

Original Article

## The Efficacy of Rational-Emotive-Behavioral versus Relaxation Group Therapies in Treatment of Aggression of Offspring of Veterans with Post Traumatic Stress Disorder

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**ABSTRACT**

**Background:** Post traumatic stress disorder (PTSD) in war veterans has been linked with symptoms in their children, including symptoms resembling those of the traumatized parents, especially aggression. This study aims to examine the effectiveness of cognitive-behavioral group therapy in reducing aggressive behaviors of male adolescents whose fathers have war related PTSD.

**Method:** 36 male children (aged 11–19 years) whose fathers had PTSD, were randomly assigned into three groups for Rational-Emotive- Behavioral Therapy (REBT), Relaxation Therapy, and Wait-List control group. Each method had a course of ten therapeutic group sessions of 60 minutes once a week. Rates of aggression were assessed by Aggression Questionnaire (AGQ) at baseline, end of intervention, and two months later.

**Results:** The difference between AGQ scores of three groups was statistically significant. The behaviors of the three groups were not homogenous across the time (group × time interaction) and showed a statistically significant difference.

**Conclusion:** This study revealed that the intervention groups were superior to control group in reduction of aggressive behaviors in male adolescents of war veterans with PTSD. Further studies with greater sample size, prolonged duration of follow up, and multiple assessment procedures may be needed for better conclusions.

**Key words:** Aggression, offspring, PTSD, Group Therapy

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Several clinical and empirical studies have reported the adverse effects of Post Traumatic Stress Disorder (PTSD) of Holocaust survivors or Vietnam War veterans on the second generation<sup>1-6</sup>. Clinicians in the United States have reported that families of Vietnam veterans with PTSD had problems to cope with the veterans' hypersensitivity, verbal abuse, outburst of anger, and living in the atmosphere of fear, social isolation, and self doubt<sup>4</sup>. In one study the veterans' children saw their family as being significantly higher in conflict and tending to be lower in cohesion<sup>5</sup>.

In the literature, the transmission of war

experiences from war veterans to their children is often referred as "secondary trauma" which hypothesized that previously nontraumatized persons acquire characteristic trauma-like responses by enduring contact with PTSD patients who have chronic stressful events. This effect is often seen when parents who are war veterans pass on trauma like-like responses to their children<sup>7</sup>. One explanation based on contemporary psychoanalytic approach using an object relation framework which emphasis the interactional relation between parent and child, proposed that transmission of parental trauma may take place through the process of

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overidentification with their parents<sup>8-9</sup>. Reflecting parents difficulties, children showed symptoms in association with fathers' disorder such as aggression, low self-esteem, and impaired social development<sup>5</sup>.

Ahmadzdeh et al revealed that aggressive behaviors were more prevalent in offspring of war veterans with chronic PTSD, 15 years after termination of Iraq-Iran war, and psychiatrists, psychologists or other mental health professionals were often called on to intervene with children who exhibit such behaviors<sup>10</sup>.

Considering the increased vulnerability to behavioral and emotional problems among offspring of PTSD patients, identifying efficient strategies for reducing problems such as aggressive behaviors and aggression-related stressful life events will be important. Several studies were found Cognitive-Behavioral Group Therapy (CBT) effective in children and adolescents with an acceptable effectiveness in different target problems<sup>11-15</sup>. One study concluded that child-based CBT interventions have a small to moderate effect on decreasing aggression, and were more effective for older elementary school-age children and adolescents than younger ones<sup>16</sup>. In Iran, Sadeghi et al reported the effectiveness of REBT group therapy in school referred adolescents with aggressive behaviors<sup>17</sup>. The effectiveness of autogenic relaxation training on adolescents with behavioral and emotional problems had also been shown<sup>15, 18-19</sup>.

This study was designed to assess the effectiveness of group Rational Emotive Behavioral Therapy (REBT) and Relaxation Therapy (RT) on the aggressive behavior of male adolescents whose fathers had chronic PTSD after their experiences of catastrophic trauma in imposed Saddam's war against Iran.

## Subjects and Methods

### *Participants*

This 5-monthes, experimental study was designed for male adolescents whose fathers have been treated for chronic war-related PTSD in out-patient clinic of Health Deputy of War Veterans' Foundation, Isfahan, Iran. Be-

cause of cultural limitations to arrange mixed-sex groups, only male adolescents were selected. After listing such PTSD patients, they were called and invited, if they had sons in ages between 11-19 years old. Of total 68 invitations, 43 subjects responded positively and accepted the intervention. All subjects and their parents were evaluated by Composite International Diagnostic Interview (CIDI)<sup>20</sup> to confirm the diagnosis of PTSD in fathers and rule out the presence of major psychiatric disorders in the subjects and their Mothers. The patients also were excluded from the study if they had low reading ability, or apparent cognitive deficits, or if their fathers had psychotic features. A minimum score of 42.5 in "Aggression Questionnaire" (AGQ) was needed at baseline assessment<sup>21</sup>.

### *Measures*

Assessment of the effectiveness was carried by "Aggressive Questionnaire" (AGQ). This is a 30-item, self-report questionnaire in which each item is rated from 0(never) to 3(always), so total score ranging from 0 to 90, with high scores indicating higher aggressive behaviors. The standard and valid Persian version of the scale had been used in this study which its validity was 0.85<sup>21-22</sup>.

Socioeconomic status was evaluated by a 4-item, self report scale in which the occupation of family head, monthly income of family, ownership of house, and quality of house were considered. Subjects assigned in four categories based on their scores. Face and content validity of the scale were approved by three experts. Calculated Chronbach's  $\alpha$  score was 0.71.

### *Study design and procedure*

The protocol of this study was approved by the board review of Behavioral Sciences Research Center, Isfahan University of Medical Sciences. After complete description of the study for all the eligible subjects and their parents, written informed consent was obtained. According to a previous study<sup>17</sup>, a sample size of 8 subjects/group, with power set at 90% and  $\alpha$  set at 0.05, was calculated. Thirty six male

adolescents, who met the above criteria, were randomized to Rational-Emotive- Behavioral group Therapy (REBT group), Relaxation group Therapy (RT group), or Wait-List control group (WL group) using a block randomization with six patients per block. Randomization was conducted blinded to investigator of the study. Each of the three groups had 12 members.

All subjects filled AGQ three times during the study: if First, before the beginning of intervention (T1), second, immediately after the end of group-therapies (T2), and finally, two months after the end of interventions (T3).

Two therapists conducted both type of treatments. The main therapist was a M.S. degree clinical psychologist and the co-therapist (second author) was a resident of psychiatry. Each treatment strategy consisted of one pre-treatment group session during which therapists explained a general introduction to the program, a review of confidentiality issues, and REBT or RT procedures. Ten therapeutic group sessions of 60 minutes, once a week, were followed after. Wait-List control group did not give any treatment.

The REBT group followed a protocol, using a modified version of this therapeutic method or "ABC model"<sup>23</sup>. During the first session, the concept of "irritability and aggression" and their emotive, cognitive, somatic, and behavioral aspects of them were explained. The A-B-C theory of "Accident-Belief-Consequence model" and the role of believes in the manifestation of aggression were taught at second session. In the course of third session patients were learned how to configure belief systems. During fourth session, Rational Belief/irrational Belief, Rational Consequence/Irrational Consequence were explained. In fifth session irrational belief was discussed as a foundation of aggression. Maximization and dogmatism were explained as cognitive distortions which lead to aggressive behaviors during sixth session. Self-acceptance was taught as an emotional technique during seventh session for aggression control. In eighth session, challenge to irra-

tional believes for converting the irrational consequences to rational ones was explained. Assertiveness training and distinguish between assertion and aggression were taught at ninth session. Final session contained summation and conclusion.

The RT group followed a modified protocol for adolescents through ten group sessions of 60 minutes with each group performing, once a week. Sessions 1-5 focused on the relaxation units of about 10 minutes each were embedded in an adolescent-centered framework of conversation. During these group sessions the six basic exercises of RT were taught. The relaxation training was done lying down with eyes closed. Within the group sessions, the text of the (auto-) suggestions was spoken repeatedly by the therapist. The children were encouraged to keep the short suggestions in mind and to use them more and more automatically. The children's experiences during the relaxation units were discussed afterwards. The following 6-9 sessions were devoted primarily to helping subjects generalize these relaxation skills across situations noted for producing aggression. In session 10, a summary of the entire program was presented and subjects were encouraged to continue using their relaxation skills in future aggression-producing situations.

At the beginning of both group sessions, the participants reported about their experiences with the methods at home both orally and by the remarks on their home protocols. The written text was given to all children at the end of the each group session for at-home practice. Parents were asked to support their children by showing interest in their home practice but not to control them directly. All subjects in Waiting List control group were offered individual psychotherapeutic intervention at the end of the study.

### *Data analysis*

The analysis was conducted using SPSS software, version 11.5, for windows (SPSS Inc., Chicago, Illinois, USA). A two-way repeated measure ANOVA (Time × Treatment interaction) was used. The three groups were consid-

ered as the between-subjects factor (group) and three times AGQ measurements during trial as the within-subjects factor (time). In addition, a repeated measure ANOVA test was performed for finding the main effect of time on AGQ scores in each group. Correlation analysis was used to detect relation between reduction of AGQ scores and number of patients' participation in each session. A one way ANOVA was used to compare changes of AGQ scores from T1 to T3 between three groups. Demographic data, baseline, and end point AGQ scores were compared between two groups by one-way ANOVA and fishers' exact test as appropriated. Results are presented as means (SD). All statistical tests were two-tailed with a significance level of 0.05 ( $P$ -value < 0.05).

## Results

Two subjects in REBT and four in the RT

groups did not continue the trial after first group session and therefore were omitted from the study, thus the REBT group had 10 members, and RT group had 8 members. There were no statistically significant differences between baseline characteristics of participants randomly assigned into the three groups (table 1). The pre-test, post-test, and follow up AGQ scores of three groups shown in table 2. There was no significant difference between pre-test AGQ scores of three groups. A two-way repeated measure ANOVA revealed a statistically significant difference between three groups as indicated by the main effect of group or the between-subjects factor ( $F=9.13$ ,  $P=0.001$ ). Post Hoc Duncan test showed a significant difference between REBT and WL groups ( $P<0.05$ ), RT and WL groups ( $P<0.05$ ), but not REBT and RT groups ( $P>0.05$ ).

**Table 1.** Baseline characteristics of participants (N= 30)

Groups	Rational Emotive Behavioral Therapy (n = 10)	Relaxation Training (n = 8)	Waiting List Control (n = 12)
Measures			
Age in years mean (SD)	14.6(2.36)	13.5(2.92)	14.41(2.90)
Education in years mean (SD)	8.60(1.95)	8.37(4.30)	8.25(2.76)
Socioeconomic level (%)	20% Level 2 80% Level 3	25% Level 2 62.5% Level 3 12.5% Level 4	58.33% Level 2 41.67% Level 3

No statistically significant differences were found between groups ( $P > 0.05$ ).

**Table 2.** Means (Standard Deviations) for outcome Measures.

Groups	Rational Emotive Behavioral Intervention (n = 10)	Relaxation Training (n = 8)	Waiting List (n = 12)
AGQ* Measures			
Pre-test (T1)	53.50 (7.05)	50.63 (10.04)	57.92 (13.32)
Post-test (T2)	37.80 (14.77)	28.87 (13.45)	53.67 (15.61)
Follow up (T3)	34.30 (8.02)	26.75 (7.57)	52.42 (17.68)

\*Aggression Questionnaire

There was a statistically significant difference between AGQ scores as indicated by the main effect of time, the within-subjects factor ( $F=25.27$ ,  $P<0.001$ ). The behavior of the three groups were not homogenous across time (group  $\times$  time interaction) and showed a statistically significant difference ( $F=3.3$ ,  $P=0.019$ ).

A repeated measure ANOVA which performed for finding the main effect of time on AGQ scores in each group showed a significant effect of time in REBT group ( $F=13.9$ ,  $P=0.001$ ), and in RT group ( $F=16.36$ ,  $P<0.0001$ ), but not in WL group ( $F=0.98$ ,  $P=0.37$ ).

Comparison of AGQ score changes from T1 to T3 by one-way ANOVA revealed a statistically significant difference between the three groups ( $F=4.75$ ,  $P=0.017$ ) which Post Hoc Duncan test revealed a significant difference between REBT and WL groups ( $P<0.05$ ), RT and WL groups ( $P<0.05$ ), but not REBT and RT groups ( $P>0.05$ ).

The average number of participants attending in each group session, by treatment options, were 9.1 (SD: 1.19) for REBT group and 6.37 (SD: 2.38) for RT group, which revealed a significant difference between groups ( $P=0.006$ ). Correlation analysis showed statistically significant positive relation between reduction of AGQ scores in REBT group and number of patients' participation in each group sessions ( $r = 0.82$ ,  $P=0.02$ ), but for RT group, the decrease of AGQ scores was negatively related to number of patients' participation in consecutive group sessions ( $r = -0.78$ ,  $P=0.01$ ).

## Discussion

Aggressive behaviors were more prevalent, in offspring of war veterans with chronic PTSD<sup>1-6</sup>. Descriptive data of the psychometric instrument of this experimental study at T1 also demonstrated increased scores of aggressive behaviors in this sample (Table 2) which was comparable with previous Iranian survey<sup>10</sup>. Number of final participants in each group was equal or greater than the calculated sample size, so results of the study seem not to be affected by subjects who dropped out.

Although several studies have found Cognitive-Behavioral Group Therapy with an acceptable effectiveness in children and adolescents<sup>11-19</sup>, some limitations had been reported about use of cognitive behavioral group therapies in adolescents. These limitations were high attrition rate of severely stressed families, scheduling difficulties, reluctance to participate in a treatment intervention, group intolerance, and challenge to obtain motivation to change when aggressive behaviors were ego-syntonic<sup>24-25</sup>. Nevertheless, this study revealed the effectiveness of both REBT and RT techniques in reducing aggressive behaviors of male adolescent offspring of war veterans which was comparable to the other studies<sup>11-19</sup>. One probable cause of good efficacy was selection of subjects from 11-19 ages, who are more cognitively sophisticated<sup>15, 24-25</sup>.

Although children in both treatment conditions improved, because the mean number of participants in REBT group sessions were significantly greater than in RT group, we considered the effect of this factor by means of correlation analysis. It revealed that when the number of participants in treatment sessions increased, in RT group, the efficacy decreased, but in REBT group, the more participation in the group sessions for each patient led to the greater reduction in AGQ scores. One explanation may focus on deficits and distortions in nonadaptive cognitive processes in REBT instead of merely focusing on excitement and anger in RT.

The present study had several limitations, including small sample sizes, selection of subjects only from male sex, short duration of follow up, and assessment procedure restricted to AGQ. This study may limit the ability to generalize its findings to the broader population, but strengthens their specific relevance to trans-generational PTSD. We can not exclude a placebo effect on subjects who were not blind to the intervention, especially in Waiting List group.

By considering the high prevalence of aggressive behaviors and effectiveness of the therapeutic methods, it seems desirable to ar-

range programs containing these techniques (especially REBT) for this population to prevent consequences of aggression on family cohesion, social adaptation, and educational achievement.

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