Original Article

Group Cognitive-Behavior Therapy and Supportive Art and Sport Interventions on Bam Earthquake Related Post Traumatic Stress Symptoms in Children: A Field Trial

Javad Mahmoudi-Gharaei, MD[1]
Mohammad Reza Mohammadi, MD[1]
Mohammad Taghi Yasami, MD[2]
Narges Josheghani, MD[1]
Fatemeh Naderi, MS[3]

1 Department of Child and Adolescent Psychiatry, Psychiatry and Psycholog Research Center, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran
2 Department of psychiatry, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3 Hormozgan University of Medical Sciences, Bandarabas, Iran

Corresponding author:
Javad Mahmoudi-gharaei, MD
Assistant Professor of Child & Adolescent Psychiatry, Psychiatry & Psychology Research Center, Roozbeh Hospital, South Kargar Ave., Tehran, Iran.
Tel: +98-21-55412222
Fax: +98-21-55419113
Email: jmahmoudi@tums.ac.ir

Objective: The main objective of this study is to evaluate the effect of psychological therapies and art/sport supportive interventions separately, and in combination on post traumatic stress symptoms in children and compare them with a control group .
Methods: In a field trial, we evaluated the efficacy of group behavioral therapy, art and sport supportive interventions in Bam earthquake children survivors with PTSD symptoms and compared it with a control group. Before and after interventions we evaluated the PTSD symptoms using K-SADS-PL semi-structural interview for each group and compared them using appropriate statistical methods.
Results: The participants were 200 individuals who were randomized in four groups according to an intervention program including: Group behavioral therapy; Group behavioral therapy plus art and sport interventions; Art and sport interventions; and control group. During the interventions, 39 individuals were excluded. None of the participants had severed PTSD or other psychiatry disorders that needed pharmacological interventions. In interventional groups, the reduction of total PTSD symptoms and the symptoms of re-experience, avoidance and hyper arousal was not statistically significant. However, in the control group, the PTSD symptoms increased during the study which was statistically significant.
Conclusion: Group behavior therapy and supportive interventions (art and sport) may have preventive effects on PTSD symptoms.

Keywords: *Art, Behavior therapy, Child, Earthquakes, Group Therapy, Post traumatic stress disorder, Sports*

Iran J Psychiatry 2009; 4:85-91

Following natural disasters, most of survivors show significant clinical symptoms including anxiety, depressive and posttraumatic stress symptoms (1). Commonly, PTSD is the first reaction of survivors to the traumatic experience and is a predictor for long-term subsequent mental and physical health consequences (2). In two different studies on 430 and 586 survivors of the earthquake in Turkey in 1999, the occurrence of mental problems such as PTSD was directly associated with the severity of traumatic experience and also the distance from the trauma area (3, 4).
In a study in Taiwan, 21.7% of the 323 earthquake survivors had PTSD symptoms. Mousavi et al have shown that 45.1% of the adolescents exposed to Bam earthquake in Iran are affected by PTSD (5). However, the prevalence range of PTSD from natural disasters is children (6). The comorbidity with other psychiatric disorders may cause more disabilities especially in estimated to be from 2.5–33% in adults and 28–70% in children and adolescents. The most common comorbidity is major depressive disorder. In a study on 218 student survivors of the earthquake in Armenia, the severity of PTSD symptoms was associated with the severity of depressive symptoms (7). In another study on Bam earth quake survivors, PTSD was a predictor for major depressive and generalized anxiety disorders in adolescents (8).
Therefore, therapeutic interventions are essential to reduce the symptoms of PTSD severity and psychological morbidities after disasters. Pharmacological (9, 10) and nonpharmacological interventions including individual and group supportive psychotherapy and cognitive behavioral therapy are the most frequent therapeutic interventions in treatment of PTSD patients (11, 12 and 13). Smith et al have introduced a kind of short term group cognitive behavioral therapy for the treatment of PTSD (14). Yule and et al have documented the efficacy of this

method in several studies including the girls' survivors of Jupiter ship accident and the children survivors of Athens 1999 earth quake (15).
Psychological debriefing is another group intervention for prevention of posttraumatic symptoms during 48 to 72 hours after traumatic events using methods such as emotional regulation, normalization of responses and training of normal psychological reactions to traumatic experience in a supportive manner (16 , 17).
Previous studies in Iran and on the Bam earthquake, have evaluated the efficacy of these kinds of interventions (18-27). One study has evaluated the preventive effect of group debriefing in individuals who were affected by different trauma, and the results showed no difference between the case and control groups (28).
Fakour and et al in a study have evaluated the efficacy of this intervention program in Bam earthquake survivors. According to this study, a session of group debriefing in addition to 3 sessions of group CBT can reduce the severity of avoidance symptoms of PTSD in different age groups (29). However, they didn't compare their results with the control group.
Many nongovernmental organizations use supportive interventions including art and sport activities after natural disasters. In different studies, the efficacy of art interventions and art therapy has also been reported. In a study, art interventions have been used in children and adolescents with PTSD symptoms to create trust, decrease resistances and promote memory functions (30) ; and they showed positive effects.
Art interventions and drawings have been used to facilitate the emotional functions in chronic trauma (31).
According to these explanations, the main objective of this study is to evaluate the effect of short term group CBT and art/sport supportive interventions separately and also in combination on post traumatic stress symptoms in children and compare them with a control group.
We have published the results of comparison of short term group CBT with the control group previously in a local journal (32) and now we present the total results of the study.

Materials and Methods

In this study, in a field trial, we have evaluated the efficacy of debriefing plus short term group CBT, art and sport supportive interventions separately and also in combination in comparison with a control waiting group.
Four groups of children aged 6 -11 years enrolled in the study from 4 separate geographic areas which were randomly selected between the total numbers of the 13 geographic areas of Bam. Screening was performed as a part of an outreach program in tent visits which screened affected children to detect PTSD symptoms by a psychiatry interview based on Statistical Manual of Mental Disorders- Fourth Edition-Text Revised (DSM-IV-TR) criteria. Children with at least two PTSD symptoms were included in the study; and those with sever physical disabilities or psychiatric disorders that needed pharmacological interventions were excluded. Oral consent was obtained from caregivers and the participants and then demographic characteristics were recorded in the demographic questionnaires.
One of the following interventions was considered for each group in each geographic area separately: psychological interventions included a session of debriefing and three sessions CBT (group1), art and sport activities according to the program of Terre Des Hommes (TDH: A Non Governmental Organization that supported children with art and sport activities) (group2), psychological interventions plus art and sport activities (group3) and a control waiting group (group4).
Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS), a semi structural interview (33) was used to evaluate the symptoms presence before and after interventions. K-SADS is a diagnostic tool for the diagnosis of children psychiatric disorders including PTSD. This interview contains screening questions about any kinds of stressful events such as traffic accidents, natural disasters, domestic violence, kidnapping etc. It also contains diagnostic questions about PTSD symptom clusters including re experience, avoidance and hyper arousal symptoms.
According to a study by Ghanizadeh and Mohammadi it has acceptable psychometric properties for the Iranian population (34).

Procedure

Screening was performed from the first tent in each area and continued until the total sample was completed (50 participants in each area) by a psychiatrist; children with at least two symptoms of PTSD were enrolled in the study. Then the subjects' demographic characteristics were recorded and they were interviewed according to the K-SADS and their PTSD symptom scores were recorded before interventions at the beginning of the first session. Psychological interventions were performed in 90 minutes sessions for each group weekly by a trained psychiatrist and a psychologist as the group facilitator and co-facilitator respectively. Psychological interventions have contained 8 to 12 participants and were done in a tent near to the living location of the participants.
Psychological interventions were according to Center for Crisis Psychology Norway Model (14) and the facilitators were trained in a workshop which undergone in Bam by mental health office of Ministry of Health and Medical Education of Iran.

The processes of therapeutic sessions

The therapeutic sessions were according to the following plan:

First session: Psychological debriefing

A group meeting which contained a session structure as follows: introduction, facts, thoughts, sensory impressions, reactions, normalization, future planning and closure phases. The main aims of this session were the prevention of unnecessary after-effects, hopefully accelerate normal recovery, and stimulate group cohesion, support group spirit and motivation for life. The participants had the chance to talk about their traumatic experience and express their emotions in a supportive environment, coming to realize that their experience was not unique.

Second session: Intrusion

The main goals of this session were educating and normalizing common reactions, and learning techniques for mastery of intrusive thoughts and images. This session helps the participants to manage their intrusive thoughts about their traumatic experience using imaginative techniques related to intrusive thoughts and event recalling including screening techniques, hand and distance, framing and positive counter image.

Third session: Arousal

In this session, the facilitators educated the participants about arousal symptoms following exposure to traumatic events; and the participants were taught techniques such as relaxation training, breathing control and guided imagery.

Forth session: Avoidance

The main goals of this session were education techniques including imaginal exposure, in vivo graded exposure to the participants to manage and reduce the avoidance symptoms.

Sport activities were group games such as football, volleyball, and native plays; art activities contained drawing, making flowers and dolls which were performed two sessions per week for each group. There were no limitations for group size and the program was a TDH supportive program. TDH was a European nongovernmental organization which had several centers in Bam after the earthquake and had a uniform program in all its tents. Art and sport activities were the main activities.

Since the aim of our study was the efficacy assessment of NGO's supportive activities, no changes occurred in their programs. After interventions, symptoms evaluation was performed again and data analysis was performed using Kruscal-wallis, Mann-whitney, Wilcoxon and t-paired statistical methods using SPSS-11.5 software for Microsoft windows. At the end of the study, we performed the psychological interventions for the control group and the group with art and sport activities.

Results

A total number of 200 survivors of Bam earthquake (aged 6 to 11 years) entered the study. Subjects were randomized in 4 groups according to an intervention program including: group with therapeutic interventions, group with art-sport plus therapeutic interventions, group with art-sport interventions, and group with no intervention. During the intervention, 39 individuals from the children group were excluded mainly due to change of residence area and migration and also their parents' noncompliance to continue interventions and we had no chance to record the main reasons of the drop out for each participant because of the disaster conditions.

Table 1 demonstrates the demographic characteristics of the participants.

In comparison of demographical characteristics based on Kruskal-Wallis, Mann-Whitney and ANOVA models of analysis; the four groups had no significant differences in age and the level of education. ($P > 0.05$)

The groups were compared before interventions for stress severity indexes by Kruskal-Wallis and Mann-Whitney tests. The four groups were compared for exposure to the earthquake event ($p= 0.396$) history of entrapment under debris ($p= 0.188$), physical injury ($p= 0.567$) physical disability ($p= 0.357$) and loss of a first-degree relative because of the earthquake ($p= 0.043$). Post hoc analysis showed that the difference of first degree relative loss between groups 3, 4 and between groups 2 and 4 is statistically significant .

Within group comparisons

Distribution of variables was compared with normal curve. Re experience and avoidance symptom distribution was near to normal curve but hyper arousal and the sum of the PTSD symptom distribution did not fall in to the normal curve. Therefore in data analysis, non parametric methods were used in addition to parametric methods.

The comparison of PTSD symptoms before and after interventions was done for each group using t-paired test.

After interventions, the mean changes of total PTSD symptoms were not statistically significant in the intervention groups. ($p>0.05$). However, the mean of PTSD symptoms increased in the control group , and was statistically significant. ($p=0.001$). These results showed that the mean of re-experience symptoms decreased in the psychological intervention group significantly ($p=0.018$).

Avoidance symptoms increased in the control group ($p=0.000$). In other groups, these differences were not statistically significant. For hyper arousal symptoms; the mean difference was not statistically significant in all groups after interventions. Nonparametric Wilcoxon analysis showed the same results.

Between group comparisons

First of all, the difference scores of PTSD symptoms was compared using Kruscal-Wallis analysis between the groups at the baseline; and each two groups were compared using Mann-Whitney statistical analysis.

Table 1. Demographic characteristics of participants

Demographic characteristics	Statistical index	Group1	Group2	Group 3	Group4	Total
Number	Before intervention	50	50	50	50	200
	After intervention	38	43	38	42	161
Age	Mean	07.9	4.9	4.9	9	27.9
	SD	6.1	2.1	3.1	7.1	9
Gender(%)	Boy	6.31	9.34	7.44	5.40	9.37
	Girl	4.68	1.65	3.55	5.59	1.62
Level of education	Elementary	100	100	100	6.97	4.99
	Guidance	-	-	-	4.2	6.0
Occupations (%)	Student	100	100	100	6.97	4.99
Father's occupation (%)	Employed	8.94	79	2.84	2.95	2.88
	Unemployed	6.2	7.4	9.7	4.2	3.4
	Passed	6.2	3.16	9.7	4.2	5.7
Prior psychiatric disorder	Yes	3.5	7.4	-	-	5.2
	No	7.94	3.95	100	100	5.97

Table 2. Comparison of symptoms of PTSD between each two groups

Groups	Comparative group	Re experience		Avoidance		Hyper arousal		Total symptoms	
		Z	p	Z	p	Z	p	Z	p
Group1	2	-25.1	211.0	-07.1	283.0	-66.0	507.0	-29.0	767.0
	3	-56.0	571.0	-39.0	695.0	-58.1	113.0	-34.1	180.0
	4	-06.3	002.0	-50.2	012.0	-79.0	425.0	-36.3	001.0
Group2	1	-25.1	211.0	-07.1	283.0	-66.0	507.0	-29.0	767.0
	3	-49.0	620.0	-84.0	396.0	-29.2	022.0	-34.1	180.0
	4	-18.2	029.0	-28.3	001.0	-46.1	144.0	-35.3	001.0
Group3	1	-56.0	571.0	-39.0	695.0	-58.1	113.0	-34.1	180.0
	2	-49.0	620.0	-84.0	396.0	-29.2	022.0	-34.1	180.0
	4	-48.2	013.0	-23.3	001.0	-68.0	496.0	-73.2	006.0

Between group comparison showed significant differences in total symptom of PTSD scores (p=0.032) and also in avoidance symptoms (p=0/005). These differences were detected between interventional groups and the control group. However, no differences were detected between the 3 interventional groups. Interventional groups showed no significant differences with each other and with the control group in re experience (p=0.133) and hyper arousal symptoms (p=0.930).

The difference of scores, before and after intervention, was calculated for each cluster of symptoms and this difference was compared between the 4 groups and between each two groups separately .

According to Kruscal-Wallis analysis, the difference of before/ after scores was statistically significant for total PTSD symptoms (p=0.001) , re experience (p= 0.010), and avoidance (p=0.002) but was not significant for hyper arousal.(p=0.129).

Table 2 illustrates the comparison between each two groups using Mann-Whitney statistical analysis.

Discussion

Based on the results of this study, psychological interventions, art and sport supportive interventions and using art, sport and psychological interventions conjointly didn't decrease mean score of total symptoms of PTSD significantly, but could prevent the progression of the symptoms.

Increment of PTSD symptoms was obvious during the study in the control group (group4),. In the other 3 groups, change of mean score of PTSD symptoms was not statistically significant but it did have a significant difference with the control group.

The evaluation of re experience, avoidance and hyper arousal symptoms separately shows that symptom reduction is significant only in group1 for re experience and in other groups although the mean symptoms had been decreased. However, this decrease was not statistically significant.

Concerning hyper arousal symptoms, interventional groups had no statistical significant differences with the control group, and it seems that the efficacy of interventions were mainly on re experience and avoidance symptoms and not on hyper arousal symptoms.

Interventional groups showed no differences except for hyper arousal (group 2 and 3).

Different studies have evaluated the efficacy of psychological debriefing and cognitive-behavioral therapy with other methods and with various tools separately.

In studies which dealt with the efficacy of psychological debriefing, the results were different.

(35). Mc Farlane reported that the effect of these interventions is limited in short time periods (35). Opposite to this opinion is the report of positive effects of these interventions in Jenkins and Shalev studies (35). In a study, the efficacy of group therapy was evaluated following 6 months after natural disasters using psychological debriefing. Symptoms decrement was reported in both case and control groups (17). In another study, psychological debriefing was used for fire workers and police officers and it decreased PTSD occurrence in the intervention group (36). In one Meta analysis study, the efficacy of such interventions was evaluated for prevention of chronic PTSD and other disorders related to trauma. Based on the mentioned study's results, these interventions didn't decrease PTSD symptoms and other disorders related to trauma (37). In our study, we investigated the efficacy of the combination of debriefing and group CBT as a psychological intervention; therefore we can not make any judgments about the pure effect of debriefing based on our results.

Studies that have evaluated cognitive-behavioral methods in children, adolescents and adults have mostly reported positive results (38, 39 and40).

In a study on 231 survivors of Turkish earthquake with PTSD, 3 to4 sessions of short-time behavioral therapy 13 months after the earthquake decreased all the PTSD symptoms (13). In Bisson's study which evaluated the efficacy of 4 session cognitive-behavioral interventions after physical injury, the indexes of (IES) scale was decreased (41). In children, the efficacy of such interventions has been evaluated too;4 sessions of such therapeutic interventions have deceased PTSD symptoms in children who had PTSD symptoms even 2 years after the occurrence of natural disasters (42). In another study, Yul and his colleague, evaluated the efficacy of these interventions on girls, survivors of the sunken Jopiter ship, they showed that this kind of therapeutic interventions reduced IES scale indexes during 5 to 9 months period (15). As we mentioned before, in our study a combined package of psychological debriefing and Group CBT has been used and the pure effect of each intervention was not detected. According to our results, although psychological interventions could prevent PTSD symptoms to become worse, they showed no significant reduction on PTST symptoms. These results also showed that the professional psychological interventions have the same effect as the supportive art/sport nonprofessional interventions. These results may depend on the complex situation of large scale disasters which did not permit for standard and deep therapeutic interventions because of personal and environmental limitations such as short duration of training, performing interventions in tents near the destroyed buildings and roads with many noises and other kinds of disruptive factors.

Limitations

Different factors may have limited the effect of these results. One of them is using K-SADS-PL semi structural interview to detect the effect of interventions. K-SADS is a diagnostic tool and its use as outcome measure may limit the results. We expected that therapeutic interventions in comparison to the supportive interventions such as art and sport activities would show more therapeutic effect, but this difference was not significant in the Bam study. This result can be limited by the other confounding variables such as unsuitable physical environment for performance of interventions, few number of therapeutic sessions, secondary stressful factors which may be localize in one group randomly. The small sample size in each therapeutic group is another limitation which may affect the results. We suggest random sampling methods with a larger sample size for future studies.

Conclusion

Therapeutic interventions including one session of psychological debriefing and 3 sessions of group behavior therapy can prevent aggravation of PTSD symptoms. In addition, art and sport supportive interventions could prevent aggravation of symptoms of PTSD. In interventional groups, the reduction of total PTSD symptoms and the symptoms of re-experience, avoidance and hyper arousal was not statistically significant. However, the PTSD symptoms increased during the study in the control group and it was statistically significant.

Acknowledgement

This study was supported by psychiatry and psychology research center (Tehran University of Medical Sciences). We appreciate the kind help of the Mental Health Office of Ministry of Health and Medical Education and staff of Bam psychosocial supportive center and also the cooperation of TDH nongovernmental organization.

References

1. Livanou M, Basoglu M, Salcioglu E, Kalendar D. Traumatic stress responses in treatment seeking earthquake survivors in turkey. *J Nerv Ment dis* 2002; 190: 816-823.
2. March JS, Amaya-jackson L, Murray MC, Schulte A. Cognitive-behavioral psychotherapy for children andadolescent with posttraumatic stress disorder after a single-incident stressor. *J Am Acad Child Adolesc Psychiatry* 1998; 37: 585-593.
3. Salcioglu E, Basoglu M, Livanou M. Long-term psychological outcome for non-treatment-seeking earthquake survivors in turkey. *J Nerv Ment dis* 2003; 191: 154-160.
4. Kilic C, Ulusoy M. Psychological effects of the November 1999 earthquake in turkey: an epidemiological study. *Acta Psychiatr Scand* 2003;108:232-238.

5. Mousavi S, Mahmoudi-gharaei J, Bina M, Gholampour E, Eisar S. post traumatic stress disorder and general symptoms of anxiety in adolescent survivors of Bam earthquake. Iranian Journal of Psychiatry 2006; 1: 76-80.
6. Hsu CC, Chong MY, Yang P, Yen CF. Posttraumatic Stress Disorder among adolescent earthquake victims in Taiwan. *J Am Acad Child Adolesc Psychiatry* 2002;41: 875-881.
7. Goengian AK, Karayan I, Pynoos RS, Minassian D, Najarian LM, Steinberg AM, et al. Outcome of Psychotherapy among adolescents after trauma .Am J Psychiatr 1997 ;154 :536-542.
8. Mahmoudi-gharaei J, Mousavi S, Bina M, Gholampoor E, Eisar S. Depressive and general anxiety symptoms in adolescent survivors of Bam earthquake with post traumatic stress disorder: A case-control study. Iranian Journal of Psychiatry 2006; 1:117-122.
9. Friedman MJ. Current and future drug treatment for PTSD patients. *Psychiatr Ann* 1998; 28:461-468.
10. Argouropolos SV. The psychobiology of Anxiety disorders. *Pharmacol therap* 2000; 88: 213-227.
11. Perry BD, Ishnella A. Post traumatic stress disorder in children and adolescents. Curr Opin Pediatr 1999; 11: 310-316.
12. Pfefferbaum B. Post traumatic stress disorder in children: A review of the 10 years. *J Am Acad Child adolesc Psychiatry* 1997; 36: 1503-1511.
13. Basoglu M, Livanou M, Salcioglou E, Kalender D. A brief behavioral treatment of chronic post traumatic stress disorder in earthquake survivors: Result from an open clinical trial. Psychol Med 2003; 33: 647-654.
14. Smith P, Dyregrov A, Yule W. Children and disaster: teaching recovery techniques. Children and War Foundation, Bergen, Norway; 2002.
15. Yule W, Canterbury R. The treatment of post traumatic stress disorder in children and adolescents. *Int Rev Psychiatry* 1994; 6: 141-151.
16. Deabl M. Psychological debriefing. In: Nutt D, Davidsone JRT, Zohar J editor. Post-traumatic stress disorder. Martin Dunitz 2000;115-131.
17. Chemtob CM, Tomas S, Law W, Creminter D. Post disaster psychosocial interventions :A Field study of the impact of debriefing on psychological distress. *Am J Psychiatry* 1997;154 :415-417.
18. Mirzamani SM, Mohammadi MR. PTSD symptoms of survivors of an airline event in Teheran. Archives of Medical Science 2007; 3: 173-176.
19. Rahimi Movaghar A, Farhoudian A, Rad Goodarzi R, Sharifi V, Mohammadi MR, Yunesian M. [Prevalence of drug use and its changes in Bam earthquake survivors eight months after the earthquake]. Payesh 2007; 6: 209-217.
20. Khodayarifard M, Mohammadi MR, Parand A. Cognitive-Behavioral Family Therapy with Emphasis on Spiritual Therapy. Journal of Psychological Science 2007; 5: 305-317.
21. Farhoudian A, Sharifi V, Rahimi Movaghar A, Rad-Goodarzi R, Mohammadi MR, Yunesian M, et al. [The prevalence of posttraumatic stress disorder and its symptoms among Bam earthquake survivors]. Advances in Cognitive Science 2006; 8: 58-70.
22. Rahimi Movaghar A, Farhoudian A, Rad-Goodarzi R, Sharifi V, Yunesian M, Mohammadi MR. [A survey on changes in opioid use and risk factors in Bam earthquake survivors]. Tehran University of Medical Journal 2006; 64: 77-94.
23. Mohammadi MR, Ghanizadeh A, Moini R. Lifetime comorbidity of obsessive-compulsive disorder with psychiatric disorders in a community sample. Depress Anxiety 2007; 24: 602-607.
24. Mirzamani M, Mohammadi MR, Besharat MA. [Post traumatic stress disorder symptoms of children following the occurrence of Tehran city park disaster]. The Journal of Psychology 2006; 140: 187-198.
25. Mohammadi MR, Ghanizadeh A, Mohammadi M, Mesgarpour B. Prevalence of social phobia and its comorbidity with psychiatric disorders in Iran. Depress Anxiety 2006; 23:405- 411.
26. Mirzamani M, Mohammadi MR, Besharat MA. [Application of the PTSD symptoms scale (PSS) for Iranian PTSD patients]. Medical Journal of Islamic Republic of Iran 2006; 19: 345-348.
27. Farhoudian A, Rahimi Movaghar A, Rad Goodarzi R, Younesian M, Mohammadi MR. [A Study of changes in the use of illicit drugs and the related interventions in Bam during the first year after the Earthquake]. Hakim Research Journal 2006; 9: 52-57.
28. Rose S, Bisson J, Curchill R, Wessely S. Psychological debriefing for preventing PTSD. *Cochrane database Syst Rev* 2000 ;(2): CD000560.
29. Fakour Y, Mahmoudi-gharaei J, Mohammadi MR, Karimi M, Azar M, Momtaz-bakhsh M. [The effect of psychosocial supportive interventions on PTSD symptoms after Bam earthquake]. Tehran University of Medical journal 2006; 64: 55-64.
30. Bowers JJ. Therapy through atr.Facilitating treatment of sexual abuse. J Psychosoc Nurs Ment Health Serv 1992; 30 : 15-24.
31. Glister JA, McGuinness T. The art of therapeutic drawing. Helping chronic trauma survivers. J Psychosoc Nurs Ment Health Serv 1992; 30: 9-17.
32. Mahmoudi-gharaei J, Mohammadi MR, Bina M, Yasami MT, Fakour Y, Naderi F. [Behavioral group therapy effect on Bam earthquake related PTSD symptoms in children: a randomized clinical trial]. Iranian journal of pediatrics 2006; 16:25-34.
33. Kaufman J, Birmaher B, Brent D, Rao U, Flynn C, Moreci P, et al. Diagnostic Interview Kiddie-

SADS-Present and Lifetime version(K-SADS-PL);1996.
34. Ghanizadeh A, Mohammadi MR, Yazdanshenas A. Psychometric properties of the Farsi translation of the Kiddie Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version. BMC Psychiatry 2006; 15:10.
35. Arendt M, Elklit A. Effectiveness of psychological debriefing. *Acta psychiatr scand* 2001; 104: 423-437.
36. Smith CL Jr, de Chesnay M. Critical incident stress debriefings for crisis management in post traumatic stress disorders. *Med Law* 1994; 13: 185-191.
37. Van Emmerik AA, Kamphuis JH, Hulsbosch AM, Emmelkamp PM. Single session debriefing after psychological trauma: A meta analysis. *Lancet* 2002; 360: 766-771.
38. Van Etten ML, Taylor S. Comprative efficacy of treatments for post traumatic stress disorder: a meta-analysis. Clin Psychol Psychother 1998; 5: 126-145.
39. Wagner AW. Cognitive-behavioral therapy for post traumatic stress disorder applications to injured trauma survivors. *Semin Clin Neuropsychiatry* 2003; 8:175-187.
40. Cohen JA. Treating acute post traumatic reactions in children and adolescents. *Biol Psychiatry* 2003;53: 827-833.
41. Bisson JI, Shepherd JP, Joy D, Probert R, Newcombe RG. Early cognitive-behavioral therapy for posttraumatic stress disorder after physical injury. Randomized controlled trial. *Br J psychiatry* 2004; 184: 63-69.
42. Chemtob CM, Nakashima JP, Hamada RS. Psychological intervention for post disaster trauma symptoms in elementary school children: a controlled community field study . *Arch Pediatr Adolesc Med* 2002; 156 : 211-216.