

# The effect of education based on the main concepts of logotherapy approach on the quality of life in patients after coronary artery bypass grafting surgery

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## ABSTRACT

**Background:** Improving the patients' quality of life (QOL) after coronary artery bypass grafting (CABG) is one of the main concerns of the treatment team. Educational interventions may affect the aspects of QOL in various ways. The present study aimed to investigate the effect of education based on the main concepts of logotherapy approach on the CABG patients' quality of life.

**Materials and Methods:** In this quasi-experimental study, a convenient sample of 67 patients who had undergone CABG in Isfahan Chamran hospital were randomly allocated to two groups of experimental ( $n = 35$ ) and control ( $n = 32$ ). While the control group received routine care, the experiment group benefitted from logotherapy-based education program (six 90-min sessions, twice a week). SF-36 questionnaire was completed by both two groups (before and 1 month after intervention). Descriptive and inferential statistical tests (consisting of independent  $t$ -test) were employed to analyze data in SPSS version 13.

**Results:** The pre-test mean total score of SF-36 questionnaire and also the mean scores of its eight dimensions were not significantly different between the two groups. The post-test mean score change [Standard Error (SE)] in the intervention group was 24.95 (3) and in the control group was 9.27 (0.82). There were significant differences between the two groups ( $P < 0.001$ ). Moreover, the mean scores of six dimensions of QOL (vitality, bodily pain, general health, emotional role, social functioning, and mental health) changed significantly in the intervention group.

**Conclusions:** Our findings indicated that the intervention has improved the patients' QOL after CABG. Integration of such an intervention in these patients' rehabilitation programs is recommended.

**Key words:** Coronary artery bypass, coronary artery bypass graft, education, Iran, logo therapy, quality of life

## INTRODUCTION

The highest mortality rate in the world is associated with cardiovascular diseases.<sup>[1]</sup> Based on WHO documents issued in Sept 2012, out of 17.3 million patients who died of cardiovascular diseases in 2008, the cause was coronary artery disease in 7.3 million.<sup>[2]</sup> Coronary artery bypass grafting (CABG) is one of the most common treatments used to relieve the pain of coronary artery patients, prolong their life, and improve their quality of life (QOL).<sup>[3,4]</sup> Previous studies reported that CABG, due

to relieving pain and disease signs, improving patients' function, and leading to an increase in their participation in physical exercises, led to higher QOL of these patients after surgery.<sup>[5-7]</sup> Meanwhile, other studies showed that some patients did not experience improved QOL after surgery.<sup>[8-10]</sup> One of the effective factors on these patients' QOL is their psychosocial problems. About half of the patients have been reported to suffer from depression and some other psychological problems after CABG, which is attributed to impaired function, an increase in the level and duration of pain, more re-hospitalizations, and increased morbidity and mortality, which consequently lead to a reduction in their QOL.<sup>[4,11-14]</sup> It seems that psychosocial interventions due to their effects on pain, severe anxiety, anger and, depression

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could improve the patients' QOL,<sup>[15,16]</sup> however, there is no strong evidence supporting that psychosocial interventions could improve the CABG patients' QOL, because they often suffer from functional impairments.<sup>[8,10]</sup> Existential approaches as one of the psychosocial interventions have been adopted to improve function in patients. Logotherapy is one of these approaches through which the patients are helped to find a new meaning for their miserable life events to have more adaptation with the disease.<sup>[17]</sup> Shooa-Kazemi and Saadati reported that education based on logotherapy reduced hopelessness in women with breast cancer.<sup>[18]</sup> In another study, group logotherapy led to increase in life expectancy and general health in adolescent girls suffering from thalassemia.<sup>[19]</sup> Positive effects of this approach have been reported on depression and hopelessness in the disabled with a spinal cord injury.<sup>[20-22]</sup> Moreover, some other researchers tried to investigate the effect of interventions with the approach of logotherapy, specifically on increase in QOL. For instance, Kang *et al.*<sup>[23]</sup> and Kang *et al.*<sup>[24]</sup> reported that logotherapy improved QOL in adolescents with cancer, and Mosalanejad and Koolee<sup>[25]</sup> also supported the benefits of this approach in distressed infertile women.

In spite of various studies supporting the beneficial effects of logotherapy-based interventions on improvement of patients' functions and finally their QOL, there was not any convincing evidence on the effects of this intervention on the QOL of cardiac patients after CABG.

As such an approach could be applied and potentially accepted by the nurses to improve the patients' QOL,<sup>[26,27]</sup> this study was conducted to evaluate the effect of education, based on the main concepts of logotherapy approach, on the CABG patients' QOL.

## MATERIALS AND METHODS

This is a quasi-experimental study with a two-group and pre-test–post-test intervention conducted on patients undergoing CABG in the surgery ward of Chemran University Hospital in Isfahan in 2013. Inclusion criteria were age over 35 years, ability to attend the project, passing recovery period 1–2 months after CABG, no previous education of logotherapy, and subjects' personal interest to attend the study.

Based on the medical evidences and files, it was ensured that the patients had no diagnosed mental diseases, mental retardation, blindness, deafness, and Alzheimer at the time of their participation in the study. The subjects who lost interest to participate in the study or were absent for two sequential sessions of educational intervention due to any reason were excluded. Sample size was primarily calculated as 54 subjects based on consultation with statisticians and with regard to previous studies. Considering subjects

dropping out of the study, sample size was finally calculated as 75 subjects, who were conveniently recruited from Oct to Jan 2013 from among the patients who had undergone CABG surgery and were referred to the surgery ward of Chamran University Hospital in Isfahan. The subjects were randomly assigned to intervention and control groups. A written consent was obtained from all subjects before they attended the study. The subjects were assured about confidentiality of their data. All subjects were free to leave the study at any time they liked. The content of the program comprised an educational booklet based on Frankl's logotherapy theory, collected and designed by the research team from the relevant literature [Table 1]. Content validity of the booklet was approved by 10 expert people (6 psychologists and 4 psychiatric nurses). The training sessions were mainly conducted by the principal researcher (M. M.) who was an experienced nurse. However, he was continuously supervised by his advisors and sometimes by some other experienced psychologists who were not members of the research team.

Both groups received routine CABG post surgery education. In the intervention group, the subjects received an educational program based on the main concepts of logotherapy. The educational sessions were held in the form of six 90-min sessions twice a week based on the studies of Kang *et al.*<sup>[23]</sup> and Shooa-Kazemi and Saadati.<sup>[18]</sup> Subjects in the intervention group were divided into four 10-member sub-groups. The educational program was carried out with quite similar conditions such as the educator, environment, temperature, light, etc., in the study sub-groups. Lecture, question and answer, and group discussion were adopted to present the educational materials. At the end of the educational sessions, a brief educational booklet, related to each session, was given to the subjects. The control group subjects received CABG postoperative routine education. After completing the research period, they received the educational booklet and related electronic file.

Data collection tool was a two-section questionnaire. The first section contained subjects' demographic and clinical characteristics that were collected by questioning the patients and their accompanying persons as well as referring to their medical records. In the second section, SF-36 QOL questionnaire was used. It has eight dimensions of general health (6 items), physical functioning (10 items), role physical (4 items), role emotional (3 items), bodily pain (2 items), social functioning (2 items), vitality (3 items), and mental health (6 items).

The scores range from 0 to 100 in each domain, so that score 0 shows the worst and score 100 shows the best condition in each domain.<sup>[28]</sup> This questionnaire was filled through questioning. Validity and reliability of SF-36 have

been investigated in various groups of patients. Failde and Ramos accredited this questionnaire in coronary artery disease patients and reported its high internal consistency (Cronbach's alpha = 0.72–0.94).<sup>[29]</sup> Reliability of Persian version of this questionnaire, measured in the study of Dehdari *et al.* through precede-proceed method with a 2-week interval, was reported to be 0.76 ( $r = 0.76$ ).<sup>[16]</sup> The questionnaire was filled in both groups at the beginning and 50 days after intervention in similar conditions. The collected data were analyzed by descriptive and inferential statistical tests through SPSS13.

**Table 1: Content of logotherapy approach education program (duration of each session was 90 min)**

Sessions	Content
1	Introduction and orientation to the program, making initial communication with the patients and gaining their trust, group members' familiarization to diminish group tension, Q and A, and determination of the next session assignment (prepare a primary draft from something that is so attractive and lovely to you that you don't mind losing your life for)
2	A review on the previous session assignment and giving a feedback, making a trustful atmosphere to talk and express feelings, patients' attitudes and thoughts, introduction of logotherapy, teaching the important terms in logotherapy (meaning of life, freedom, meaningful living, and seeking satisfaction), Q and A, and determination of the next session assignment (look for the positive points made by the disease). What strategies have you thought of to overcome the problems in life?
3	A review on the previous session assignment and giving a feedback, reducing patients' anxiety through searching for and discovering the meaning in their life, discussing about anxiety and pain, suffering, sin, and death, Q and A, and determination of the next session assignment (try to find how you can reduce your anxiety and suffering by finding the meaning of life during the coming week)
4	A review on the previous session assignment and giving a feedback, discussing about the attitudes and obtaining the meaning through meaning discovery methods and helping the patients to achieve an acceptable life, Q and A, and determination of the next session assignment (remember and put down all satisfactory life events, make pleasant and beautiful experiences for yourself during the week. Spend time on your newly attained values and their associated responsibilities during the week)
5	A review on the previous session assignment and giving a feedback, discussing about obtaining the meaning from the historical texture of life, acceptance of freedom, members' selection of living and being committed to it, and overcoming hopelessness, Q and A, and determination of the next session assignment (answering to some questions: What are your priorities in life? What have you learned from your past life? What strategies can revolutionize your learning?) The assignments of doing the events that give you a pleasant feeling in the coming days
6	A review of the previous session assignment and giving a feedback, discussing about the achievement of meaning and life concepts through understanding the supra meaning and dignity made by faithfulness, but not by wisdom meaning, Q and A, summary and finalization of the sessions, and sessions closure

### Ethical considerations

The study was approved by the IUMS research Committee. Participants signed an informed consent and were given written information and were ensured that their participation would be voluntary. Moreover, they were ensured about the confidentiality of their information.

### RESULTS

In the present study, out of 121 qualified patients who met the inclusion criteria, 75 signed a written consent form to attend the study. After random allocation, there were two groups of intervention ( $n = 40$ ) and control ( $n = 35$ ). During the study, four subjects just attended two to three interventional sessions. Meanwhile, one subject in the intervention group and three in the control group did not refer for the post-test. All these aforementioned subjects were excluded. The demographic characteristics of 67 patients have been presented in Table 2. Results showed no significant difference in age, sex, marital

**Table 2: Demographic characteristics of the patients in the intervention and control groups**

Indexes	Mean (SE) or n (%)				P value
	Intervention		Control		
Age, mean (SE)	62.3	0.97	62.1	0.98	0.91
Sex, n (%)					
Female	9	25.70	5	15.60	0.31
Male	26	74.30	27	84.40	
Education level, n (%)					
Illiterate	5	14.29	5	15.62	0.80
Primary	16	45.71	12	37.60	
Middle school	7	20	9	28.13	
High school	4	11.43	3	9.37	
University	3	8.57	3	9.37	
Marital status, n (%)					
Single	0	0	0	0	0.84
Married	28	80.00	25	78.10	
Divorced	2	5.70	3	9.40	
Widowed	5	14.30	4	12.50	
Occupation status, n (%)					
Employee	5	14.29	4	12.50	0.99
Worker	15	42.86	13	40.63	
Retired	12	34.28	12	37.50	
Homemaker	3	8.57	3	9.37	
Jobless	0	0	0	0	
Level of income, n (%)					
Less than US\$ 200	8	22.86	9	28.12	0.66
US\$ 400	21	60.00	18	56.24	
Over US\$ 400	6	17.14	5	15.64	

SE: Standard error

status, occupational status, level of education, and level of income between the two groups before intervention. As observed, the ratio of men to women was 4. Most of the subjects were married, and were mostly working or retired. Also, we compared clinical indexes such as history of hypertension, length of hypertension, history of diabetes and its length, history of smoking and its length, history of hyperlipidemia and its length, history of hospitalization, and history of angioplasty in the two groups. Chi-square and *t*-tests were used to compare the two groups and did not show any significant difference in clinical indexes between them ( $P > 0.05$ ).

For more confidence of analysis, skewness and kurtosis indexes were calculated, which showed a normal distribution in the entered variables. Levene's test approved homogeneity of all variances.

In addition, in order for homogeneity of the groups, they were compared concerning the scores of QOL dimensions and its overall score. Independent *t*-test showed no significant difference in mean [Standard Error (SE)] scores of physical functioning, role physical, role emotional, vitality, mental health, social functioning, bodily pain, and general health, as well as overall QOL between intervention and control groups before intervention ( $P > 0.05$ ). Table 3 represents the mean score changes  $\pm$  SE of QOL dimensions and overall QOL (before and after intervention) in the two groups. There was a significant difference in mean score changes between the two groups in terms of six dimensions of QOL including role emotional, vitality, mental health, social functioning, bodily pain, and general health before and after intervention ( $P < 0.05$ ) [Table 3]. Meanwhile, no significant difference was observed in the two dimensions of physical functioning and role physical ( $P > 0.05$ ).

**Table 3: Comparison of changes in mean (SE) scores of QOL dimensions and its overall score in the two groups 1 month after intervention**

QOL dimensions	Intervention (n=35)		Control (n=32)		Statistical results	
	SE	Mean changes	SE	Mean changes	t	P
Physical functioning	22.29	4.30	20.00	3.33	0.42	0.68
Role physical	27.86	5.30	25.00	3.18	0.45	0.65
Role emotional	56.19	7.07	15.63	3.96	5.01	0.00
Vitality	22.57	2.68	2.81	0.71	7.14	0.00
Mental health	17.37	3.40	3.00	0.74	4.13	0.00
Social functioning	20.00	4.44	-0.39	0.68	4.54	0.00
Bodily pain	14.93	4.07	4.69	1.14	2.42	0.02
General health	18.43	2.94	3.43	0.82	4.91	0.00
Overall QOL	24.95	3.00	9.27	0.82	5.04	0.00

QOL: Quality of life, SE: Standard error

The findings showed a significant increase in mean score change of overall QOL after intervention in the intervention group compared to control ( $P < 0.001$ ,  $df = 39.1$ ,  $t = 5.04$ ).

## DISCUSSION

The goal of the present study was to investigate the effect of education, based on the main concepts of logotherapy approach, on the CABG patients' QOL. The results showed that mean score changes of six QOL dimensions and overall QOL significantly increased in the intervention group. Meanwhile, no significant difference was observed in the two dimensions of physical function and role play limitation due to physical reasons between the intervention and control groups (although mean scores changes were more in the intervention group).

Although the present study shares some specific results in this topic, some parts of the results are in line with other similar studies, all of which are discussed. In support of the usefulness of logotherapy-based interventions in vitality and general health, Gholami *et al.* investigated the effect of logotherapy among the thalassemic girls and reported that it was effective on subjects' life expectancy and general health.<sup>[19]</sup> Although their study was not carried out on CABG patients, their results have strengthened the proposition of logotherapy-based interventions to be as useful to improve some parts of QOL. In another study that was conducted by Ho *et al.* (2010) in Hong Kong, the results supported the positive association between adolescents' meaning in life and their optimism and well-being.<sup>[30]</sup> This result may support the usefulness of improving peoples' meaning in life, which is the main theme of logotherapy, in increasing the sense of well-being, which is known as an indicator of mental health. Some other studies have supported the effect of logotherapy on patients' mental health. For instance, Hosseinzadeh-Khezri *et al.* reported that group logotherapy interventions could effectively influence mental and psychological dimensions in patients with life-threatening diseases, such as cancer patients.<sup>[31]</sup> Nevertheless, future researches are necessary to investigate the effect of logotherapy-based intervention on the CABG patients' mental health.

Another finding of the present study, the usefulness of the logotherapy-based intervention on the patients' physical functioning, is not supported by reports in literature. Likewise, de Leon *et al.* investigated the effect of a psychosocial intervention based on cognitive therapy, compared to common care on the QOL of 2481 patients after myocardial infarction (MI). Six months after intervention, it was found that those interventions had a positive effect on the mental health dimension of QOL while they had little effect on the physical dimensions of QOL, and overall QOL had

improved a little.<sup>[32]</sup> Moreover, Fakhar *et al.* also reported that group counseling with a logo-therapeutic approach led to an increase in mental health and social action of older adult women, but had no notable effect on their physical complaints.<sup>[33]</sup> Likewise, La Pier<sup>[34]</sup> reported that the physical components of QOL showed no notable improvement 6 months after CABG, compared to the mental components. It seems that psychosocial interventions tend to improve psychosocial functioning and psychosocial dimensions of QOL, rather than its physical dimension. A potential justification is that physical functioning dimension of QOL is associated with the level of the patients' physical activities and surgery-related complications, and therefore, the process of recovery is longer in this dimension. La Pier reported that an improvement in physical dimension of the QOL is a gradual process and takes about 1 year time.<sup>[34]</sup> Nevertheless, further studies are needed investigating the usefulness of psychosocial interventions in the CABG patients' physical functioning.

The present study also supported the improvement of social functioning following psychosocial logotherapy-based intervention. It seems to be a desirable finding, although there are some contradicting evidences. For example, in Ghanbari and Goudarzi's study, the social dimension of general health did not improve in the distressed women by group counseling with a logotherapy approach.<sup>[20]</sup> Such disparities of evidences may be attributed to different study samples, study contexts, and particular effects of CABG on the patients' QOL. Therefore, there is a need of particular and tailored interventions to meet these patients' health needs.

This study is faced with some limitations, such as small sample size, which could limit the generalization of the findings. Future studies with large sample sizes and in a variety of contexts are need to ensure the optimal effects of logotherapy-based education intervention on all dimensions of the CABG patients' QOL.

## CONCLUSION

The present study showed that educational interventions, based on the main concepts of logotherapy, led to an improvement in patients' QOL after CABG. It is recommended to combine such education with routine education of the patients undergoing CABG. Future researches are also suggested to ensure the usefulness of psychosocial interventions like logotherapy-based education on the physical dimension of the CABG patients' QOL.

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