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# Comparison of trauma-focused cognitive behavioral therapy and theory of mind: Improvement of posttraumatic growth and emotion regulation strategies

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## Abstract:

**BACKGROUND:** Assessing various therapeutic methods with the intention to decrease the problems relevant to abused children is of high significance. Accordingly, the present study seeks to compare the effectiveness of trauma-focused cognitive behavioral therapy (TF.CBT) with an emphasis on the theory of mind on posttraumatic growth and emotional regulation strategies in abused children.

**MATERIALS AND METHODS:** This quasi-randomized clinical trial study was done on 39 abused children who referred to welfare organization centers in Ahvaz – Iran. After randomized allocation, the TF. CBT and theory of mind method were implemented for two groups. Before and after the interventions, posttraumatic growth and emotional regulation strategies were assessed with using Kilmer's posttraumatic growth inventory and Garnefski emotional regulation questionnaire.

**RESULTS:** The study findings indicated that the mean of the posttraumatic growth and adaptive and maladaptive emotional regulation strategies in the TF.CBT group was significantly higher than that of other study groups ( $P < 0.001$ ).

**CONCLUSION:** TF.CBT can lead to increased levels of posttraumatic growth and improve emotional regulation strategies in abused children. Theory of mind method can also be effective in improving emotional regulation strategies.

## Keywords:

Child abuse, emotion regulation strategies, posttraumatic growth, theory of mind, trauma-focused cognitive behavioral therapy

## Introduction

Study results bring us to the conclusion that child abuse is of high prevalence throughout the world.<sup>[1]</sup> Numerous studies are done assessing the effects of grave accidents and disasters on children in the era of psychology which are mainly focused on the adverse outcomes of such events. The role of various traumatic events

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such as child abuse, bereavement, cancer, rape, surgery, and diseases are studied regarding the posttraumatic growth.<sup>[2]</sup> The literature related to childhood traumas is mostly focused on symptoms and signs of mental disorders and the factors that assumable disturb the adaptive capabilities of children while beyond the negative outcomes attention should be paid to the factors and conditions that may obviously be of help facilitating the posttraumatic

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growth as well as the flexibility potentials and among victims of trauma. Posttraumatic growth is positive personal and psychological change experienced as a result of adversity which is of adaptive importance. This phenomenon is known for centuries but experimented just in recent years.<sup>[3]</sup>

Besides abused children may have difficulties in regulating and management of their emotions which leads to functional problems in social interactions and situations. Child abuse and neglect, either chronic or occasional, can disturb the important process of attachment and also interferes with the child's abilities of comfort seeking and emotional and psychological processing regulation.<sup>[4]</sup> In fact, abused children utilize maladaptive emotional regulation strategies while experiencing stress-causing events and this use is in direct proportion to the length and frequency of maltreatments experience before.<sup>[5]</sup> It has also been found out that healthy children have got a better recognition of emotions while abused children have problem in recognizing emotions.<sup>[6]</sup>

The question is how to treat such psychological problems in abused children after knowing them. Many studies have dealt with therapy intervention regarding the clinical presentations in these children.<sup>[7]</sup> One recent and new intervention in this era is trauma-focused cognitive behavioral therapy (TF.CBT). TF.CBT is a well-known and highly effective therapy specially for maltreated children introduced by Deblinger *et al.*<sup>[8]</sup> Cohen *et al.* determined the effect of TF.CBT on abuse children's emotional regulations.<sup>[9]</sup> Nightingale *et al.* also showed the effect of TF.CBT on posttraumatic growth promotion and minimizing posttraumatic stress symptoms.<sup>[10]</sup>

Another method used to help abused children in this study is theory of mind teaching. Theory of mind is the ability to understand the facts that others may be in mental states different from one's own or reality. Deficits in theory of mind assignments in maltreated children have been shown in various studies.<sup>[11-13]</sup> Since theory of mind is a component of social recognition, its improvement results in better understanding of others and one's own thoughts which improved social relations, and emotional knowledge are achieved. Hence, through teaching assignments and practices of theory of mind, effective relation to others development of trusts and mutual supportive relationships and appropriate responsiveness to emotional cues could be achieved in abused children. Furthermore, since the therapy of mind method is a relatively new therapy option with few research on abused children, it is worthy to test it as a possible method through which enhancement of interactive qualities as well as recognition of beliefs and emotions might be achieved in abused children.<sup>[11-15]</sup>

Research on TF.CBT and theory of mind method effect has started in recent years and there are no signs for decrease in this trend yet, while in Iran, few studies are done in this field. This is while child abuse is of high prevalence in Iran. For example, Noroozi in a study assessed 2240 students aged 14–18 year old demonstrating that at least one type of child abuse was reported by 32% of student.<sup>[16]</sup> Moreover, research on child abuse have been mainly descriptive with little attention to diminishing such children's problems. Most of psychologic research focus is now directed on posttraumatic stress disorder (PTSD) in abused children resulting in numerous writing and articles with little attention to the concepts of posttraumatic growth. Hence, we aimed to assess the effect of TF.CBT and theory of mind method as therapy modalities on facilitating posttraumatic growth as well as emotional regulation strategies.

## Materials and Methods

### Study design and participants

This study was a quasi-experimental (protests posttest with control group) research. The statistical population consisted of all of the abused girls referred to Ahvaz Welfare Organization Centers. Out of the sample, 39 girls residing in the Pseudo-Family Centers under the supervision of Ahvaz Welfare Organization were randomly selected and 13 were divided into the two experimental groups (TF.CBT and theory of mind) and 13 into the control. The inclusion criteria were female gender, referral and acceptance in family-like centers because of physical and psychological abuse as well as ignore, age 9–12, no simultaneous psychological and similar therapies during research, and exclusion criteria included prominent signs of psychosis in child, chronic disease or other psychological disorders (assessment of children by the psychiatrist in charge) and intellectual disability (performing intelligence test by the psychologist in charge). It should be noted that the criterion to recognize the abused children was their referral and admission to Ahvaz Welfare Organization due to child abuse caused by the parents. Steps to conduct a study are confirmed by Research Committee of Shahid Chamran University of Ahvaz.

### Sampling

After obtaining consent of the head of Ahvaz Welfare Organization, the required coordination was made with Social Affairs Under-secretary and pseudo-family affairs expert in the organization. Then, following taking above steps, the researchers in the study referred to the pseudo-family centers in Ahvaz city to initiate the study. Some coordination was also made with the officials in charge in the centers and the researchers communicated with the children in the center under the supervision

of a psychologist. The study sample consisted of 49 girls victimized to child abuse who were admitted in the pseudo-family centers under the supervision of Ahvaz Welfare Organization. Out of them, 43 girls took privilege of inclusion criteria. One did refrain from any collaboration. Three were discharged (2 by the parents and 1 by the grandfather). In the end, 39 girls were divided into three 13-person groups. Before any intervention, Kilmer's Posttraumatic Growth Inventory and Garnefski Emotional Regulation Questionnaire were distributed among the samples.

Completed data received were used as the test scores of participants' interventions where it is staged as twice a week sessions for both experiment groups separately. Right after the end of interventions, questionnaires of posttraumatic growth and emotional regulation wear fulfills as posttests for all three groups. To avoid the communication of the therapeutic effect of the independent variable, the experimental groups were chosen from the two separate dormitories where the girls resided in.. Although in interventional studies, posttest is usually conducted after a long interval; in this study, the time gap to posttests was shorter since it was potentially possible that abused children get discharged soon with no future access to them feasible.

### Intervention

After accomplishing pretests, one group received TF.CBT and sessions were held as follows:

During the first session, objectives and expectations of treatment as well as TF.CBT process and rules of sessions were explained. In 2<sup>nd</sup> to 4<sup>th</sup> sessions, recognition of various emotions, management of emotional responses toward trauma, management of psychological reactions toward trauma, deep muscle relaxation, and diaphragmatic respiration were educated. In 5<sup>th</sup> and 6<sup>th</sup> sessions, assessment of daily thought, making relation between emotions and behaviors, writing or drawing of emotions, and thought stopping technique were taught. In 7<sup>th</sup> and 8<sup>th</sup> sessions, exploring of negative thoughts, cognitive confrontation, familiarity with cognitive distortions, and the ways to challenge them were the emphasized matters of education. Narrating the trauma through storytelling was also dealt with. The ways to cope with trauma-related fears, discussing the trauma reminders, and increasing environmental supports were the topics dealt with during 9<sup>th</sup> and 10<sup>th</sup> sessions.

The sessions of theory of mind committee were held as follows:

The first session was assigned to acquaintance and general explanations about the program. In second to fourth sessions, recognition of emotional states through

images and education of situational emotions through pictures and stories were educated.

In 5<sup>th</sup> and 6<sup>th</sup> sessions in which daily thinking was reviewed, the study population did receive some teachings including ability to establish a relationship between thinking, emotions and behavior, verbal expression or painting of emotions, and also thinking stopping technique. In the 7<sup>th</sup> and 8<sup>th</sup> sessions, some strategies were underlined including discovery of negative thinking, cognitive coping, familiarity with cognitive distortions, and challenging such problems. In addition, trauma was dramatized through story. In 9<sup>th</sup> and 10<sup>th</sup> sessions, the issues discussed and trained include how to overcome the horrors caused by trauma, issues relevant to trauma recalling and encountering, and the devices for increasing environmental protections.

One of the ethical considerations noted in this study was participant's consent to attend the therapy sessions, and they could otherwise exit the study.

### The data collection tools

#### *Posttraumatic growth inventory*

This inventory was made by Kilmer *et al.* which is a self-report inventory with Likert Scales. The range of scores is between 0 and 30. Cronbach's alpha for the whole scale is 0.81. The validity of inventory is calculated through correlation with post

traumatic stress disorder questionnaire resulting in 0.88 correlation coefficient.<sup>[17]</sup> Since there was no Persian translation for the inventory, double translation method was taken. The validity coefficients of posttraumatic growth inventory in this study were 0.73 calculated through Cronbach's alpha.

Furthermore, to determine the validity of the posttraumatic growth inventory, its correlation with an international questionnaire entitled Yoll's Children PTSD was calculated which the correlation obtained to be -0.37, and the resulting coefficient was significant at the level 0.01.

#### *Cognitive emotions' regulation questionnaire child version*

This version is adapted version of the original adults version by Granefski and Kraaij. This questionnaire is a self-report measure and has 36 items. The range of the scores is from 1 (almost never) to 5 (almost always). This questionnaire has two adaptive and maladaptive subscales.<sup>[18]</sup> In Iran, the child version of cognitive emotion regulation questionnaire was performed and assessed on 531 (258 boys and 273 girls) primary school students of 3, 4, and 5 grades in 2012 Mashhad by Mashhadi *et al.* The Cronbach's alpha for all subscales

and the whole scale for both genders and psychometric aspects were favorable, and for most of correlations, the coefficients has been >0.4. Assessment of factor construct of this questionnaire through explanatory factor analysis has supported the original 9-factor pattern of child version of cognitive emotion regulation questionnaire and has confirmed 68% variance. The results of confirmatory factor analysis also showed favorable and acceptable fitness for the items. Besides, the correlation coefficient size between the subscales, and the simultaneous criterion validity of the questionnaire with children multidimensional anxiety scale and children depression scale revealed the good validity of the questionnaire.<sup>[19]</sup>

### Analysis of the data

Data were analyzed using SPSS statistical software version 17.0 (IBM Corp.: Armonk, NY).

The statistical methods including Chi-square method are used to analyze descriptive data and analysis of paired *t*-test, covariance, and Tukey *post hoc* test are used to investigate inferential data.

## Results

In the current study, 39 abused children among the abused girls referred to Ahvaz Pseudo-Family Centers were selected. Table 1 shows relatively similar demographic features of all three groups.

As shown in Table 2, the mean posttraumatic growth score and emotional adjustment strategies in the cognitive-behavioral therapy group focused on trauma before and after intervention were significantly different. The difference between the mean posttraumatic growth in the theory of mind group before and after intervention was not significant, but there was a significant difference in adaptive and maladaptive adjustments of emotion.

**Table 1: Demographic characteristics of the assessed groups**

Variables	Groups	n (%) or mean (SD)		
		TF.CBT	Theory of mind	Control
Kind of child abuse	Physical abuse	7 (53.84)	6 (46.15)	5 (38.46)
	Emotional abuse	3 (23.07)	4 (30.76)	6 (46.15)
	Neglect	3 (23.07)	3 (23.07)	2 (15.28)
Father's educational level	Diploma and high school	9 (69.23)	7 (53.84)	8 (61.53)
	Over diploma	4 (30.76)	6 (46.15)	5 (38.46)
Father's job	Employed	5 (38.46)	6 (46.15)	8 (61.53)
	Unemployed	8 (61.53)	7 (53.84)	5 (38.46)
History of addiction in family	Yes	8 (61.53)	10 (76.92)	9 (69.23)

TF.CBT=Trauma-focused cognitive behavioral therapy, SD=Standard deviation

Given F obtained in the groups that reveals the differences between the means, to present a binary assessment of the groups' mean, Tukey *post hoc* test was used [Table 3].

Table 4 reveals a meaningful difference between mean values of posttraumatic growth in TF.CBT groups', theory of mind group, and control group indicating that theory of mind methods is not effective in fascinating posttraumatic growth (0.001).

Another finding was that there is a significant difference (in favor of TF.CBT group) between the mean of the adaptive emotional regulation strategies in TF.CBT group with the mean of the theory of mind group and control, and on the other hand, between the maladaptive emotional regulation strategies in TF.CBT group with the mean of the theory of mind group and the control (0.001).

Furthermore, between means of adaptive emotion regulation strategies in theory of mind and control groups as well as maladaptive emotion regulation in theory of mind and control groups, there was a meaningful difference in favor of theory of mind method group (0.001).

## Discussion

Analysis of data reveals that TF.CBT is significantly statistically more effective than theory of mind method. This was in agreement with Zoellner and Maercker studying CBT effectiveness in facilitating posttraumatic growth done for motor vehicle accident survivors.<sup>[2]</sup> Some research was performed exclusively on the issue. One good example is the one performed by Stockton and Hunt (2011) which revealed that CBT can influence posttraumatic growth.<sup>[20]</sup> Furthermore, Nightingale *et al.* (2010) showed the effect of cognitive method on improving posttraumatic growth. In explaining the supremacy of TF.CBT over the theory of mind method, one can indicate that TF.CBT is exclusively used as a therapeutic approach to help abused children and adolescents and enabling them to overcome the problems relevant to the trauma.<sup>[10]</sup>

Perhaps, one of the most substantial reasons for effect of TF.CBT for abused children is that this therapy dealt with the main core of the children's problems and does not take a temporary approach rarely to make them feel better at the moment. Children are helped in TF.CBT to challenge their tarts while encountering troublesome situations. It has been shown in different studies that if thought ruminations are diminished, the process of posttraumatic growth would get facilitated.<sup>[21]</sup> In TF.CBT, thought ruminations are assessed and dealt with which can be a reason why this therapy method can be

**Table 2: Mean and standard deviation of study variables in three groups and two stages of evaluation**

Variables	Mean (SD)		Statistical results	
	Before intervention	After intervention	Paired t	Significant
Posttraumatic growth				
TF.CBT	6.76 (2.24)	17.23 (3.94)	11.96	0.001
Theory of mind	8 (2.30)	9.61 (2.39)	2.02	NS
Control	7.30 (1.93)	9 (1.58)	2.71	NS
Emotion regulation strategies				
Adaptive strategies				
TF.CBT	28.68 (9.87)	68.38 (12.04)	12.59	0.001
Theory of mind	26.30 (5.28)	50.84 (9.79)	7.29	0.001
Control	27.46 (7.62)	27.38 (10.42)	0.025	NS
Maladaptive strategies				
TF.CBT	60.07 (11.55)	34.61 (14.59)	4.95	0.001
Theory of mind	59.15 (12.80)	45.61 (13.24)	2.47	0.029
Control	60.84 (5.59)	59.38 (13.97)	0.484	NS

TF.CBT=Trauma-focused cognitive behavioral therapy, SD=Standard deviation, NS=Not significant

**Table 3: Results of covariance analysis of mean differences of experiments and control groups**

Variables	Sum of square	df	Square mean	F	P
Posttraumatic growth	292.452	2	292.425	48.788	0.001
Emotion regulation strategies					
Adaptive strategies	5333.861	2	5333.861	45.803	0.001
Maladaptive strategies	1999.930	2	1999.930	11.977	0.001

**Table 4: Results of Tukey post hoc tests to compare means of groups in posttest stage**

Variables	Comparison	MD	SE	P
Posttraumatic growth	Group 2, 1	7.115	1.024	0.001
	Group 3, 1	8.230	1.024	0.001
	Group 3, 2	0.615	1.024	0.820
Emotion regulation strategies				
	Adaptive strategies			
	Group 1, 2	17.53	4.23	0.001
Maladaptive strategies	Group 3, 1	41	4.23	0.001
	Group 3, 2	23.46	4.23	0.001
	Group 1, 2	11.00	4.92	0.042
	Group 3, 1	24.76	4.92	0.001
	Group 3, 2	13.76	5.11	0.022

MD=Medicine degree, SE=Standard error

effective toward posttraumatic growth. The reason why the theory of mind method has not been influential on post-traumatic growth that is possibly due to the fact that the method mainly focuses on the recognition of one's own and others' beliefs, thoughts, emotions and feeling, and the mostly relies on social recognitions and skills; while one important aspect of posttraumatic growth is alternations in relationship with others and increased empathy, and it also encompasses other areas such as change in philosophy and meaning of life, which the concepts are not addressed in the theory of mind method. Another finding of this research was that

TF.CBT compared to theory of mind is more effective in improving emotion regulation strategies in abused children. This findings is consistent with Cisler *et al.* who show that TF.CBT is effective on improving emotion regulation of girls suffering PTSD.<sup>[22]</sup> Furthermore, it was congruent with Goldbeck *et al.*'s results which revealed the effect of TF.CBT in decreasing the emotional and behavioral problems of children's and adolescence.<sup>[23]</sup> The result is also consistent with the findings of Cohen *et al.* denoting the TF.CBT as effective in decreasing children's emotional and behavioral problems.<sup>[9]</sup>

To explain the finding, it is notable that although theory of mind methods includes the recognition of emotions, TF.CBT is more focused on recognition of various emotions as well as their management. This issue especially in children with poor emotion regulation skills leads to lesser effect of theory of mind method compared to TF.CBT. Emphasis on emotion recognition skills, socially appropriate presentation of emotions, and recognition of negative emotions which are all dealt with during TF.CBT sessions may help children for better emotion regulation.<sup>[24]</sup> Furthermore, in TF.CBT, children are educated to think logically about life events and encouraged to encounter with their unfunctional feelings and thoughts and take new and functional behavioral options.<sup>[25]</sup> Hence, it is expected that abused children have opportunities to deal with their own thoughts emotions and feelings and through challenging them, they get more capable in meaning their emotions.

### Limitations of the study

The researchers in the current study point out that, in their research, due to the specificity and limitation of the population (abused children), the generalization of the results to the entire community should be done cautiously. We also could not follow-up the effects

of the two therapy modalities (TF.CBT and theory of mind methods) for months because of predicted drop of samples as well as time limitations. We suggest follow-up of findings in a larger group of abused children for future studies. In our study, sexually abused children were excluded, and we see it well worth to study the effect of these two therapy methods on sexually abused children too.

### Conclusion

In general, it can be calculated that TF.CBT can be used to enhance posttraumatic growth and emotion regulation strategies in abused children. Furthermore, theory of mind methods can be considered as a useful way to improve emotion regulation strategies in abused children.

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### Conflicts of interest

There are no conflicts of interest.

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