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# Effect of self-care education on quality of life in patients suffering from myocardial infarction

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## Abstract

**Aims.** Increase in medical expenses, being far from family and high rate of nosocomial infections have caused self-care and in-home care to be considered more than previous. Present study was performed to assess the effect of self-care education on quality of life in patients suffering from myocardial infarction.

**Methods.** This research is a clinical trial study. 64 patients (32 people in case group and 32 people in control group) who were admitted in coronary care unit of hospital with diagnosis of myocardial infarction were assessed. Self-care education was done in intervention group. Nottingham quality of life questionnaire was used for assessing quality of life before and after education program.

**Results.** Statistical independent T- test showed that total score and quality of life score doesn't have significant difference in two groups before intervention ($P>0.17$), while total score and quality of life score have significant difference in two groups after intervention ($P<0.005$). Paired T- test also showed significant difference in total score and quality of life score before and after intervention ($P<0.001$).

**Conclusion.** Quality of life can improve with self-care education in patients suffering from myocardial infarction.

**Keywords:** Self-care Education, Quality of Life, Myocardial Infarction

## Introduction

Coronary artery disease is the most important cardiovascular disorder and the main health complication in both developing and developed countries. At the beginning of the twentieth century, cardiovascular disorders accounted for less than 10% of the total mortality of the world, while at the end of this century heart diseases accounts for approximately half of total mortality in developed countries and about 25% of mortality in developing countries. It is predicted that in 2020 nearly 25 million deaths will be due to cardiovascular diseases [1] and cardiovascular disease and stroke, respectively will be the first and the fourth causes of disability in the list of disabling and debilitating diseases [2].

According to published report of World Health Organization (WHO), annually 1.7 million deaths happen due to coronary artery disease, which is predicted that in 2020 will have reached to 11.1 million cases. Also, cardiovascular disease is one of the important causes of mortality in Eastern Mediterranean countries and Middle East area and this problem is growing in Iran [3]. Coronary artery disease have been called "century epidemic" which is formed in Iran, too [4]. According to WHO in March 2002, 35% of death causes in Iran (91 thousand) have been due to cardiovascular disease [5].

Heart disease, not only affect patients' comfort and prosperity but also their social relations, life pattern, jobs and income levels [6]. After the diagnosis of myocardial infarction and progression of the disease toward asymptomatic status, active adoption of a program for rehabilitation with the aim of enhancing the life quality of these patients seems necessary [7]. One of the basic needs of these patients is educational need and giving clear and sufficient information, which is one of the main responsibilities of the workers in professions related to health [8]. Increasing the awareness of individuals and their understanding of disease risk factors and instructing preventive behaviors, can increase the quality of life and prevent their re-hospitalization [9]. Self-caring is a valuable step towards the individuals' awareness increase, also it helps patients gaining their personal independence and facilitates their adaptation to the disease and subsequently increases their quality of life [10]. Educating these patients can lead to many outcomes such as the prevention of disease, its complications, reduction in the number and duration of hospitalizations, the patient cooperation in self-care, reducing treatment costs and as the result, promotion

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of individual and social health. Increased treatment costs, family separation and increased nosocomial infections have led to the daily home care and self care to be welcomed. Therefore, this study aimed to investigate the effect of the self-care education on quality of life of patients suffering from myocardial infarction.

## Methods

The present study is an experimental clinical trial which was conducted on 64 patients suffering from myocardial infarction who were hospitalized in the critical cardiac care unit (CCU). Participants of the study were selected through objective approach, and then randomly divided into experimental and control groups. The criteria of inclusion in the study were: diagnosis of myocardial infarction for patients, lack of previous participation in self-care program, no need to surgical treatment, lack of physical disability or mental disorder and EF>40.

A researcher-made questionnaire was the research tool for data collection which consisted of 41 questions for investigating self-care needs in the three domains of cognitive, emotional and operational fields, also life quality questionnaire of Nottingham or NHP (Nottingham Health Profile), which contains 38 questions in 6 dimensions as following: energy, pain, emotional reactions, sleep, social isolation and physical mobility. In order to determine the scientific validity of the self-care questionnaire, content validity was used and its reliability was obtained by test-retest reliability method (r=0.85) by which the validity and reliability of the questionnaire were confirmed [11]. Nottingham Questionnaire scoring is from zero to 100. In each dimension, scores of 100 and zero, respectively are the best and the lowest qualities of life. Data were collected after passing the acute period of disease and stability of patient's condition in Post CCU ward, with explaining the aim of the research and obtaining their consent to participate in research. They were assured about being anonymous, confidentiality and respect to patient privacy and the right of exiting the study at any time was reserved for them. Questions related to the quality of life were explained to patients by the researcher and patients considering their condition, selected the appropriate option. Then, based on self-care need which was determined by the questionnaire, face to face training was done in the experimental group at least 2 times and each time 15 minutes in two consecutive days. Then for a 2 months period patients' discharge, they did not receive any intervention. At the beginning of the fourth month life quality forms were completed again by visiting patients in their home for both experimental and control groups. Data were analyzed using SPSS 11.5 software by descriptive and inferential statistics with Paired T test, repeated measurement analysis of variance (ANOVA), Independent T-test, and finally Spearman and Pearson tests.

## Results

Results showed that 48.43% of subjects were in the age group of 60-51 years, 73.34% of them were males and 26.56% were married. 26.56% of them had under diploma education and 54.68% of them did not mention any heart disease history among their relatives.78.12% of them had no diabetes history, 68.75% of them had no history of hyperlipidemia, 51.56% suffered from hypertension and 60.93% were smokers.

**Table 1-** Comparison of the total score of life quality of the studied groups before and after intervention

| Test→ Groups ↓ | Before intervention | After intervention | Paired T test |
|---|---|---|---|
| | Mean±SD | Mean±SD | |
| **Control** | 61.4±18.62 | 66.58±15.08 | p>0.17 |
| **Experimental** | 54.30±20.61 | 75.51±9.63 | p<0.01 |
| **Independent T test** | p>0.17 | p<0.005 | |

Regarding demographic variables and risk factors before intervention in both groups, no statistically significant difference was seen (p>0.05). Statistical independent T test did not show any significant difference in terms of total score and dimensions of quality of life in each experimental and control groups before the intervention (p>0.05).

**Table 2-** Comparing the score of life quality dimensions in control group before and after intervention

| Test→ Dimensions ↓ | Before intervention | After intervention | Paired T test |
|---|---|---|---|
| | Mean±SD | Mean±SD | |
| **Energy** | 61.35±29.09 | 77.82±21.16 | p<0.02 |
| **Pain** | 66.08±23.83 | 78.52±12.20 | p<0.01 |
| **Emotional reaction** | 56.03±26.22 | 57.29±20.30 | |
| **Sleep** | 49.70±20.43 | 56.43±22.49 | |
| **Social isolation** | 56.17±24.50 | 58.96±23.04 | |
| **Physical movement** | 76.92±17.63 | 81.32±10.35 | |

In the experimental group the total score of life quality before intervention was 54.30±20.61 that was increased after intervention to 75.51±9.63 which statistical paired T-test showed this difference to be significant (p<0.01). But in control group the observed difference in the total score of life quality before and after intervention period (61.04±18.62 to

66.58±1515.08 respectively) did not present a significant statistical difference (p>0.17). Also, the total score of life quality after intervention in experimental group (75.51±9.63) was more than obtained score in control group (66.58±15.08) which this difference was statistically significant based on the independent samples T-test (p<0.05) (Table 1).

**Table 3-** Comparing the score of life quality dimensions in experimental group before and after intervention

| Test→ Dimensions ↓ | Before intervention | After intervention | Paired T test |
|---|---|---|---|
| | Mean±SD | Mean±SD | |
| **Energy** | 53.42±36.85 | 73.95±26.03 | p<0.05 |
| **Pain** | 56.55±23.54 | 84.73±14.38 | |
| **Emotional reaction** | 47.66±25.60 | 72.86±16.92 | |
| **Sleep** | 44.17±27.35 | 67.88±23.51 | |
| **Social isolation** | 53.02±23.63 | 67.18±20.37 | |
| **Physical movement** | 71.00±21.21 | 86.47±09.87 | |

**Table 4-** Comparing the score of life quality dimensions of studied groups before and after intervention

| Test→ Dimensions ↓ | Before intervention | After intervention | Independent T test |
|---|---|---|---|
| | Mean±SD | Mean±SD | |
| **Energy** | 61.35±29.09 | 53.42±36.85 | p>0.34 |
| **Pain** | 66.08±23.83 | 56.55±23.54 | p>0.11 |
| **Emotional reaction** | 56.03±26.22 | 47.66±25.60 | p=0.2 |
| **Sleep** | 49.70±20.43 | 44.17±27.35 | p>0.4 |
| **Social isolation** | 56.17±24.50 | 53.02±23.63 | p>0.6 |
| **Physical movement** | 76.92±17.63 | 71.00±21.21 | p=0.23 |

In the control group after the intervention the observed difference in obtained score was not significant in all aspects of quality of life (p>0.05) except in dimensions of energy (p<0.02) and pain (p<0.01) (Table 2). But in experimental group increasing of scores in all aspects of life quality after the intervention were not significant (p<0.05) (Table 3).

In experimental group, the maximum mean of dimensions score before and after intervention was related to the physical activity and was respectively 71 and 86.47. Also, the minimum mean score in the previous step was related to sleep (17.44) and after the intervention was related to the social isolation dimension (67.17). Also, in the control group, the maximum mean of score before and after intervention related to physical activity dimension was 76.92 and 81.32, respectively, and a minimum score before and after the intervention was related to sleep dimension 49.7 and 56.43, respectively. After intervention, statistical independent t-test showed significant difference in all dimensions of life quality between the two groups, except in energy and social isolation dimensions (p<0.05) (Table 5).

No significant relationship were observed between demographic variables with the life quality score (Spearman-Pearson, p>0.05). Also, none of risk factors (family history of heart disease, high blood pressure, diabetes, hyperlipidemia and smoking) had any significant relationship with quality of life (Spearman, p>0.05).

**Table 5-** Comparing the score of life quality dimensions in studied group before and after intervention

| Test→ Dimensions ↓ | Before intervention | After intervention | Independent T test |
|---|---|---|---|
| | Mean±SD | Mean±SD | |
| **Energy** | 77.82±21.16 | 73.95±26.03 | p>0.4 |
| **Pain** | 78.52±12.20 | 84.73±14.38 | p<0.05 |
| **Emotional reaction** | 57.29±20.30 | 72.86±16.92 | p<0.001 |
| **Sleep** | 56.43±22.49 | 67.88±23.51 | p<0.05 |
| **Social isolation** | 58.96±23.04 | 67.18±20.37 | p=0.13 |
| **Physical movement** | 81.32±10.35 | 86.47±09.87 | p<0.04 |

## Discussion

This study was conducted in order to investigate the effect of self-care education on life quality of patients with myocardial infarction. Findings implied that most patients were in the 51-60 age groups. Heidarnia reports the highest prevalence of stroke in 45-69 years old population in his study [12] and Dehdari reports it in age group of 55-59 years old [11]. Most studied units did not mention diabetes history. Also about the diabetes history in atherosclerosis patients, Khazaee showed that 59% of patients didn't have diabetes [13]. In Derakhshan study only 22.5% of study units had diabetes [14]. In this study, 62.5% of studied units in the experimental group and 59.4% in the control group mentioned the history of hypertension. 33% of subjects in Azadi's study [15] and 38.8% of patients in Derakhshan study had the history of high blood pressure [14]. Dehdari, also, has reported hypertension history in 31.4% of experimental group and 37.1% of control group [11]. In this study, the majority of patients mentioned smoking history which is in line with Dehdari's study which showed that 60% of samples who suffer from heart attack had no history of smoking [11]. But in Heidarnia study, 47% of his studied patients were smokers [12]. Since sampling is done objectively and according to inclusion criteria the differences or similarities in the results of demographic and physical status in researches are justifiable. Findings showed that the total mean of score and quality of life dimensions in both groups didn't have significant differences before intervention which implies the homogeneity of both groups in terms of quality of life. Mean life quality score in both groups after intervention and after two months had statistically significant difference, so that patients' quality of life after self-care education in the

experimental group increased which is corresponded with the results of other studies [11, 16, 17, 18, 19, 20, 21 ]. Results illustrated a considerable increase in quality of life dimensions after self-care training in experimental group compared to the control group. Except for the dimensions of energy and social isolation, in other dimensions, life quality revealed significant difference between two groups after training. In addition, Sharples in his study, except in the fields of physical activity and energy, has reported a significant difference in other aspects of quality of life [22]. Dehdari, also, after the intervention, except in social function dimensions, pain and general health, has observed significant difference in other dimensions [11]. Hashemifard after the intervention, except for social isolation, has reported a significant difference between two groups [16]. In experimental group in all dimensions and total score of quality of life before and after the intervention, the difference was significant and in the control group before and after the intervention the difference was significant just in the dimensions of energy and pain and in other dimensions and total score of quality of life no significant difference was observed which is in line with the results of Hashemifard [16] and Dehdari [11] studies.

## Conclusion

Considering the fact that the severity of disease in both control and experimental groups is to the extent that both groups are in search of information resources and recognizing the effective behavior and since they are concerned about the possibility of re-clogging of cardiac vessels, they are trying to adopt some practices or behaviors with which they can prevent disease relapse, thus it seems that passage of time as an intervening variable in the two dimensions of quality of life in the control group also has made a significant difference. However, the difference in most dimensions and total score of quality of life for these patients were not significant and emphasizes the necessity of self-care education to increase the quality of life in these patients. Patient education and making positive changes in attitude and performance not only act as the main factor in coordination with disease, but also increase their ability accepting new status and prevent problems and readmission. Hence it is recommended that involved individuals in treatment affaires use self-care training and short-term follow up if possible, for these patients' lifestyle after disease and their rapid return to normal life.

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