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Effectiveness of Emotionally Focused Therapy on Anxiety of Patients with Coronary Artery Disease

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Quantitative Study

Abstract

Background: Anxiety provides the grounds for coronary heart disease (CHD) or aggravates the symptoms of the disease. The present study was conducted to investigate the effectiveness of emotionally focused therapy (EFT) on anxiety in individuals with CHD. Methods: The research method was semi-experimental with a pretest-posttest design, control group, and follow-up stages. The statistical population of the study consisted of all heart patients in Tehran, Iran, from among whom 30 participants were selected through convenience sampling method. The study sample was randomly divided into experimental and control groups (15 individuals in each group). The experimental group received EFT training in nine 60-minute sessions, and the control group remained on the waiting list. The Beck Anxiety Inventory (BAI), developed by Beck, Epstein, Brown, and Steer (1988), was utilized to collect data in the pretest and posttest stages. Data analysis was conducted via descriptive and inferential statistics in SPSS software.

Results: According to the obtained results, heart patients in the experimental group showed lower anxiety levels after receiving EFT (P < 0.05).

Conclusion: Based on the results of this research, EFT can be an effective intervention in reducing anxiety in patients with coronary artery disease (CAD).

Keywords: Anxiety; Emotionally focused therapy; Coronary artery disease

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Introduction

People's lifestyles and preferences have changed recently. Consequently, diseases and their treatment patterns have been altered due to social, cultural, and industrial developments. Chronic diseases are major causes of health disorders and emotional distress worldwide (American Psychiatric Association, 2013). Chronic diseases are considered significant sources of stress, which imposes a financial burden on societies. Coronary heart disease (CHD) is a serious and fast-growing disorder (Aromaa, et al., 1994). The global epidemic of heart disease affects both developed and developing countries (Carney, Freedland, Rubin, Rich, Steinmeyer, & Harris, 2019) and is considered one of the main causes of death (Chang, et al., 2020). Due to its high prevalence and mortality rate, this disease has attracted the attention of researchers in recent decades, and many studies have been conducted on the pathophysiology, causes of prevalence, and risk factors affecting its incidence (Behzad, Zakeri, & Vafaey, 2019). Classic and known risk factors for coronary artery disease (CAD) include age (Christle, et al., 2020), race, positive family history, gender (Behzad, Zakeri, S & Vafaey, 2019), diabetes (Christle, et al., 2020), lack of physical activity (Chang, et al., 2020), unhealthy diet and lifestyle (Bos, et al., 2021), and smoking (Christle, et al., 2020). One can conclude that all of these factors may be modified except age, gender, race, and positive family history. Among the most important risk factors, body mass index (BMI), which is the most basic definition of overweight and obesity, plays an important role in the incidence and persistence of CAD (Bos et al., 2021).

In addition, coronary artery increases mortality and anxiety, and at the same time, it reduces self-reliance. Thus, based on the results of related studies, anxiety is a risk factor for CAD (Chang et al., 2020). As an indispensable part of a human's life, anxiety is one of the components of a human personality. Anxiety affects cognition and usually involves the patient's sensory perceptions. Anxiety influences cognitive function and causes perceptual distortions. Fear and anxiety are different; fear is a proportionate response to a known threat, while anxiety is a response to an unknown, ambiguous, or conflicting threat. Anxiety includes unpleasant feelings of fear accompanied by physical symptoms such as heartbeat and distress (Hosseinpour, Samiei, & Nematolahei , 2016).

Karami, et al. 2018) examined symptoms of depression and severity of anxiety and cardiovascular problems in patients with CAD. They reported that these patients showed symptoms of severe anxiety. In addition, low physical activity is associated with symptoms of depression and severe anxiety in patients with CAD (Christle, et al., 2020; Karami, et al., 2018) investigated anxiety treatment in patients with CAD. They found that the prevalence of anxiety was high in patients with CAD, and reducing anxiety could reduce traumatic psychological symptoms.

Due to the wide range of problems associated with CAD, various interventions have been conducted to improve the quality of life (QOL) of patients with CAD. The impact of emotionally focused therapy (EFT) on the anxiety of heart patients has never been studied before. EFT combines systemic perspectives, humanism, and attachment theory (Zou, Chair, & Cao, 2020). EFT has been shown to be more effective than other approaches due to being structured and having a step-by-step treatment plan. Moreover, a much lower chance of recurrence has been confirmed in this approach. In the first step, the treatment evaluates communication style, and after recognizing the defenses system, it clarifies the individual's style and determines its consequences. Accordingly, people gradually succeed in repressing the management of suppressed and obscure emotions, and thus, identify the cycle of negative communication and improve the cycle. The emphasis of EFT is on the method of adaptive and safe attachments through care, support, and mutual attention to one's needs and the needs of others (Ghaznavi Khazarabadi, & Niknam, 2019). Nekonam, Etemadi, and Pornaghash Tehrani (2018) found that EFT plays an important role in improving the problems of coronary artery bypass patients.

EFT includes a general focus on graduated exposure, in which fear-inducing or painful experience arising from anxiety can gradually be felt and processed in new ways. Attention is given to shaping new pathways for emotion regulation and increasing the client's use of social support (Johnson, 2018). One research about the effect of acceptance and commitment therapy (ACT), EFT, and schema therapy (ST) on anxiety in cardiac patients with a history of coronary artery bypass showed the effectiveness of ACT and EFT treatment on anxiety (Carney, et al., 2019). Zou, Chair, and Cao (2020) showed an increasing number of people worldwide living with CHD. Psychological disorders, such as stress, depression, and anxiety, are common in patients with CHD. Mindfulness-based intervention, which includes mindfulness and cognitive-behavioral therapy skills, can affect perceived stress, depression, and anxiety in patients with CHD.

According to the results reported by Christle, et al. (2020), EFT may be effective in improving anxiety. Since anxiety is an important factor in the persistence of CAD, EFT may significantly reduce the problems of patients with CAD. However, according to the related literature, no research has been conducted on the effectiveness of EFT on anxiety in patients with CAD. Therefore, the present study was conducted to investigate the effect of EFT on anxiety of patients with CAD. Performing this research helps reduce the problems of coronary heart patients, prevents the imposition of high economic costs on them and their families, and diminishes hospitalization time. In addition, it is effective in reducing the risk of developing advanced CVD, which leads to heavy and complicated surgeries. This treatment protocol has practical application in psychosomatic clinics and medical centers. The novelty of the research is that it can set a new foundation for research in health psychology. The results of this study can be helpful for decision-makers and planners of the country in preventing the disease, controlling it, and increasing the QOL of coronary heart patients.

Methods

The present study was an applied research in terms of purpose and a quasiexperimental research with a pretest-posttest design, a control group, and follow-up stage in terms of research method. The statistical population of this study included all patients with CAD who were referred to Shahid Rajaee Heart Hospital in Tehran, Iran, in 2019. Based on the Morgan formula, using the convenience sampling method, and considering the probable percentage of dropouts, 30 patients with CAD were selected as the study sample, and divided into 2 groups of 15 people.

Participants had to meet the 2 inclusion criteria of conscious consent to participate in the research, and age of 35 to 70 years. The exclusion criteria included consumption of psychiatric and psychotropic medications, absence from more than 2 therapeutic sessions, and suffering from drug abuse and smoking. The sample was randomly divided into experimental and control groups (15 in each group). Since, in a similar previous study, the number of 15 subjects has been suggested to be appropriate for each group (Sarmad, Bazargan, & Hejazi, 2019), in this research, 15 people were selected and assigned to each research group. The treatment group, i.e., EFT training group, received nine 60-minute sessions. No dropout occurred, and the number of subjects in each group remained constant until the end of the study.

It should be noted that the personal information of participants remained strictly confidential. The control group was in the waiting list group. A summary of the EFT training sessions is presented in table 1.

In this research, like any other research, some ethical principles have been taken into consideration in both the execution and writing of the research. The privacy and confidentiality of the collected data were observed, and the collected data was used in line with the purpose of this research. Moreover, in this study, subjects' dignity and rights, privacy, secrets, and freedom were respected. Explaining the objectives of the research to the participants, obtaining informed consent from them, giving them the freedom to participate if they wish and the right to leave the research at any point, providing information about EFT and harmless direct transcranial electrical stimulation, answering the participants' questions, and providing the results of the study to the subjects if they wished were other ethical principles observed in this study.

The Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown, & Steer, 1988) was used as the study instrument. The BAI is a one-factor, non-retrospective invoice including 21 items.

1 Familiarity and establishing a therapeutic relationship, explaining the general rules of treatment, assessing the nature of the problem and relationship, assessing people's goals and expectations of treatment, and performing the pretest 2 Identifying negative interaction cycle and creating conditions for people to reveal their negative interactive cycle, assessing the relationship and attachment bonding, introducing the principles of EFT and the role of emotions in interpersonal interactions, reconstructing interactions, and increasing flexibility 3 Identifying unrecognized emotions that underlie interactive situations, focusing more on the emotions, needs, and fears of attachment, validating their experiences, attachment needs, and desires, focusing on the secondary emotions that are revealed in the interactive cycle, and exploring them to identify basic and unknown emotions, discussing initial emotions, processes them, and raising people's awareness of primary emotions and hot cognitions Re-stating problems in terms of the underlying feelings and needs of attachment, emphasizing clients' ability to express emotional processes, describing the cycle in the context and field of attachment 5 Encouraging subjects to identify rejected needs and aspects of self-denial, drawing people's attention to how they interact with each other, expressing attachment needs and identifying denied needs, and increasing acceptance of corrective experience 6 Informing people about underlying emotions and revealing each person's position in the relationship, emphasizing the acceptance of the individual's experiences and new ways of interacting, highlighting and re-describing attachment needs, and pointing to their health and naturalness 7 Facilit		motionally focused group therapy sessions by Johnson (2018)
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	9	Strengthening changes that have taken place during treatment, highlighting the differences
between current and old interactions, forming a relationship based on a secure link so that		
discussing problems and searching solutions do not harm them, evaluating changes, and		
implementing posttest. Data analysis was conducted via descriptive and inferential		61 6 6 6
statistics in SPSS software (version 24; IBM Corp., Armonk, NY, USA),.		

Table 1. Emotionally focused group therapy sessions by Johnson (2018)

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The items are scored on a 4-point Likert scale ranging from 0 to 3. The total score of the scale ranges between 0 and 63. The total score of the scale is classified as the following: 0–9 normal or no anxiety, 10–18 mild to moderate anxiety, 19–29 moderate to severe anxiety, and 30–63 severe anxiety. The cut-off point of the questionnaire is 22 or higher. In Iran, the reliability and validity of the BAI has been calculated using Cronbach's alpha and a reliability coefficient of 90% for women, 91% for men, and 81% for the whole instrument has been (Karami, Bagian, Momeni, and Elahi, 2018). The reliability of the BAI has also been studied in other countries. Beck et al. (1996) used Cronbach's alpha and reported a reliability and validity of 0.90 and 0.67, respectively. In other studies, the Cronbach's alpha coefficient of the BAI ranged from 0.90 to 0.94. The test-retest reliability coefficient obtained for the BAI was 0.62 after a 7-week interval. Furthermore, in other studies, the Cronbach's alpha coefficient of the BAI was reported as 0.95, 0.92, and 0.91, respectively (Basharpoor, Anbari, & Mohajeri Aval, 2020).

In this study, EFT was performed on the experiment group based on the attachment theories of Johnson and Greenberg, and Bowlby. The validity of these therapy sessions has been confirmed in the studies by Jazayeri, et al. (2020).

Results

Demographic information and descriptive statistics, including frequency, and mean and standard deviation, are reported in this section. The mean age of the participants in the EFT and control groups was 50.42 ± 9.27 years and 55.07 ± 10.38 years, respectively. In addition, 53.3% of the participants in the EFT group were men, and 46.7% were women. According to chi-square test results, there was no statistically significant difference in age, sex, and education between the study groups.

Table 2 presents the mean and standard deviation of research variables in the 3 stages of pretest, posttest, and follow-up. In general, as shown, the mean anxiety index in the research groups in the pretest is close to each other. Furthermore, the mean anxiety score in the posttest and follow-up stages has decreased in the experimental group. Before conducting the analysis of covariance (ANCOVA), its assumptions were tested. To test the assumptions, the Shapiro-Wilk test was used to check the normality. Levene's test was used to check the homogeneity of variances and the homogeneity of the regression line slope.

As shown in table 3, the significance levels of the Shapiro-Wilk test and Levene's test for anxiety are greater than 0.05; therefore, the assumption of normal distribution of variables and homogeneity of variances is confirmed. Another assumption for ANCOVA is that regression lines should be the same for each group in the study. If the regression lines are heterogeneous, then covariance cannot be a good analysis for the data. It should be noted that according to this assumption, posttest scores of anxiety were considered as dependent variables, and pretest scores were considered as covariate variables. The homogeneity of the slopes is observed when the covariate variables and the dependent variables are equal to each other for all factor levels (experimental and control groups) (P > 0.05). In addition, there is no significant interaction between dependent and covariate variables.

Table 2. Mean and standard deviation of anxiety in the pretest, posttest, and follow-up stages

Variable	Group	Pretest	Posttest	Follow-up
		Mean ± SD	Mean ± SD	Mean ± SD
Anxiety	Control	29.93 ± 4.23	30.0 ± 4.83	31.64 ± 8.17
-	Experimental (EFT)	28.35 ± 3.45	13.64 ± 4.68	13.71 ± 5.01

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and Levene's tests, and regression line slope homogeneity analysis						
Variable	Shapiro-	Wilk test	Levene's test			
	F	P-value	Statistic	P-value		
Anxiety	0.66	0.40	0.31	0.96		

Table 3. Results of assessment of the assumptions using Shapiro-Wilk and Levene's tests, and regression line slope homogeneity analysis

Table 4 presents the results of repeated measures analysis of variance (ANOVA), which evaluates the effectiveness of EFT on anxiety. As shown in table 4, there was a significant difference between pretest, posttest, and follow-up scores of anxiety ($P \le 0.01$). Moreover, a significant interaction was observed between pretest, posttest, and follow-up scores of anxiety and groups ($P \le 0.01$). These results indicate the effectiveness of EFT on reducing anxiety in heart patients. Based on the degree of effect or difference (Eta squared), 55% of the changes in the variance of anxiety scores are due to EFT. The statistical power obtained was 1.

The Bonferroni post hoc test was used to determine in which test stage the level of anxiety differed significantly. This test was performed to compare the means two by two, which are presented in table 5.

According to the results presented in table 5, there was a significant difference in the mean scores of anxiety between the pretest and posttest, and pretest and follow-up stages ($P \le 0.01$), which means that the degree of anxiety in the experimental group has decreased significantly. In addition, there was no significant difference between the posttest and follow-up stages (P > 0.05), which shows that the effectiveness of EFT on the degree of anxiety was consistent.

Generally speaking, after controlling anxiety scores in the pretest, the posttest and follow-up scores of anxiety in the experimental and control groups differed significantly (F = 23.46; P < $0.001/p^2$). Furthermore, the analysis results in table 4 show that the anxiety scores in the pretest and posttest stages were statistically significant. This means that EFT was effective in reducing anxiety. Table 4 results confirm this finding and show that EFT reduced anxiety.

Discussion

This study aimed to investigate the effectiveness of EFT on anxiety in patients with CAD. The results showed that EFT was effective in reducing anxiety. Generally, a high level of anxiety has been reported among heart patients. Regarding the effectiveness of psychological intervention on reducing anxiety symptoms, the present study results are consistent with that of the studies by Karami, et al. (2018).

Overcoming unpleasant mental and emotional experiences is a difficult and time-consuming process for clients. In addition to creating an effective relationship, the therapist's mission in this field is to teach skills to regulate the client's emotions. The providers of EFT believe that emotion regulation is a process rather than an educational program with a specific protocol. In this sense, the occupational therapist is similar to an instructor (Angus & Greenberg, 2011). Experienced patients who have gained emotional awareness are trained to be aware of their emotions instead of suppressing or overcoming them and attempt to understand their experience as deeply as possible.

Table 4. Results of repeated measures analysis of variance for within-group effects and interaction

Within Subjects Effect		SS	df	MS	F	P-	Eta
						value	squared
Anxiety	Greenhouse-Geisser	897.17	1.62	554.74	24.81	0.0001	0.49
Anxiety and group	Greenhouse-Geisser	1140.17	1.62	704.99	31.54	0.0001	0.55
SC. Same of a meridian of the second se							

SS: Sum of squares; df: Degree of freedom; MS: Mean of squares

Table 5. The results of the Bonferroni adjusted comparisons of anxiety							
Stages	Pretest-F	Posttest	Pretest-Fo	ollow-up	Posttest-Follow-up		
Variable	Difference	P-value	Difference	P-value	Difference	P-value	
	Means		Means		Means		
Anxiety	7.32	0.0001	6.46	0.0001	-0.86	0.99	

During the sessions, patients realized that their emotions are not necessarily frightening and permanent. Therefore, instead of avoiding them or getting involved with them, they can hear their inner secret messages. In this regard, Asmari Bardehzard et al. investigated the effectiveness of EFT on patients' anxiety, and found that EFT, by strengthening processing and emotional self-awareness, changed emotional schemas and reduced stress anxiety by replacing consistent responses.

In addition, EFT was shown to be more effective than other treatment methods. This finding is in line with the findings of Ghaznavi Khazarabadi and Niknam (2019). The abovementioned studies have stipulated that EFT is more effective than other approaches due to being structured and having a step-by-step intervention plan with a much lower chance of recurrence. This treatment evaluates the communication style in the first step, and after the defenses are recognized, it reveals this style to the person to determine its consequences. Consequently, people gradually succeed in repressing suppressed and obscure emotions, and thus, identify the negative communication cycle and improve this cycle. The emphasis of EFT is on the method of adaptive and safe attachments through care, support, and mutual attention to one's own needs and the needs of others (Ghaznavi Khazarabadi & Niknam, 2019). This approach allows patients to control negative emotions such as anxiety and increase their adaptability by increasing emotional awareness. In group therapy methods, EFT encourages patients to question their distressing thoughts during treatment and eliminate alternative self-talk to deal with these emotions and mental disorders that cause both physical and mental distress. Addressing these problems in emotionally focused group therapy sessions decreases anxiety in patients (Zou, et al., 2020). According to EFT, patients' disturbances are created and continued through pervasive states of negative emotion and attachment injuries, lack of attention to internal needs and desires, negative interactive patterns, and inappropriate emotional experiences. The aim of EFT is to identify emotions and turn them into understandable and constructive messages. Emotional skills are defined as the ability to recognize and express emotions, empathize with others, reduce depression, and develop self-criticism (Zou, et al., 2020).

Anxiety in patients with CHD affects their sleep and mood and makes them feel lonely. Fear of helplessness and death causes negative feelings and moods and further isolation in patients. Feelings of inefficiency and insecure attachment often exacerbate anxiety and negative emotions in patients. In the present study, EFT had a significant effect on anxiety in patients with CHD. This treatment psychologically helps patients feel safe and secure attachment, have a higher sense of self-efficacy and self-confidence, and reduce feelings of depression and negative emotions (Johnson, 2018).

EFT is a communicative-based, empirical, and humanistic approach. In the first step of EFT, communication style is evaluated. After the defenses are revealed, this style is identified by the person, and its consequences are determined, which is why people gradually succeed in suppressing suppressed and obscure emotions, and in turn identify their negative communication cycle and improving this cycle. The emphasis of EFT is on adaptive and safe attachments through care, support, and mutual attention to one's needs and the needs of others (Ghaznavi Khazarabadi & Niknam, 2019; Basharpoor, et al., 2020). Based on the results of the current study, EFT is one of the best solutions for the reduction of the signs of anxiety in coronary artery patients. Psychologically, this type of therapy helps patients have a better feeling towards themselves and their surroundings. In the same vein, this method of therapy reduces anxiety's negative effects and symptoms and increases the patients' self-confidence (Johnson, 2018). Therefore, more attention needs to be paid to the therapy of cardiovascular patients with anxiety.

The participants were randomly divided into experimental and control groups in the present study to control the intervening variables and possible biases. The lack of similar studies, especially inside the country, was among the limitations of this study. Hence, any generalization of the results must be made cautiously. Furthermore, using a self-report questionnaire was another limitation of the study. Considering the characteristics of cardiovascular patients such as anxiety, depression, and behavioral disorders in certain cases, more attention should be paid to EFT. Moreover, it would be useful if researchers examined the findings of this study in other medical centers, such as dialysis centers inside the country.

Conclusion

Based on this research, EFT can be an effective intervention in reducing anxiety in patients with CAD.

Conflict of Interests

Authors have no conflict of interests.

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