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## The Effectiveness of Cognitive Intervention on the Anxiety and Distress in Children with Cancer

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### Abstract

The present research aims to investigate the influence of cognitive intervention of preparation of child and parent and deviation of child's attention on the intensity of reported anxiety, distress resulted from sampling or injection into cerebrospinal fluid in children who suffer from cancer.

This research is an experimental study with a pretest-posttest design and a control group. Statistical population of the research included all children with cancer who had referred to Bu Ali Hospital in Sari and Amir Kala Hospital in Babol. 30 children were selected and were randomly put into experiment and control groups. The children were met twice. In the first visit, both groups received normal care and in the second visit, the experiment group received cognitive intervention and the control group received normal care. Data were collected by means of demographic information, March-Cheops scale and current performance of children medicine. Data were analyzed by means of covariance analysis.

The results showed that cognitive interventions of preparation of child and deviation of child's attention can reduce anxiety and distress. Further, there is a positive significant correlation between reported anxiety and distress. Moreover, cognitive interventions influenced reduction in anxiety and stress in children who received sampling from cerebrospinal liquid.

**Keywords:** Anxiety, Distress, Pain, Cancer, Cognitive Intervention

### Introduction

Cancer is the disease of cells and its characteristic feature is unlimited and uncontrollable proliferation of cells which produce malignant neoplasm (Fallah et al., 2011). This disease is the third cause of mortality in Iran and 30000 people die from cancer in Iran every year (Najafi and Imami, 2011). Children cancer refers to cancers which are diagnosed in children below 15. There

are 12 malignant forms of cancer in children with different epidemiology, pathology and mortality rate. Malignant cell growth which is produced as a result of irregular and rapid growth and proliferation of a somatic cell is the commonest cause of mortality in 1-16 age range. Moreover, cancer accounts for mortality in 4% of children aged below 5 and 13% of children aged 5-15 years in Iran (Mehranfar et al., 2012).

Cancer brings many psychological disorders in children, including anxiety and distress. Being admitted to hospital causes fear and anxiety in children. Wili & Wong believe that hospital is a frightening environment for children and even adults (Farahmand, 1991). Anxiety is a multidimensional concept and has many aspects which are expressed as a physical, cognitive and emotional and inter-individual phenomenon. Anxiety is a warning signal and a slight amount of anxiety is necessary for conservation and keeping an individual from threats. However, in spite of the fact that it is considered as a kind of motivation factor, it causes distress and collapse of the structure of behavior when it exceeds its limits. Therefore, anxiety may put us out from life path so that we lose life control (Alden and Taylor, 2004). Psychological distress involves an individual's inability to get along with cognitive, emotional, psychological, growth barriers and recognition of others and maintaining social relations (Dohrenwend, 1980).

In family members, mother is the first person who establishes a direct and close relationship with a child not only in embryonic stage but also in this world. Mother's character and her interaction with a child are important in development and growth of a child (Afrouz, 1998; as quoted from Tabasi, 2006).

Cognitive interventions were used in the present research (parents' preparation booklet for management of children anxiety and childish story book with the subject of sampling from cerebrospinal fluid) in order to specify its influence on anxiety and distress in children with cancer.

Therefore, research hypotheses are as follows: 1. Cognitive interventions reduce anxiety in children with cancer. 2. Cognitive interventions reduce distress in children with cancer.

### **Methodology**

The present research methodology was experimental with a pretest-posttest design and a control group. The population under study included all children with cancer aged 8-12 who had referred to Bu Ali Hospital in Sari and Amir Kola Hospital in Babol from May 7, 2013 to July 9, 2013 in order to do LP/IT. They were 35 people in number. First we selected 30 of them by means of accessible sampling method and then we selected 15 people randomly and put them in experiment group and put the remaining people into control group.

### **Research Instrument**

1. Multi-dimensional anxiety scale: this scale was developed by March et al (1997). It is a self-reporting instrument with 39 items and is used for evaluation of anxiety symptoms in people aged 8-19. All questions of the questionnaire are based upon a 4-point Likert scale from zero to 3 (never, seldom, sometimes, and always). This scale measures four dimensions including social anxiety, isolation anxiety, and avoidance of harm and physical symptoms (Mashhadi et al., 2012). Reliability and validity of this scale were equal to 0.79 and 0.48 by means of internal consistency and retest validity methods in Mashhadi et al's research. Furthermore, correlation between this

scale and obvious anxiety scale and children depression scale were equal to 0.38 and 0.02, respectively. This indicates convergent and divergent validity of the scale. Results of confirmatory factor analysis also showed that 4-factor multidimensional children anxiety scale has a good fit in Iranian population with GFI equal to 0.91, AGFI equal to 0.90 and RMSEA equal to 0.03.

2. Cheops behavioral observation scale: in this research, Cheops's behavioral observation scale was used for measuring distress resulted from IT/LP medical painful action pains. This scale has been designed for measuring pain after surgery in children who cannot report their pains exactly. This instrument is a multidimensional behavioral scale (Narking et al., 2004). It is appropriate for children aged 1-12 (Blant et al., 2008). For scoring, this scale has 6 behavioral response codes: cry, face states, child's words, muscular tension, touch and ankles. There are several degrees for every behavioral response along with behavioral explanations. The graduations are not ordinal but total score of Cheops's observation scale is ordinal and ranges from 4 to 13 (Narking et al., 2004). Reliability and validity of this scale: reliability coefficient of this scale ranges from 90% to 99%. Construct validity of this instrument was verified by evaluation of variations in the scores of Cheops's behavioral observation scale before and after giving a pain-killer to children who experienced after-surgery pains. The scores had variations at expected directions. Criterion validity of this scale was calculated by two evaluation groups who measured after-surgery pains based on a visual-analogical scale and Cheops's scale. A considerable value of correlation was observed between evaluators (52%-81%) (Narking et al., 2004). Shahabi et al (2007) calculated reliability of this instrument via agreement of evaluators. Spearman coefficient was equal to 91% and no significant difference was observed between evaluators using Wilcoxon test ( $p=0.569$ ).

### **Implementation Method**

In the present research, the researcher went to children with cancer who should receive LP/IT according to physicians' prescriptions, in order to receive sample in Mahak therapy center clinic and Blood & Chemical Therapy ward of Bu Ali Hospital. This recognition was conducted by receiving information from IT room assistant and clinic secretary in Mahak Center and chemical therapy ward and assistant of children's center in Bu Ali Hospital.

If child and parent were in experiment group, parent's preparation booklet and story which was linked to taking sample from cerebrospinal fluid (refer to appendices) was given to parent at that day and he or she was asked to study the booklet three to seven days before the next referring and read the story for the child and mother should ask the child 1 to 3 days before the next referring to draw something for any part of the story and paint it and bring it with him or her. The next referring date for doing LP/IT was investigated by parent and nurse. Patient's case and treatment protocol were also studied by researcher. Contact number of the parent was received to investigate whether the story would be read for the child or not and to remind the parent to do the assignments and also the researcher be informed if any changed happened in treatment protocol and LP/IT. Anxiety and distress of child were measured in the first visit by Cheops's behavioral observation scale and March's children anxiety scale as a pretest at the time of sample taking or injection into cerebrospinal fluid (appendices). In the next referring of the child, before doing LP/IT in waiting room, a story book was read and any page of the child's drawing was rewarded by childish labels so that he was prepared for medical action. After receiving the story book and investigation of the child's drawing, we accompanied the child in the stage of taking

cerebrospinal fluid and played a popular cartoon (Tom and Jerry) using a DVD player at the time when the nurse and physician prepared for doing LP/IT test (audio-visual attention deviation). Cartoon played when the child came onto bed for taking sample or injection. The child was said: "we can see a cartoon when the doctor is doing his work".

In the control group, just like experiment group, demographic information and other necessary information were collected as criteria for participation in the experiment in the first visit. Anxiety of children was measured by March's children anxiety scale 3 to 5 minutes after medical test and distress of the children was measured by Cheops's behavioral observation scale as a pretest in the first visit. In the next referring, all scales were implemented as posttest without any intervention (child's preparation and information booklet via drawing and story related to medical action and watching TV cartoon). In Bu Ali and Amir Kala medical centers, EMLA local analgesic cream and if it was not present, Ztlogel containing 2% Lidokaeen was rubbed in both experiment and control groups one hour before doing LP/IT by the assistant on needle penetration spot. In the end, all children were given small rewards. In Bu Ali and Amir Kala Hospitals, the researcher provided these conditions on his own so that children in both centers received the same standard care.

### Findings

In descriptive statistics, indices like mean, standard deviation and ... were used. In inferential statistics, covariance test was used. In this study, 30 children aged 8-12 took part. Distribution of relative frequency showed that age average of the children was 10 and minimum age was 8 and maximum age was 12. Both control and experiment groups contained 15 people.

**Table 1** Descriptive data for scores of distress in pretest and posttest

Variable	pretest		posttest	
	mean	SD	mean	SD
Experiment group	11.44	1.13	6.77	0.833
Control group	11.00	0.833	11.55	0.726

Considering the data in table 1, mean values of control and experiment groups are not so different in pretest stage but in posttest stage, the experiment group indicates a tangible change in distress score in comparison with pretest and in comparison with posttest of control group.

**Table 2.** Descriptive data for scores of anxiety in pretest and posttest

Variable		pretest		posttest	
		mean	SD	mean	SD
anxiety	Experiment group	4444.98	12694.3	5556.78	81187.5
	Control group	3333.98	34521.2	4444.100	71184.3

Considering the data in table 2, mean values of control and experiment groups are not so different in pretest stage but in posttest stage, the experiment group indicates a tangible change in anxiety score in comparison with pretest and in comparison with posttest of control group.

Variable		Shapiro Wilk test		
		value	df	Significance level
Distress	experiment	899.0	9	248.0
	Control	823.0	9	087.0
Anxiety	experiment	957.0	9	771.0
	control	968.0	9	879.0

**Table 3:** investigation of normality of data distribution using Shapiro Wilk test

Considering table 3 and Kolmogrov-Smearnov test results, because values obtained for both groups are not significant in 0.05 levels, the intra-group variances equality condition hold and data distribution is normal.

**Table 4:** results of Levene's test for investigation of homogeneity of variances of intra-group scores of respondents (n=15)

variable	F	df1	df2	Sig.
distress	0.303	1	16	0.589
anxiety	0.457	1	16	0.051

Considering the fact that Leven's F statistic is not significant in  $\alpha=0.05$  level, the homogeneity of data variances and regression slope holds.

**Hypothesis one:** Cognitive interventions influence anxiety in children who suffer from cancer.

**Table 5.** Results of covariance analysis for the first hypothesis (N=15)

Source of variations index	Sum of squares	df	Mean of squares	F	sig	eta	Test power
Covariance impact	500.144184	1	5.144184	834.6063	000.0	997.0	000.1
Group impact	056.2156	1	056.2156	675.95	000.0	850.0	000.1
error	444.380	16	778.23				
Corrected total sum	000.146721	18					

Considering data in table 5,  $F=90.675$  is significant in  $\alpha=0.05$  and degree of freedom equal to 1 and 16. Therefore, it can be concluded that cognitive interventions influence anxiety in children with cancer. Eta value shows that the influence of cognitive intervention on anxiety of patients is equal to 85%. Test power is equal to 1 and indicates that the samples are enough. Therefore,

the first hypothesis is supported in 99% certainty level. A comparison of mean values of control and experiment groups reveals that mean value of the experiment group reduced in posttest. Therefore, it can be said that cognitive interventions influenced anxiety in children with cancer.

**Hypothesis two:** cognitive interventions influence distress in children with cancer.

**Table 6:** results of covariance analysis for the second hypothesis (N=15)

Source of variations index	Sum of squares	df	Mean of squares	F	sig	eta	Test power
Covariance impact	500.1512	1	500.1512	000.2475	000.0	994.0	000.1
Group impact	722.102	1	722.102	091.168	000.0	913.0	000.1
Error	778.9	16	611.0				
Corrected total sum	000.1625	18					

Considering the results summarized in table 6,  $F=168.091$  and degree of freedom (1, 16), the F value is significant in  $\alpha=0.05$  level. Therefore, it can be concluded that cognitive interventions influence distress in children with cancer. Eta value indicates that the impact size of cognitive intervention on distress in children with cancer was equal to 91.3%. Test power is equal to 1 and indicates that the samples are enough. Therefore, the second hypothesis is supported in 95% certainty level. A comparison of mean values of control and experiment groups reveals that mean value of the experiment group reduced in posttest. Therefore, it can be said that cognitive interventions influenced distress in children with cancer.

### Discussion

The present research aimed to investigate the influence of cognitive interventions (information and preparation booklet, deviation of attention using TV cartoons while receiving medical actions, drawing and painting and reading short story about taking sample from cerebrospinal fluid). On anxiety of sampling and injection into cerebrospinal fluid and distress in children who suffer from cancer. Considering the negative impacts of anxiety at the time of sampling or injection into cerebrospinal fluid and adverse impacts on performance of children with cancer, it is important to pay attention to psychological interventions and helps reduce their anxiety and distress.

Concerning the first hypothesis "cognitive interventions influence anxiety in children with cancer.", covariance analysis for anxiety showed that cognitive interventions significantly reduce anxiety in children with cancer. Findings in tables 2 and 5 show that implementation of cognitive interventions (information and preparation booklet, deviation of attention using TV cartoons while receiving medical actions, drawing and painting and reading short story about taking sample from cerebrospinal fluid) had a positive and significant impact on anxiety in children with cancer. Statistical relationship between cognitive intervention and children anxiety was significant in  $p=0.05$  level. This result is consistent with the results of previous studies including the research conducted by (Briyer et al., 2001). They investigated the role of preparation of children in reducing anxiety resulted from surgery. Giving rewards to children for doing

courageous behaviors while being examined or treated or receiving painful actions like IT/LP can reduce sense of fear from physicians and hospital and increases treatment quality (Lafzi, 2001). In another similar research, Prabhakar et al (2007) compared the impacts of attention direction deviation (audial and audio-visual) on management of anxiety in children in dentists. The results showed that audio-visual attention deviation technique is more effective than the other technique in reducing children anxiety.

Concerning the second hypothesis "cognitive interventions influence distress in children with cancer", covariance analysis showed that cognitive interventions significantly reduced distress in such children. Findings in tables 1 and 6 show that implementation of cognitive interventions (information and preparation booklet, deviation of attention using TV cartoons while receiving medical actions, drawing and painting and reading short story about taking sample from cerebrospinal fluid) had a positive and significant impact on distress in children with cancer. Statistical relationship between cognitive intervention and children distress was significant in  $p=0.05$  level. this result is consistent with the results of studies conducted by Brown et al (2009). They conducted a random clinical study and investigated the influence of giving Nitrogen Mono Oxide in Oxygen along with interactive film (for deviating the child's attention) on reducing behavioral distress resulted from aggressive actions. The results showed that cognitive interventions reduce distress resulted from painful actions. This is consistent with the results of studies conducted by (Layousi and Hetira, 1999; Kazak et al., 1996; Tavassoli, 2008; Aghdami, 2008). The cognitive aspect of the subject is important in investigation of the results. Since patients with negative compatibility express many automatic thoughts and these individuals pay attention to negative aspects of environment, they may experience distress and anxiety. Everything that can draw their attention can be used as a primary coping strategy. Simple methods of attention deviation can be helpful especially in anxious individuals (Mouri and Greyer, 2002).

Theoretical roots of attention deviation indicate that this strategy is effective when its use results in lesser attention to anxiety resource (for instance a needle) (Mac Kal and Malot, 1984, as quoted from Mac Lauren and Kohen, 2005). Situations which are considered as potential threats for an individual's security and comfort may produce many physiologic responses. For instance, Reim and Litvak (1969) showed that a respondent expresses physiologic stimulation only by thinking about a painful stimulant. Our beliefs and thoughts are important elements because they make individual vulnerable to psychological pressure.

It seems that cognitive strategies can draw attention towards a neutral or good stimulant and prevent from negative thoughts and distress. This in part reduces negative emotions and distress (Bragado, 1997).

According to the discussions, it seems that cognitive strategies can prevent from negative emotions and anxiety in painful aggressive actions by influencing cognitive, emotional and physiologic dimensions. As it was observed, cognitive interventions were able to reduce anxiety resulted from medical actions. Anxiety and its symptoms control can result in successful treatment of children with cancer and improve their psychological health.



## References

- Smith, H., and Kol Hep, B. (1990). Fear in children. Translated by Leila Lafzi (2001), Tehran: Association of Parents and Teachers press.
- Aghdami, M. (2008). Investigation of the influence of thought deviation on school children pain who receive Tonsikeltomi. Master degree thesis in nursing teaching (children branch) major, medicine faculty, Tarbiyat Modarres University, Tehran.
- Tavassoli, H. S. (2008). A comparative investigation of the influence of familiarization game and deviation of thought on pain and anxiety of injection procedures and parents' satisfaction in children before school age with talasemi, Guilan Province. Master degree thesis for nursing teaching major, medicine faculty, Tarbiyat Modarres Univeristy, Tehran.
- Farahmand, H. S. (1991), an investigation of factors which dissatisfy school children who are admitted to children wards in Tehran educational hospitals. Master degree thesis in Family and Child Hygiene Nursing major. Nursing faculty, Iran medical sciences faculty, Tehran.
- Tabasi, A. (2006). An investigation of relationship between strictness and shild-raising styles in freshmen in Al-Zahra University. Master degree thesis. Faculty of psychology and educational ciences, Al-Zahra Univeristy.
- Fallah, R., Golzari, M., Dastani, M., Mousavi, M., Aldin, Z. A., and Akbari, M. (2011). Influence of spiritual group intervention on improvement of hope and health in women with breast cancer. Scientific journal of thought and behavior. 5, 69-80.
- Mashahdi, A., Soltani, R., Mirdoroughi, F., and Bahrami, B. (2012). Psychometrici features of multidimensinal children anxiety scale. Quarterly of applied psychology. 1 (21), 70-87.
- Najafi, L., and Imami, H. (2011). Case study of breast cancer, apparent and genetic similarities. Seventh international congress on Breast Cancer. 69.
- Alden, L. E., Taylor, C. T. (2004). Interpersonal in social phobia. Clinical psychology Reviw. 24: 857-882.
- Blount, R. L., McCormick, M. L., MacLaren, J. E. (2008). Preparing Children for Invasive Procedures and Surgery. In: Berde CB. Pain in Children. Humana Press U.S.A. 93-96.
- Bragado, C., Marcos, F. A., & Marcos, F. A. (1997). Psy chological treatment of evoked pain and an xiety by invasive medical procedures in paediatric oncology. Psychology in spain ,1,1,17-36.
- Bryer, M. P. (2001). Combined modality therapy. In: Perry MC. The chemotherapy source book 3 rd ed. Lippincott Williams & Wilkins U.S.A: 14.
- Dohrenwend, B. P., Shrout, P. E., Egri, G., Mendelsohn, F. S. (1980). Nonspecific psychological distress and other dimensions of psychopathology: Measures for use in the general population. Archives of General Psychiatry. 37(11):1229-65.
- Kazak, A. E., Penati, B., Boyer, B. A., Himelstein, B., Brophy, P., & Waibel, M. K. (1996). A randomized controlled prospective outcome study of a psychological and pharmacological intervention protocol for procedural distress hn pediatric leukemia. Journal of prodiatric psychology, 21, 5, 615-631.
- Lioosi, C., & Hatira, P. (1999). Clinical hypnosis versus cognitive behavioral training for pain management with pediatric cancer patients undergoing bone marrow aspirations. The international Journal of clinical and Experimental Hypnosis, 47, 104-116.

- Mac laren, J. E., & COHEN, L. L. (2005). A Comparison of parental reassurance versus distraction on child distress and coping during immunizations. *children's Health care*, 29, 3, 161 – 177.
- Mehranfar, M., Younesi, J., Banihashem, A. (2012). Effectiveness of Mindfulness-Based Cognitive Therapy on Reduction of Depression and Anxiety Symptoms in Mothers of Children with Cancer. *Iran J cancer prev.* 5(1), 1-90.
- Moorey, S., & Greer, S. (2002). *cognitive – behavior therapy for people with cancer* . U K : Oxford university press.
- Naar-King, S., Ellis, D. A., Frey, M. A. (2004). *Assessing children's well-being: A handbook of measures*. Lawrence Erlbaum Associates U.S.A.
- Prabhakar, A. R., Marwah, N., & Raju, O. S. (2007). A Comparison between audio and audio – visual distraction techniques in managing an xious pediatric dental patients . *J Indian soc pedod prev Dent*; 25, 4 , 177 – 82.