The Efficiency of Emotional Schema Therapy with Respect to Anxiety and Depression Symptoms and Signs in Patients Suffering from Post-Traumatic Stress Disorder

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Abstract

Introduction: Comprehensive studies in Iran showed that Post-Traumatic Stress Disorder is highly common among the survivors of the imposed war and most of them are in a vicious therapeutic cycle, frequently under long therapies which mostly have low effects.
This study aims to examine the efficiency of Emotional Schema Therapy on the emotional schema & cognitive emotion regulation strategies of patients suffering from Post-Traumatic Stress Disorder (PTSD).
Methods: Six patients were selected from the available sampling clients of the psychiatric clinic of the Baqiyatallah Hospital in Tehran Iran (2015), were matched together and then divided into 3 groups (Emotional Schema Therapy (EST) combined with Medications, Cognitive Behavioral Therapy combined with Medications & Medications). Patients were examined 5 & 3 times by Beck Anxiety Inventory (BAI), Beck depression Inventory (BDI) and the Persian versions of the Impact of Event Scale-Revise (IES-R). To analyze the data, indexes of effect size, cohen's d, process changes, slope and interpretation of ups & downs in charts were employed.
Results: EST and CBT (in post-treatment and follow-up phases) significantly decreased the anxiety and depression in the patients who received EST and CBT and also could help to control the patients' signs and symptoms of PTSD. Moreover, pharmacotherapy only had an effect on the control of anxiety and depressive signs and symptoms in post-treatment, but after the termination of pharmacotherapy, the patients experienced a recurrence of the signs and symptoms to some degree.
Conclusions: Emotional Schema Therapy via directly targeting mechanisms of pathological Emotional Schemas & Maladaptive Cognitive Emotion Regulation strategies can be an appropriate choice for treatment of PTSD.

Keywords: Anxiety, Depression, Emotional Schema Therapy, Post Traumatic Stress Disorder Depression

Introduction

Post-traumatic stress disorder is in the class of trauma and stressor-related disorders in the new classification of diagnostic and statistical manual of mental disorders, fifth edition (DSM V) [1]. This disorder is a result of facing real death or threat of death, severe injury or sexual aggression resulting in one or several disturbing symptoms including repeated intentional or unintentional remembrance of the event, repeated and distressful dreams, redemption reactions, severe or long distress while exposed to symptoms, considerable physiological reactions and persistent avoidance. Negative changes in cognition and mood, and considerable changes in provocation and reactivity related to event are among other symptoms of post-traumatic stress disorder which causes considerable clinical disorder or

reduction in efficiency (occupational, social and personal) [2]. War is one of the effective factors of the level of PTSD spread, as 30% of 3.1 million American soldiers sent to the Vietnam battle was diagnosed with this disorder. Among them, 15% were still suffering from this disorder after 15 years [3]. Comprehensive studies in Iran showed that this disorder is highly common among the survivors of the imposed war [1]. The level of PTSD symptoms spread in chemical 40% and non-chemical 28.1% veterans respectively [4]. The spread level of this disorder is 39% [5]. On the other hand, after nearly two decades after the war is over, most of those who have suffered from PTSD are in a vicious therapeutic cycle, frequently under long therapies which mostly have low effects (without clear and certain improvement) [6]. In this regard, the necessity of investigating more effective and efficient therapies is trivial. Generally, there are two methods of pharmacotherapy (7) and psychotherapy (8) for treating PTSD. Various types of psychotherapy such as behavior therapy (9), cognition therapy (10), cognitive – behavioral therapy [11] and [12] and regular desensitization [13] lead to considerable improvements of PTSD patients. Empirical findings indicate that among different psychotherapies, cognitive – behavioral therapy is considered as the first therapy option for PTSD for its considerable effectiveness and efficiency [14, 15]. Although cognitive – behavioral therapy is effective, but patients' resistance against therapy and the level of patient drops is a significant challenge in the effectiveness path of this therapeutic method [16, 17]). This is because nearly 40% of these patients report the disorder symptoms after improvement and in the follow-up period [14]. On the other hand, several studies have indicated that early drops of PTSD patients is because of the process of cognitive-behavioral therapy [18].

One of the explanatory theories related to the challenge of drop and lack of cooperation and resistance of patients in the process of cognitive – behavioral therapy (particularly exposure techniques) is the emotional schemas theory. The structure of emotional schema is a meta-analytic structure which is recently discussed in formulation and treating psychological injuries and point to the method of conceptualization, understanding and strategies of an individual's responses to his/her own emotions. Leahy classifies them as below [16]: validation by others, comprehensibility, guilt, simplistic view of emotion, high values, uncontrollability, emotional numbness, demand for rationality, duration and consensus, acceptance of feelings, rumination, expression and blaming.

Emotional schemas of patients causes them to become distant from their emotions (emotional avoidance) [17]. The importance of this matter is increased when we realize that one of the most basic principles of treating PTSD is exposure, and unless the patient is not exposed to his/her schemas of fear, not much improvement is achieved [19]. Thus, it is trivial that focusing on emotional schemas before exposure can increase the cooperation level of patients in the current of therapy and prevent early drop of patients [20].

Moreover, various researches confirm the basic role of problematic emotional schema in PTSD, because emotional schema is related to the types of psychological damages such as depression, anxiety, metacognitive factors in distress and avoidance [20-22]. (On the other hand, EST affects the schemas and strategies of patients' regulation of emotions. Therefore, it is logical to assume that by implementing this therapy on PTSD patients, in addition to moderating the schemas, their resistance against therapy can be reduced as well. It can be also mentioned that the limitations of research literature concerning the effect of implementing this therapy on anxiety, depression, and symptoms of PTSD patients and its efficiency compared with cognitive – behavioral therapy caused the researcher of this study to investigate the efficiency of therapy based on emotional schemas on the level of anxiety, depression, and symptoms of PTSD patients.

2. Objectives: This study aims to examine the efficiency of Emotional Schema Therapy on The Emotional Schema & Cognitive Emotion Regulation Strategies of patients suffering from Post-Traumatic Stress Disorder (PTSD).

Methods

This study is an experimental with single-subject-multiple-baseline design. The statistical population of this study includes all post-traumatic stress disorder (PTSD) patients (combat veteran) visiting the clinic of Baqiyatallah Hospital in Tehran Iran during a three month period (September 16th – December 16th of 2015). Among these patients, 6 individuals (male) who were in the age range of 40 to 50 were selected through the convenience sampling method and were randomly assigned in three groups.

The inclusion criteria included not being diagnosed with any psychotic disorders (weather now or in the past), not being diagnosed with drug abuse disorder, age range of 20-50, and the patients' verbal consent of the therapy process. As demanded by patients, no audio – visual instruments were used for recording voice or image and video.

The diagnosis of PTSD was conducted on the basis of psychiatrist and confirming it through DSM-IV-TR based structured diagnostic interview. After the qualified patients were selected, they were randomly divided into one control group and two experimental groups. The necessary tests were taken from subjects in the pretest stage. According to the psychiatrist opinion, the patients of each group were given an equal dose of SSRIs and Benzodiazepine, and after three weeks, a baseline was obtained from all three groups, and the process of psychological therapy were started for the EST and CBT groups. This psychotherapy process was implement for 4 patients in 8 to 10 weekly sessions. All patients who received therapy based on Emotional Schema Therapy and Cognitive-Behavioral Therapy were assessed in six steps (before therapy, after drug therapy, third session, sixth session, after therapy and a 45 day follow-up), and the patients of the control group were assessed in three steps (before therapy, after therapy and a 45 day follow-

up) by the tools of Impact of Event Scale, Beck's Depression Inventory, and Beck's Anxiety Inventory. In order to remove the effect of the questionnaire order, counterbalance were implemented in this way that the order of questionnaire conduction were changed randomly in all subjects. Emotional schemas based therapy [17] and cognitive – behavioral therapy [23] were conducted by researchers in the psychiatric clinic of Baqiyatallah Hospital in Tehran Iran, and drug therapy were conducted by two of the clinic psychiatrists. Moreover, in order to prevent the tester's prejudice, tests were collected by other individuals who were unaware of the patients group.

Considering the single subject plan of this study, the effect size indexes, Cohen, changes of process and slope for each patient were used for data analysis. The following questionnaires were used for data collection:

1- **Structured Clinical Interview for I Axis Disorders in DSM-IV (SCID-I):** A semi-structured clinical interview was used for the diagnosis of major I axis disorders according to DSM-IV [24]. Diagnostic agreement of the Farsi edition of SCID-I is reported higher than 60%, general agreement for current diagnoses is reported as 52% and total diagnoses of total life is reported as 55% [25].

2- **Beck's Depression Inventory (second edition):** This scale is the revised form of Beck's depression inventory which is composed for measuring the depression level [26] and converses all depression elements according to Beck's cognitive theory. It includes 21 items. Subjects select one of the presented four choices indicating the depression level. The four choices of each question are scored in a four level spectrum from 0 to 3. Therefore, the total score of this questionnaire is in a range of 0 to 63. This scale has a 0.71 correlation with Hamilton's rating scale and has a one week retest reliability of 0.91. The internal consistency of this inventory is reported as 0.91 as well [27]. The psychometric features of this inventory in a sample of 94 individuals in Iran is reported as below: alpha coefficient of 0.91, a correlation coefficient between two halves of 0.89, and one week retest coefficient of 0.94 [27].

3- **Beck's Anxiety Inventory:** This inventory is a self-report tool for measuring the anxiety level and includes 21 items. The subject selects between four choices in each item showing the anxiety level. The four choices of each question are scored in a four level spectrum from 0 to 3. Therefore, the total score of this questionnaire is in a range of 0 to 63. In a research conducted on an Iranian population (150 individuals suffering from clinical anxiety disorder), a validity of 0.72 and an internal consistency of 0.92 were obtained [28].

4- **Revised Impact of Event Scale (IES-R):** This scale is a 22 item self-assessment questionnaire which measures the frequency of post-trauma symptoms, avoidance, arousal, annoying symptoms (in separate mini-scales) during the current week. This test as a tool of post-trauma distress has a high reliability, although it should be noted that it is not a PTDS diagnostic tool. The internal consistency of this test is high (Cronbach's alpha, 0.79-0.92) [29]. This scale was normalized in Iran [30].

Session	Content of session
1	Initiate a therapeutic alliance with the patient. Complete LESS, IES-R, BDI and BAI questionnaire before the beginning of the session. Formulate the patient based on emotional schema model. Begin to socialize the patient into the structure and process of therapy. Homework assignment (identify important problems and set broad goals).
2	This session includes brief update of the patient's week, mood checking, homework review and goal setting, psycho education about PTSD, sharing case formulation, detection patient's emotional schema. Homework assignment (What is the Function of Emotion?)
3	This session includes brief update of the patient's week, mood checking, homework review, bridging to previous session, discussion about function of emotions. Homework assignment (description and labeling your emotion)
4	This session includes, brief update of the patient's week, mood checking, homework review bridging to previous session, homework review and confirmation emotional schema model, detection emotional schema. Homework assignment (What is your emotional myth?)
5	This session includes a brief update of the patient's week, mood checking, bridging to previous session, homework review, verbal challenging to emotional myth, acceptance of negative emotions. Homework assignment (Design a behavioral experiment about negative emotional schema)
6	This session includes, brief update of the patient's week, mood checking, bridging to previous session, homework review, and implement downward arrow to explore intermediate believe about emotions. Homework assignment (Design a behavioral experiment about negative emotional schema)
7	This session includes, brief update of the patient's week, mood checking, bridging to previous session, homework review, beginning imagined exposure to trauma and challenge emotional schema. Homework assignment (Writing trauma and challenge with negative emotional schema in this process)
8	This session includes, brief update of the patient's week, mood checking, bridging to previous session, homework review. Continue imagined exposure to trauma, normalization and acceptance negative emotion. Homework assignment (Write a summary of therapy)
9	This session includes, brief update of the patient's week, mood checking, bridging to previous session, Homework review (Planning to booster session)

4. Results

The data presented in table 1 indicate that there are no considerable differences between the demographic characteristics of patients.

Results obtained from the therapy effectiveness on PTSD symptoms are shown in table 2. Also, the percentage of improvement, percentage of score reductions and the amount of patients' changeability are presented in table 2.

As it can be seen in tables 3 and 4, the anxiety and depression scores of patients who received the EST were considerably reduced. Moreover, the effectiveness level of the EST in reducing patients' scores of depression and anxiety is significant.

5. Discussion

This study was aimed to assess the effectiveness of emotional schema therapy on anxiety, depression and the symptoms of PTSD patients. The results of this study supports this hypothesis that EST can be effective in improving the PTSD symptoms. According to the texts and principles of research, it can be claimed that through creating a deeper therapeutic relationship, focusing on particular emotional schemas of each patient, replacing more efficient emotional regulation strategies, breaking the patient's resistance were effective in the process of emotional exposure and avoidance in helping patients in being released from PTSD symptoms.

In the cognition therapy models, the cognitive aspects (evaluations, documents and interpretations) are more considered in the conceptualization of this disorder. However, in EST, other than considering these matters as important, patients' schemas concerning emotions, physiological emotions and mental images are considered as well [17]. Implementing these schemas by the patients in the beginning is a beneficial strategy for suppressing the negative emotions and feelings derived by trauma, but in long term, according to the law of "ironic effect" [31], the disorder symptoms continue. Furthermore, implementing these schemas (as coping strategies) place patients in another vicious cycle in which the patient's fear of his/her symptoms is increased. As a result, the patient reinforces the traumatic experience by avoiding negative emotions and symptoms. This leads to the continuance of this belief that the emotional schemas are uncontrollable.

According to this model, individuals suffering from PTSD have theories about their anxiety symptoms which interfere with effective therapy [20]. These theories include emotional schemas (interpretations and strategies) about physiological feelings, emotions, disturbing thoughts and mental images [12]. As it was discussed earlier, weather in the formation process of the disorder, or in continuing or making the disorder more sever, these schemas play an important role [17]. Thus, it is trivial that focusing on these schemas in the current stage of therapy can help the patient in the symptoms improvement process. On the other hand, one of the very unfavorable consequences of using these schemas for PTSD patients is emotional avoidance, which means that patients avoid being exposed to their unfavorable emotions. Techniques (including regulation of emotional schemas and replacing with more efficient emotional regulation strategies) used in the therapy process often target emotional avoidance of patients [32].

In EST, accepting internal constraints, annoying thoughts, mental images and physiological feelings increase in patients in this way that the patient is asked to test the advantages and disadvantages of acceptance against trying to suppress the disturbing thoughts and feelings. Accepting negative emotions (instead of suppressing, rumination, and being ashamed of those emotions) is an important point in their change [33]. Utilizing the strategy of emotions acceptance which is one of the important techniques in EST can reduce the over arousal. the suppressing of the disturbing thoughts and mental images of PTSD patients, and challenge the patient's belief that he/she must protect him/herself from the internal states of anxiety and negative emotions [33].

According to investigations, no researches are conducted on the effectiveness of EST in PTSD. Only one study has been conducted on the effectiveness of this therapy on Obsessive-Compulsive Disorder (OCD) patients which became the basis of this study for investigating the EST effectiveness in PTSD patients.

6. Conclusion

The results of this study confirm the basic role of the problematic emotional schema in PTSD as well, because emotional schema is related to the types of psychological damages such as depression, anxiety, metacognitive factors in distress, and experiential avoidance. On the other hand, emotional schema therapy have an effect on emotion regulation schemas and strategies. By implementing this therapy for PTSD patients, other than moderation of schemas, their resistance against therapy can be reduced.

Table 1. Demographic characteristics of PTSD patients

Patient characteristic	Age	Gender	Educational level	Length of affliction	Marital status	Disorder in conjunction	Group
First	45	Male	Diploma	16 years	married	MDD*	EST
Second	48	Male	Diploma	10 years	Married	MDD	EST
Third	50	Male	Diploma	23 years	Married	MDD	CBT
Fourth	49	Male	Diploma	20 years	Married	MDD	CBT
Fifth	45	Male	Diploma	15 years	Single	MDD	Drug therapy
Sixth	44	Male	Diploma	10 years	married	MDD	Drug therapy

*MDD= Major Depressive Disorder

Table 2. Changes indexes of process, slope and changeability amount of patients' scores in the Impact of Effect Scale (IES-R) of patients

therapy	Baseline after drug therapy	Intervention	Standard Deviation of intervention	Improvement percentage after intervention (MPI)	Scores reduction percentage (MPR)	Effect Size	Cohen index	Follow-up	Improvement percentage after intervention (MPI)	Scores reduction percentage (MPR)	Effect Size	Cohen index
(Drug+EST) 1	۷۲	۴۴	۶,۷۸	۶۳	۳۸	۰,۹۴	۵,۷۷	۴۶	۵۶	۳۶	۰,۹۳	۵,۳۶
(Drug+EST) 2	۷۱	۴۶	۷,۲۱	۵۴	۳۵	۰,۹۲	۴,۸۵	۴۴	۶۱	۳۸	۰,۹۳	۵,۲۴
(Drug+CBT) 1	۶۹	۴۷	۷,۲۱	۴۶	۳۱	۰,۹۰	۴,۲۷	۴۳	۶۰	۳۷	۰,۹۲	۵,۰۵
(Drug+CBT) 2	۷۴	۴۹	۷,۸۹	۵۱	۳۳	۰,۹۱	۴,۴۴	۴۹	۵۱	۳۳	۰,۹۱	۴,۴۴
(Drug)1	۹۰	۶۳	۸,۲۵	۴۲	۳۰	۰,۹۱	۴,۵۹	۶۹	۳۰	۲۶	۰,۸۷	۳,۵۷
(Drug)2	۶۹	۵۲	۶,۵۶	۳۲	۲۴	۰,۸۱	۲,۷۷	۵۰	۳۸	۲۷	۰,۸۴	۳,۱۹

Table 3. Change indexes of process, slope and changeability amount of patients' scores in the anxiety score (BAI)

therapy	Baseline after drug therapy	Intervention	Standard Deviation of intervention	Improvement percentage after intervention (MPI)	Scores reduction percentage (MPR)	Effect Size	Cohen index	Follow-up	Improvement percentage after intervention (MPI)	Scores reduction percentage (MPR)	Effect Size	Cohen index
(Drug+EST) 1	۲۹	۲۰	۳,۱۶	۴۵	۳۱	۰,۸۸	۳,۸۴	۲۰	۴۵	۳۱	۰,۸۸	۳,۸۴
(Drug+EST) 2	۲۸	۱۷	۳,۸۹	۶۴	۳۹	۰,۸۸	۳,۷۷	۱۵	۸۶	۴۶	۰,۹۱	۴,۵۷
(Drug+CBT) 1	۳۱	۲۰	۳,۹۵	۵۵	۳۵	۰,۸۸	۳,۸۱	۲۰	۵۵	۳۵	۰,۸۸	۳,۸۱
(Drug+CBT) 2	۳۰	۱۸	۳,۹۸	۶۶	۴۰	۰,۹۰	۴,۱۳	۱۸	۶۶	۴۰	۰,۹۰	۴,۱۳
(Drug)1	۳۸	۲۴	۴,۹۶	۵۸	۳۶	۰,۸۹	۳,۹۱	۳۰	۲۶	۲۱	۰,۷۴	۲,۲۳
(Drug)2	۲۹	۲۰	۳	۴۵	۳۱	۰,۸۸	۳,۷۳	۲۰	۴۵	۲۱	۰,۸۸	۳,۷۳

Table 4. Change indexes of process, slope and changeability amount of patients' scores in the depression score (BDI)

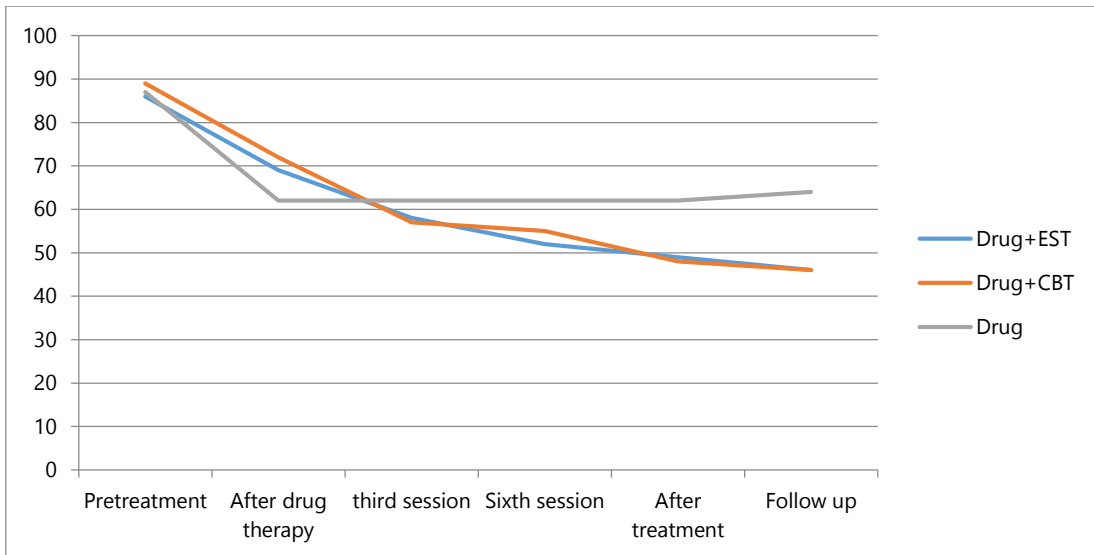| Therapy	Baseline after drug therapy	Intervention	Standard Deviation of intervention	Improvement percentage after intervention (MPI)	Scores reduction percentage (MPR)	Effect Size	Cohen index	Follow-up	Improvement percentage after intervention (MPI)	Scores reduction percentage (MPR)	Effect Size	Cohen index
(Drug+EST) 1	۲۸	۱۸	۴	۵۵	۳۵	۰,۸۶	۳,۴۲	۱۷	۶۴	۳۹	۰,۸۸	۳,۷۷
(Drug+EST) 2	۳۱	۱۶	۵,۱۱	۹۳	۴۸	۰,۸۹	۴,۰۷	۱۸	۷۲	۴۱	۰,۸۷	۳,۵۳
(Drug+CBT) 1	۳۰	۱۶	۵,۲۵	۸۷	۴۶	۰,۸۷	۳,۷۰	۱۵	۱۰۰	۵۰	۰,۸۹	۳,۹۶
(Drug+CBT) 2	۳۱	۱۸	۴,۲۵	۶۳	۳۸	۰,۹۰	۴,۲۱	۱۹	۷۲	۴۱	۰,۸۸	۳,۸۸
(Drug)1	۳۸	۳۰	۴,۲۲	۳۶	۲۶	۰,۸۷	۳,۵۸	۳۱	۳۲	۲۴	۰,۸۵	۳,۲۶
(Drug)2	۲۸	۱۸	۴,۰۵	۴۴	۳۵	۰,۸۳	۳,۰۶	۱۷	۶۴	۳۹	۰,۸۶	۳,۳۷

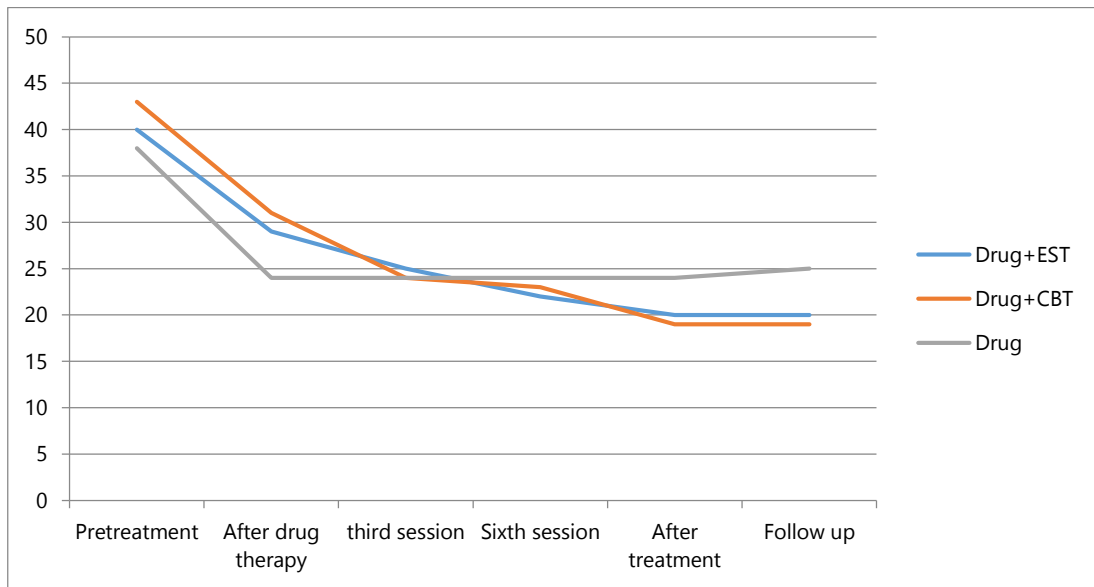**Figure 1.** Mean change of groups in the PTSD symptom variables

Figure 2. Average change of groups in the anxiety variable

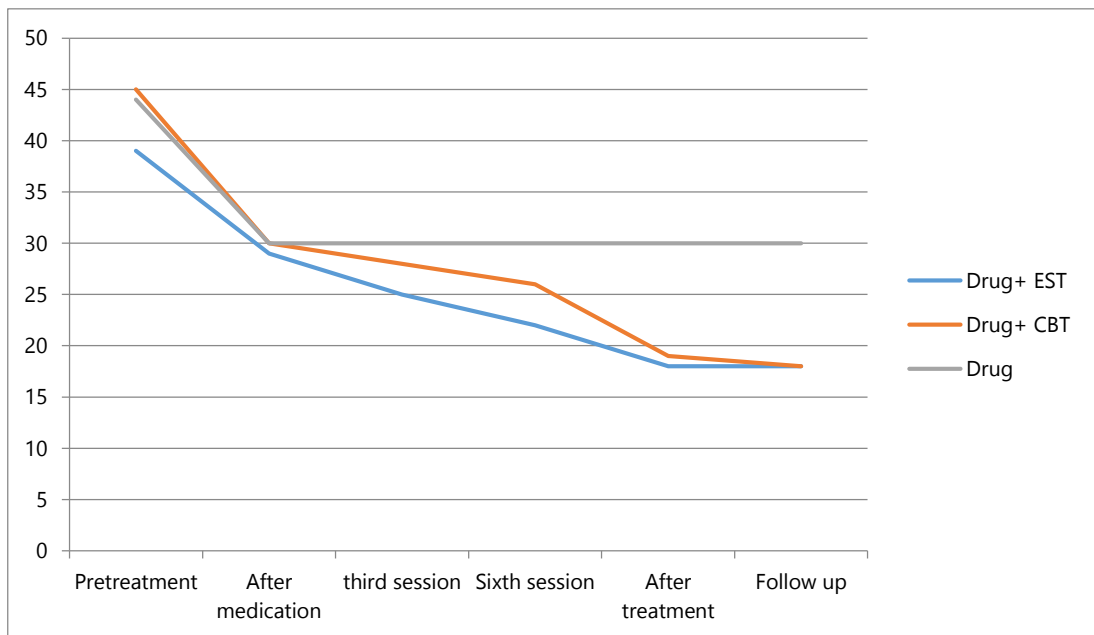**Figure 3.** Average change of groups in the depression variable

Acknowledgement

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