Bryant, 2013; Katz, Conway, Hammen, Brennan & Najman, 2011). On the other hand, deep consideration of children's family background shows that anxiety symptoms exist in one of the family members, especially parents, and often the mother of the family in addition to the child. Family studies and genetics indicate increased risk of affection on anxiety in children of parents affected by anxiety and depression disorders (Beesdo et al., 2009).

Intergeneration transmission of risk factors may be owing to genetic factors like anxiety and depression for those parents who have tried to get control of their children in the name of nurturing. These parents developed a feeling of 'limited competition' and encouraged anxiousness and avoidance behavior in them (Goodman & Gotlib, 1999; Wood, McLeod Sigman, Hwang & Chu, 2003). Researches support family compression of anxiety disorders (Beesdo et al., 2009; Rapee et al., 2009). Pre-elementary school children, by specifying anxiety disorders, probably have mothers with anxiety disorders whereas no meaningful relationship was observed with fathers' anxiety disorders. Most of the studies rely on the role of parent-child interactions and child-rearing styles. Controlling social factors such as limitation of entering kindergarten and exposure to challenging social conditions help solve child anxiety (McLeod, Wood & Weisz, 2007; Van der Bruggen, Stams & Bögels, 2008). One important factor in focused treatment of the child is improving parent-child relationship. With this, levels of

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conflict between parent and child decreases and their interaction process and problem solving skills are boosted. Studies show that positive interaction patterns such as active listening, eye contact, empathy, confirming and summarizing instead of criticizing and interrupting others during speaking can be helpful in improving parent-child interaction (Stallard, 2005).

Parent-child interaction therapy (PCIT) is a kind of short-term treatment and depends on evidences and is based on sympathy and social learning that is applied for children between 2 and 8 years with destructive behavior background. This therapy was conducted with the aim of filling treatment gap in children psychological hygiene services in different ages (Gurwitch, Messer, Masse, Olafson, Boat & Putnam, 2015).

Parent-child interaction therapy (PCIT) was primarily developed by Sheila Eyberg in the early 1970s while she was completing her postdoctoral residency in pediatric psychology that is grounded in social learning theory and attachment theory. Federal and state policymakers recognize PCIT as a successful and effective evidence-based practice. In the early 1990s, UC Davis CAARE Center began providing PCIT services to children and families.

Parent-child interaction therapy has been successfully applied in America and some other countries but its application was limited in Asia (Chen & Fortson, 2015). This treatment has attempted to change behavior and two-fold parent-child interaction by connection of therapeutic game and training of parents' behaviors. The theoretical foundation of this approach is based on the belief that since little children lack enough cognitive potential to change problematic behavior, interaction therapy, instead of direct involvement of children with

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problems, helps in changing the environment and boosts parent-child interaction.

Clinical experiments show that interaction therapy is concomitant with significant improvement of children's destructive behaviors and parents' anxiety. It leads to increasing parents' confidence in controlling their children's extreme behaviors (Abrahamse, Junger, Chavannes, Coelman, Boer & Lindauer, 2012; Hood & Eyberg, 2003; Nixon, Sweeney, Erickson & Touyz, 2003; Schuhmann, Foote, Eyberg, Boggs & Algina, 1998). Parent-child interaction therapy has been successfully used in decreasing separation anxiety disorder symptoms (Carpenter, Puliafico, Kurtz, Pincus & Comer, 2014) and anxiety disorders (Comer, Puliafico, Aschenbrand, McKnight, Robin, Goldfine, 2012; Tandon, Cardeli & Luby, 2009). Moreover, in two studies (Luby et al., 2011; Lenze et al., 2011), interaction therapy has been used with the aim of decreasing depression symptoms and has brought about encouraging results. A mental challenge that has attracted minds of child psychotherapists for a while is the existence of double vision for specifying the etiology of aspects of anxiety disorders.

Since the efficacy of medication for anxiety disorders is not clear (Wagner, 2003), and most parents avoid giving drugs to their children because of the side effects, the aim of the current study is to examine the effectiveness of parent-child interactive treatment in reducing depression, anxiety and stress in children.

Method

This study was a randomized clinical trial that was conducted from December 15, 2013, to November 20, 2014. The kids of this study included children whose parents referred them to

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Bijan Substance Abuse Treatment Center in Tehran, Iran. In this study, with regard to one-way direction of test and assuming Z=1.645, d= .2, α = .05, also power of test 1- β= .84 and using the following formula: $n= z + (1-B)/d^2 = (1.645 + .84)^2 / .25= 24.7 \approx 25$ in each group (Shadish, 2006), 54 children were selected based on knowledge of past studies and with scores above the cut-off point based on DASS 21 questionnaire. Participants were assigned to experimental and control groups randomly. Of these individuals, 1 participant of the experimental group and 1 participant of the control group stopped participating because of various reasons. Also, after the test, 1 participant of the experimental group and 1 from the control group abstained from giving the answer sheets. Finally, data of 50 participants was collected and analyzed. In this study, demographic questionnaire, the structured clinical interview for disorders DSM- IV (SCID) and DASS- 21 questionnaire were used.

Clinical Structured Interview for Disorders (SCID)

It is a clinical interview which is used for distinguishing axis-one disorders based on DSM-IV. The final coefficient for measures of SCID was reported at .60 (First, Spitzer, Gibbon & Williams, 1997). The identification agreement of this instrument in Persian language was useful for most of the special and general determinations with reliability higher than .60. Copa coefficient for all current determinations and determination of lifetime were .52 and .55, respectively (Sharifi, Assadi, Mohammadi, Amini, Kaviani, Semnani et al., 2009).

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Demographic Questionnaire

It is made by the researcher with the aim of applying and collecting individual information like age, education, marital status, employment and the period of drug use.

Depression, Anxiety and Stress Scale (DASS-21)

This scale was designed by Lovibond (1995) for measuring negative emotional states of depression, anxiety and stress. Each of its three subscales has 7 items. Depression subscale measures dysphoria, hopelessness, devaluation of life, self-depreciation, lack of interest/involvement, anhedonia, and inertia. Anxiety subscale measures autonomic arousal, skeletal-muscle effects, situational anxiety and subjective experience of anxious affect. Stress scale is sensitive to the level of chronic and nonspecific arousal and measures difficulty in relaxing, nervous arousal, whether easily upset/agitated, irritable/over-reactive and impatience. Lovibond and Lovibond (1995) evaluated the reliability of DASS for all three scales of depression, anxiety and stress using Chronbach's alpha (.91, .84 and .90, respectively). These results were similar to the ones obtained from the clinical population (Antony, Bieling, Cox, Enns & Swinson, 1998; Brown, Chorpita, Korotitsch & Barlow, 1997). The correlation of this questionnaire with Beck's depression questionnaire (r=.74) and Beck's anxiety questionnaire (r=.81) was reportedly high (Lovibond and Lovibond, 1995). Sahebi, Asghari and Salari (2005) reported the correlation of .70 between DASS depression subscale and Beck's depression questionnaire; correlation of .67 between DASS anxiety subscale and Zung's anxiety questionnaire and correlation of .49

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between DASS stress subscale and perceived stress test in Iran. In this study, Chronbach's alpha was calculated at .84.

Screening and baseline assessments were completed during 28 days before randomization. All candidates had structured clinical interview for axis I disorders according to the criteria. The data was collected by a Ph.D. holder in clinical psychology, a general practitioner (GP) and a nurse from December 15, 2013 to November 20, 2014 and the analysis of findings was done by a psychometrician. Moreover, qualitative data, including observations and clinical interviews, were collected by psychologist and evaluated by content analysis. For 10 weeks, PCIT was given to participants of the experimental group and participants of the control group were placed in a waiting list. Exclusion and inclusion criteria of research were precisely controlled. Inclusion criteria for children were: 1) Being in the age group of 4 to 6 years and 2) Fulfilling DSM-IV diagnostic criteria for anxiety disorder. Also, exclusion criteria for children were; 1) Having IQ defects and 2) Taking psychotherapeutic medicines of an equal unit doze for more than three months. All of the treatment sessions were recorded audibly to investigate the reliance on this treatment. Data collection in this study was in the form of using the current information, relative observations and interviews with the participants along with the use of questionnaire. Besides, the main body of the collected data was based on the paper and pencil method. All the interviews were digitally recorded and words were copied and codified. At the beginning of the study and in the form of a baseline, DASS-21 questionnaire in the form of parent format was used. Two weeks after finishing the treatment process, all

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children were evaluated for the second time and this time in the form of a post-test with the above-mentioned questionnaire.

Data analysis was conducted using IBM SPSS Statistics Version 20 **(**IBM Corp**.,** Armonk**,** NY, USA**)**. Descriptive statistics, chi-square and MANCOVA *m*odel were used in this study. Also, before performing the statistical analyses, normality of variable distribution was examined using K-S (Kolmogorov-Smirnov) and Leven tests. Results showed that there was not a significant difference between the two groups in distribution and equality of variances ($p>0.05$). Therefore, using statistical covariance analysis is possible. Moreover, the qualitative data that resulted from demographic evaluations were coded and analyzed using instrument of analyzing qualitative data, Atlas.ti, Version 5.2.

In this study, informed consent was obtained without coercion, threat, enticement and seduction and an individual's decision to refuse or accept to participate in the study was honored. In this study, an effort was made so that the research methods did not contradict the religious and cultural principles of participants and the participants were respected in all stages of design, implementation and reporting in terms of human dignity, respect and protection of their physical and mental integrity.

This ensured that conducting the research was a not cause delay for medical care for the participants.

Results

Demographic Features of Participants

So far as parent characteristic of the participants of the study is concerned, most subjects have educational level higher than

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diploma (experiment: 64%, control: 36%). Regarding the age index, most of the participants' age index is more than 25 years (experiment: 52%, control: 48%). Distribution of participants in employment status index revealed that most of the subjects were unemployed (experiment: 62%, control: 38%). With regard to financial status, too, most of the participants have income more than 200 dollars per month (experiment: 52%, control: 48%). The results of the chi-square test showed there was no significant difference between two groups in demographic traits ($p > .05$).

Investigation of Equality of Variances in Pre-test Stage

The calculation of Leven statistics to study the equality of respective variances represents the lack of significance of this index ($p > .05$). Therefore, using statistical covariance analysis to compare two groups is possible.

Table 1
Mean and Standard Deviation of Depression, Anxiety and Stress

State	Component	Mean	SD
Pre-test (experimental)	Depression	18.54	3.81
	Anxiety	17.24	2.21
	Stress	17.72	3.11
Post-test (experimental)	Depression	15.91	2.79
	anxiety	14.03	2.58
	Stress	15.09	3.28
Pre-test (control)	Depression	16.71	2.88
	anxiety	18.13	3.27
	Stress	17.39	2.51
Post-test (control)	Depression	15.91	2.24
	anxiety	18.39	2.51
	Stress	18.09	3.72

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According to the data in Table 1, the index of depression, anxiety and stress in the experiment group was significantly reduced compared to the control group.

Table 2
Results of the Covariance Analysis to Compare the Experimental and Control Groups

Scale	Sum of Squares	Df	Mean Squares	F value	Sig.	Eta Square Values
Depression	319.27	1	319.27	20.24	.001	.25
The Main Effect of Group	4878.98	1	4878.98	309.26	.001	.82
Residual Error	928.21	47	19.74	-	-	-
Anxiety	367.37	1	367.37	15.19	.001	.20
The Main Effect of Group	6221.79	1	6221.79	6221.79	.001	.80
Residual Error	1429.73	47	30.42	-	-	-
Stress	558.41	1	558.41	35.9	.001	.39
The Main Effect of Group	5407.98	1	5407.98	347.51	.001	.84
Residual Error	840.25	47	17.88	-	-	-

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According to the data in Table 2, the F-value is calculated and the significance level indicates that the experimental and control groups at post-test have a significant difference in depression components (p< .001, F= 20/24 (47, 1)). Therefore, PCIT has a significant effect on the components of depression. Furthermore, Eta square shows that 25% of the variance in depression is explained through PCIT in terms of the independent variable. In the component of anxiety, comparing the scores of post-test in experimental and control groups showed significant difference between them: (p< .001, F=15/19 (47, 1)). Therefore, this therapy has significant effect on anxiety. Eta squared also shows that 20% of the variance in anxiety is explained through PCIT in terms of the independent variable. Regarding the component of stress, there was a significant difference between the scores of the experimental and control groups: (p< .001, F=35/9 (47, 1)). PCIT has a significant effect on stress. Eta squared indicates that 39% of the variance in components of stress is explained through PCIT in terms of the independent variable. PCIT resulted in improving all three components of depression, anxiety and stress.

Discussion

As it is said, the current study was a randomized clinical trial that was conducted with the aim of investigating the effect of parent-child interaction therapy on children's depression, anxiety and stress. The results showed that interaction therapy could positively affect three indices including depression, anxiety and stress symptoms in children.

There is more support for therapeutic methods for older children because of the limitations of providing little children

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with these treatments. These limitations include lack of traits like metacognitive skills, language receptive skills and expressive abilities in childhood (Smith & Hudson, 2013).

Exploring review literature on the effects of interaction therapy on anxiety symptoms in PubMed scientific agency showed that there were several studies on this issue. Puliafico et al., (2012) used interaction approach in treating children's anxiety disorders. The results showed the efficacy of the respective treatment. In another study, parent-child interaction therapy has been successful in improving externally jeopardizing behaviors of children with delayed growth (Ros et al., 2016). This intervention had also been used for increasing reliance on the treatment process in Taipei families that contained hopeful results (Chen & Fortson, 2015). Moreover, there are some results in terms of efficacy of this treatment for depression disorder. For example, Luby et al., (2011) used interaction approach in treating a sample including 54 three to 6-year-old children who lacked metacognitive abilities in order to make use of cognitive-behavioristic treatment that contained successful results. Also in a study by Lenze et al., (2011) interaction therapy was successfully applied to lower depression symptoms in pre-elementary school children. There is a belief that there is a relationship between parents' beliefs and expectations with their children's anxiety disorders. In other words, parents' beliefs and expectations are reflected in their child's nurturing behaviors. In this line, parent-child interaction therapy was applied to a sample of abused children in United States with the aim of increasing their child nurturing behaviors. The results represented the efficacy of this intervention (Batzer et al., 2015). Kortlander et al., (1997) compared mothers having

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anxious children with mothers of children in the control group based on their expectations of their children during stressful conditions. Mothers of the anxious children showed higher expectations, lower adaptive skills and lower confidence in their management of tasks. In this line, Shamir-Essakow et al., (2005) reported a relation of anxiety symptoms in a sample of 104 pre-elementary school children who were selected based on high and low inhibitory behavioral index to mother anxiety and unsafe empathic style. There is a belief that many of parents' anxiety disorders are related to their over-control and their negative behaviors (Bögels & Brechman-Toussaint, 2006). This study was an attempt to investigate the effect of parent-child interaction therapy on children's depression, anxiety and stress. Results showed that the respective treatment had significant effect on the three components. These findings reflect stability of this treatment in an environment not limited to the individual. This can be highly effective in child-related treatments.

Limitations

This study had several limitations. The most important restrictions were as follows: 1) cross-sectional nature of the study limits the overall conclusion and comprehensive forecast and 2) doing a self-report assessment for sensitive subjects often creates a favorable social image and thus, self-reporting is associated with possible bias.

Abbreviations

SCID: Clinical structured interview for disorders, PCIT: Parent-child interaction therapy, DASS: Depression, anxiety and stress scale

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