

Cognitive-behavioral therapy and quality of life: An experience among cardiac patients

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ABSTRACT

Background: Considering the significance of quality of life in chronic diseases and the role of education in its improvement, this study was performed to investigate the effect of cognitive-behavioral therapy on improving the quality of life of cardiovascular patients in Isfahan city. **Materials and Methods:** In this experimental study, 56 patients, who referred to Chamran Hospital and Isfahan Cardiovascular Research Center, were randomly selected and assigned to two groups, i.e. experiment and control. The experiment group was trained in eight sessions, each session taking 2 hours. Both groups received MacNew quality of life questionnaire before and 2 weeks after treatment. Some demographic data were also gathered along with the questionnaire. Data were analyzed by SPSS software using statistical tests such as independent t-test, Chi-square, and analysis of covariance. **Results:** Observing the possible effect of pre-test, cognitive-behavioral therapy had a significant effect on the total score of quality of life and its three subscales. **Conclusion:** It seems that along with other medical therapies, making use of cognitive-behavioral intervention is an appropriate method for improving the quality of life of cardiovascular patients.

Key words: Alternative medicine, cardiovascular patients, CBT, cognitive-behavioral training, MacNew questionnaire, quality of life

INTRODUCTION

Despite the reduction in mortality from cardiovascular diseases over the past decade, these disorders are the leading cause of mortality or disability of individuals.^[1] Generally speaking, in patients with chronic coronary heart problems, curing the

disease is deemed as an unrealistic and unattainable goal, since it is debilitating and progressive and many external and internal factors affect its exacerbation or improvement. Naturally, these characteristics affect the quality of life of patients and noticing such an important indicator is a main objective of therapy and care.^[2]

Although common assessment methods of patients' improvement such as clinical examinations, laboratory investigations, and advanced imaging techniques provide important information about disease, they are not enough in a holistic view to the patient. From this view, diseases cannot be separated from personal and social characteristics of patients. Extending and centralizing the holistic view have led to new methods for evaluating patients' improvements. One of the commonest is to investigate the patient's quality of life.^[3] Measuring patients' quality of life is not only a tool to evaluate the effectiveness of therapeutic interventions, but also a method to analyze the cost-effectiveness of these interventions.^[4] Being

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a vast concept, quality of life does not have a unified definition. In recent years, attempts have been made to focus on health-related quality of life. The advancement of technology in medicine mostly has forgotten the comprehensive focus on the needs of people.^[5] Health-related quality of life, along with therapeutic interventions, focus on feeling well and life satisfaction; so, the quality of life concept is beyond health, though health dependent.^[6,7]

The World Health Organization (WHO) suggests four dimensions for quality of life:

- Physical health including pain and discomfort, sleep, rest, and ability to do everyday works
- Psychological health including appearance, positive and negative feelings, memory, focus, and self-confidence
- Social relationships including personal relationships, social support, and sexual relationships
- Environment including financing, home environment, access to information, participation in social activities, and commutation facilities.^[8]

The US Agency for Healthcare Research and Quality (AHRQ) reports about the importance of secondary prevention for cardiovascular patients: Annually, more than 2 million new coronary patients in the US need care and rehabilitation programs, since investigations show that follow-up cares lead to increase of ability, decrease of pain, anxiety, heart failure, increase of social and family interactions, and finally improvement of quality of life in these patients.^[9] Quality of life assessment, especially with chronic diseases, is of great importance since in these diseases, not only physical health but also psychological and social health are seriously threatened and most patients live their lives hopelessly.^[10] Cardiovascular diseases are generally categorized as chronic diseases and therefore the assessment of these patients' quality of life is of great importance for therapeutic decision making.^[11]

Paying attention to secondary preventions in holistic view structure and achieving improvements of patients' lives necessarily require new methods along with common therapies, methods which are generally developing in the field of alternative medicine and at the same time being assessed in different communities. Psychological intervention, especially cognitive-behavioral training, is one of these methods. A research investigated the effect of cognitive-behavioral therapies and drug therapy on anxiety disorders in comparison with drug therapy for 232 patients in two groups and showed that combination therapy (cognitive-behavioral therapy together with drug therapy) significantly reduced anxiety symptoms in these patients and improved their performance and quality of life. But the other group which only received drugs did not show much improvement.^[12] Such therapeutic interventions are not so widespread in our community and the training contents of these interventions are not adapted to our culture. Also, their efficiency is not studied comprehensively through scientific methods. This study is one of the first works done in this domain in Iranian community, which attempts to investigate the effects of cognitive-behavioral trainings on the quality of life of cardiovascular patients.

MATERIALS AND METHODS

Two-group pretest, post-test design was used in this quasi-experimental research. The sample consisted of 56 coronary heart patients who were randomly selected from Chamran Hospital's heart and training center and Isfahan Cardiovascular Research Center. Data were collected using MacNew quality of life questionnaire designed exclusively to assess cardiac patients' quality of life. It includes 27 questions and assesses cardiac patients' quality of life at three subscales: Emotional functioning, physical and social functioning, and quality of life of cardiac patients. Fourteen questions are about physical functioning, 14 questions are about emotional functioning, and 13 questions are about social functioning. Five physical functioning questions assess disease symptoms. Questions were allocated such that each question could be in one, two, or all three domains. Therefore, one's score in physical functioning equals to the mean score of 14 questions in the same domain, in emotional functioning it equals to the mean score of 14 in this domain, and in social functioning, it equals to the mean score of 13 questions in this domain. Final score equals to the total score of all questions.

Each question has a 7-scale response criteria and a subject's response to each of these seven propositions shows his or her stance on a continuum from "always" to "never." The highest score is 7 and the lowest score is 1 in each domain, showing high quality of life and low quality of life, respectively. This questionnaire has been standardized for cardiac patients in Isfahan city by Yousefi and Jafari in 2004.^[13] The reliability of the questionnaire used in this study was calculated as 0.94 through Cronbach's alpha. Patients' demographic information was received with the original questionnaire.

The training content designed for the experiment group included eight 2-hour group sessions which were held weekly. It was designed based on the topics of two books, namely *Cognitive Therapy in Groups: Guidelines and Resources for Practice*^[14] and *The Trainers Questionnaire Kit*,^[15] related literature, identification of specific problems of cardiovascular patients, and religious and cultural bases of the society. This training content included 10 general goals:

1. Informing patients about anxiety disorders and related issues
2. Familiarity with the logic of cognitive-behavioral training
3. Helping subjects to identify negative automatic behaviors and thought
4. Attending one's own feelings and replacing negative automatic thoughts with logical thoughts
5. Relaxation techniques
6. Methods of effective communication
7. Techniques of systematic desensitization
8. Group assertiveness techniques
9. Clarifying the relationship between thoughts and mood states
10. To stop thinking for dealing with negative thoughts

Each session had specified goals and homework corresponding to the received training. Subjects received materials and

homework in the form of “deep training”^[16] pamphlets and audio tapes for relaxation exercises. Experiment group subjects answered the pre-test questionnaire before the training and the post-test questionnaire 3 weeks after completing the training. Control group subjects did not receive any training but were told that they would be called for a training course. They also answered the pre-test and post-test questionnaires. Subjects were satisfied with participation in the study by persuasion.

The collected data were analyzed in SPSS software by using independent *t*-test to compare the age of patients and the duration of their disease, Kolmogorov–Simonov (KS) test to investigate the score normality of two groups for quality of life scale and its three subscales in pre-test and post-test, and covariance analysis (ANCOVA) test to compare the mean of quality of life of two groups with controlling the scores of pre-test. The criterion to reject the null hypothesis was set as $\alpha \leq 0.5$ in all tests.

RESULTS

Score normalcy of both groups at quality of life scale and its three subscales in pre-test and post-test was investigated and supported by KS test ($\alpha \leq 0.5$). Frequency of gender, marital status, risk factors, financial situation, job stress, and education were compared in the two groups by Chi-square test, which did not show significant differences. The age of patients and duration of their disease in both the groups were compared through independent *t*-test which did not show significant differences with scores ($t = 1.025$ and 1.24 , respectively) [Table 1].

In order to eliminate the possible effects of pre-testing, quality of life (dependent variable) was analyzed by ANCOVA. Its results are shown in Table 2.

Results showed that eliminating the possible effects of pre-testing, cognitive-behavioral trainings had significant effect in three quality of life subscales and the total score of quality of life with $P < 0.0001$.

DISCUSSION

This study aimed at investigating the effect of cognitive-behavioral training on quality of life improvement of cardiovascular patients.

As shown by the results, the size effect and high statistical power of the test indicate that with current sample size, cognitive-behavioral trainings had a significant and determinant effect on the improvement of cardiovascular patients' quality of life.

In this research, no change was made in the drugs received by experiment and control groups, but studies which compared the effect of cognitive-behavioral trainings with that of drug therapy show that besides reducing anxiety and improving quality of life of cardiovascular patients, cognitive-behavioral trainings also lead to lowering drug use.^[17] The effect of cognitive-behavioral trainings on improving the quality of life has

Table 1: Mean and standard deviation of scores of subjects of both the groups before and after intervention

Dependent variable	Pre-test	Post-test
Experiment group		
Emotional functioning	4.63 ± 1.26	5.66 ± 0.93
Physical functioning	4.46 ± 1.32	5.53 ± 0.97
Social functioning	4.63 ± 1.39	5.71 ± 0.94
Total score of quality of life	4.53 ± 1.16	5.57 ± 0.83
Control group		
Emotional functioning	5.01 ± 1.17	4.85 ± 1.38
Physical functioning	4.92 ± 1.30	4.86 ± 1.29
Social functioning	5.00 ± 1.37	5.01 ± 1.27
Total score of quality of life	4.93 ± 1.15	4.87 ± 1.28

Table 2: Results of ANCOVA test, the effect of cognitive-behavioral trainings on the dependent variable of MacNew quality of life and its subscales

Dependent variables	F value	The significance level	Effect	Test power	P
Emotional functioning	23.809	0.0001	0.31	0.998	≤0.05
Physical functioning	15.763	0.0001	0.22	0.974	≤0.05
Social functioning	16.706	0.0001	0.24	0.98	≤0.05
Total score of quality of life	20.278	0.0001	0.27	0.993	≤0.05

been investigated extensively and is the research still continues. A study found that cognitive-behavioral trainings are effective in increasing the quality of life of anxious patients.^[18] There is also convincing evidence that anxiety is a predisposing risk factor in developing coronary heart disease (CHD). But implementing other psychotherapy techniques such as relaxation, meditation, and biofeedback through lowering blood pressure reduce the vasoconstriction and improve the heart function and quality of life.

Other researches which investigated the effect of cognitive-behavioral trainings found these interventions effective, especially in secondary prevention.^[19,20]

With gradual development in holistic view toward treatment of patients and its relative popularity among experts, methods appropriate with the view are also being developed in therapeutic interventions. The psychological method is being widely used as one of the effective methods in alternative medicine, especially in the treatment of chronic diseases. In this regard, the results of this study and other similar studies in the world will make cognitive-behavioral training as an inseparable part of treatment protocol for chronic patients in general and cardiovascular patients in particular.

It seems that there is a close relation between one's perceptions of himself, his confidence, the ability to arouse positive feelings and resist negative feelings, positive view of himself, his world

and the future and being realistic, and coping with chronic diseases especially with cardiovascular diseases. If these factors become reinforced on patients, they will have significant effects on feelings about recovery, life satisfaction, being less panic and anxious, and consequently on improvement in quality of life.

Given the fact that the present research is one of the early efforts in Iran, its feasibility and results indicate the research's functionality. It needs to be mentioned that the investigated domain has not reached the status of saturation research yet. Other topics and domains also need to be investigated extensively, such as durability of the effects of cognitive-behavioral trainings, balance between cognitive-behavioral trainings and drug use, interactions between physicians and behavioral scientist whilst visiting patients, ensuring when patients reach the ability to control their feelings. Prospective longitudinal studies together with larger sample size and more variables can have useful and practical results which will compensate the shortage of research in this domain.

CONCLUSION

Results of researches such as the present research will lead to more wisely adopting effective methods of complementary medicine by health and medical education authorities and to reinforce the holistic view; consequently, both medical education programs and treatment protocols will undergo significant changes in the future.

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