

«Original Articles »

## Relationship between Stress Coping Styles, Negative Automatic Thoughts, Life Quality and Happiness in Hospitalized Cardiovascular Patients

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### Abstract

**Background:** Regarding the increase in the prevalence of cardiovascular disease, efficient factors such as happiness seems vital in reducing hospitalization of cardiovascular patients. The aim of this study was to investigate the relationship between stress coping styles, negative automatic thoughts, life quality and happiness in hospitalized cardiovascular patients in Ahvaz, Iran.

**Material and methods:** A sample size of 100 patients with cardiovascular disease was randomly selected in three hospitals (Golestan, Imam Khomeini and Naft) in Ahvaz, Iran. Four questionnaires including Coping Inventory for Stressful Situations (CISS, to evaluate stress coping styles), healthy survey index, Automatic Thoughts Questionnaire (ATQ, to assess negative automatic thoughts) and Oxford Happiness Inventory were used. Correlation and regression analysis were applied to analyze the data.

**Results:** A significant association ( $P < 0.01$ ) was found between task-oriented coping style, emotional-oriented coping style, negative automatic thoughts, life quality and happiness in patients with cardiovascular disease. According to regression analysis, it was found that the predictive variables might predict happiness with 67%. Negative automatic thoughts, life quality and task-oriented coping style were considered as the best predictors of happiness.

**Conclusion:** It is suggested that improving stress coping styles, raising life quality and using interventional styles to reduce negative automatic thoughts may be accompanied with happiness in patients with cardiovascular disease and improve their health.

**Keywords:** negative automatic thoughts, cardiovascular disease, stress coping styles, happiness, life quality.

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## Introduction

Humans are constantly exposed to various diseases. Cardiovascular disease as a health problem is considered to be the most important cause of mortality in the world including in Iran (1). In 1998, it was reported that cardiovascular diseases caused about 30.9% of deaths and it is predicted that by the year 2020 about 12 million deaths may be caused by cardiovascular diseases annually (2). Cardiovascular disease is suggested to be considered a syndrome rather than an illness, though the majority of patients with this disease may experience several risk factors during life span (3). As the disease is progressive and destructive and several intrinsic and extrinsic factors are involved in either its improving or worsening, no certain cure is yet found for it (4). Deep consideration toward all efficient factors in re-hospitalization can determine all ignored treatment and educational and psychological needs followed by reducing its rate (5). Therefore, attention to all factors resulting in the reduction of cardiovascular re-hospitalization rate seems important. Happiness may be one of such factors. Due to the fact that humans can, wish and should be glad, happiness is considered a value in societies and forms the base of welfare system in this society (6). Rojas M (2007) defines happiness as a complex of emotions and a kind of life cognitive evaluation. He believes that happiness is a positive component of life quality (7). It is indicated that happy people feel more security, decide easily, have greater social morality and are more satisfied with people who live with (8). Therefore, in respect to the importance of happiness among cardiovascular patients, this study assessed the possible predictors of happiness in such patients. Life quality is a factor related to happiness in cardiovascular patients. Thus, as disease treatment progresses, life expectancy is increased along with improvement of life quality (9). According to various studies, it

is found that the concept of happiness is associated with life quality specifically with the quality of environment, economical situation, freedom and friendship. Furthermore, there is a relationship between happiness and quality of action (10). WHO indicates that quality of life is people cognition toward their situation in life with regard to culture, values, aims, expectations and standards. Therefore, happiness is certainly a personal concept and based on people cognition toward various aspects of life (11). WHO introduced four aspects of life quality including: physical health, psychological health, social behavior and social environment (12). Evaluation of the life quality is of vital importance specifically in chronic diseases, as in these diseases, not only physical health, but also psychological and social health are affected and most patients with chronic diseases lead a hopeless life with no expectations of improvement (13). Cardiovascular diseases are considered chronic and therefore evaluation of life quality of the patients with cardiovascular disease is important to determine treatment styles (14). Hasanpour Dehkordi and et al. (2005) investigated the life quality of patients with stroke and found that paying no attention to different aspects of life quality can cause impairment in patients' life quality (15). Yousefi et al. (2011) evaluated life quality of patients with heart failure and found that they had no ideal life quality (16).

Other factors which may influence the happiness include different social, economical and psychological stresses. Studies on stress emphasize that the quality of behavior is not affected by stress only, however, a stress evaluation approach and stress coping styles would improve such behavior (17). Stress coping styles are active and passive elaboration in reacting against stressful circumstances and conditions in order to reduce stress and include task-oriented and emotion-

oriented styles. The active task-oriented styles include problem solving, positive re-evaluation, responsibility and social advocacy as regards with people active role against stress, controversial issues and avoiding emotions. Moreover, the passive and emotion-oriented coping styles include direct styles (all aggressive and direct behaviors to immediate change of stress source), self-control or suppressive, avoidance and contradiction styles (18). It is important to note that using any coping styles does not necessarily result in the reduction of stress, nonetheless, the outcome of coping styles are diverse in different situations (19). Several studies have been conducted during last decades to investigate the effects of coping styles on development of cardiovascular diseases and to recognize failed styles leading to the increase of the disease severity. Patterson (2004) studied patients with coronary heart disease in comparison to healthy subjects and found that there was a relationship between task-oriented style and the decrease of the prevalence of coronary heart disease, however, no association was found in terms of emotion-oriented style (20). Denollet (2003) studied patients with coronary heart disease to recognize failed coping styles and showed that the incidence of infarctus was 5 times greater in patients who used emotion-oriented styles against stress. Furthermore, using emotion-oriented styles was related to elevated blood pressure, LDLc sediment, and calcium precipitation in coronary artery (21). Moreover, Nohi et al (2011) investigated the life quality and its relationship with stress and coping styles in patients with coronary heart disease and found that using coping task-oriented styles was associated with decreasing cognitive stress and improvement of life quality (22). In addition to life quality and coping styles, negative automatic thoughts may predict happiness in patients with cardiovascular diseases. Some studies showed that people opinions are in

accordance with their cognitive and emotional responses (23). The concept of cognitive schemes in interpretation of specific situations is important in terms of cognitive attitudes. According to Beck's cognitive theory, these schemes include negative cognitive schemes (which appear as weak self-esteem), unreasonable and firm believes (which refer to failed attitudes) (24). Failed attitudes are oriented theories and beliefs which people have on themselves, their future and others (25). Therefore, as negative automatic thoughts is related to negative self-evaluation and negative future and world evaluation, it may affect the development of all symptoms and illness such as stress and cardiovascular disease. Therefore, the aim of this study was to investigate the association between life quality, stress coping styles, negative automatic thoughts and happiness in patients with cardiovascular diseases.

#### **Material and methods**

In this study 100 patients whose hospitalization were more than two days were accessible randomly selected from cardiovascular centers of three hospitals (Golestan, Imam Khomeini and Naft hospitals) in Ahvaz, Iran. The consent was obtained from all the patients. The questionnaires were provided to all patients and to be completed either by themselves or by investigator asking them questions. The patients who suffered from other physical or psychological illnesses in addition to cardiovascular disease were excluded from the study. Four questionnaires were used in this study as below:

a) Life Quality Questionnaire: The health survey (SF-36) questionnaire used in this study included 36 questions with 8 aspects of physical action, physical elimination, physical pain, general health, happiness, social action, spiritual problems and psychological health. This questionnaire was validated in Iran (26). The SF-36 questionnaire has an

appropriate validity in Iran and it is in accordance with Iranian social and cultural circumstances (15,27). The validity of the questionnaire according to Cronbach's alpha was 0.93.

b) Automatic Thoughts Questionnaire (ATQ): The ATQ is a test to assess the frequency of occurrence of automatic negative self-statements which are related to depression developed by Kendall and Hollon. The questionnaire contains 30 items with two aspects of the frequency of automatic thoughts and the degree of belief to these thoughts. It seems that the ATQ has a satisfactory reliability with a split-half reliability coefficient of 0.97 (28). The validity and reliability of this questionnaire in Iran was obtained by Kaviani H et al. (29), which is also satisfactory. They used the test-retest method to determine the reliability and obtained 0.88 in statistical correlation pre and post test which was satisfactory. In this study the reliability of two aspects of questionnaire was 0.97 according to Cronbach's alpha method.

c) The Oxford Happiness Inventory (OHI): The OHI was developed by Michael Argyle and Peter Hills at Oxford University in 1989. This questionnaire comprises 29 questions, each containing selection of one of the four options that are different for each item. Scores of 0–3 were allocated to each selection. A satisfactory reliability was reported for the OHI in several studies (30,31). A high scale reliability of  $\alpha=0.93$  was obtained in this study.

d) Coping Inventory for Stressful Situations (CISS): CISS is a four factor model of human coping with adversity developed by Endler and Parker in 1990. This inventory contains three types of coping including emotion-oriented, task-oriented and avoidant. Items scored on a five-point Likert-type scale from 1 to 5. Tabatabaie H (32) found  $\alpha=0.81$ ,  $\alpha=0.78$ ,  $\alpha=0.81$  for task-oriented, emotion-oriented and avoidant respectively.

## Results

The total of 100 patients participated in this study, of which 5% were single and 95% married. The percentage of patients with education level of below diploma and above were 62% and 37%, respectively. Patients' age varied between 24 y to 80 y with the average and standard deviation of 50.73 y and 12.97 y.

Table 1 shows the correlation coefficient of variables. Task-oriented and emotion-oriented coping styles showed significant ( $P<0.01$ ) correlation, however, the correlation between avoidant and happiness was not significant. The relationship between happiness and task-oriented was positive, but it was negative between happiness and emotion-oriented coping style. Furthermore, Pearson correlation coefficient was significant ( $P<0.01$ ) and positive between life quality and happiness. The association of frequency of negative automatic thoughts and the degree of belief to thoughts with happiness was also significant ( $P<0.01$ ) and negative.

According to Table 2 (multiple regression for predictor variables with happiness), multiple regression of stress coping styles, life quality and negative automatic thoughts with happiness was 0.82 which is significant ( $P<0.01$ ). Moreover, predictor variables express 67% of happiness variance. The values obtained showed that the variables including negative automatic thoughts (the degree of belief), life quality and task-oriented coping style have the greatest impact on expressing dependent variable variance.

Table 3 demonstrates the results of stepwise regression. In step one 54% of happiness is expressed by the degree of belief to negative automatic thoughts. Furthermore, in step two 63% of happiness is expressed by the degree of belief to negative automatic thoughts and task-oriented coping style. In step three which involved life quality, 66% of happiness is expressed by the degree of belief to negative automatic thoughts with impact

factor 0.34 and task-oriented coping style with impact factor of 0.31 and life quality with impact factor 0.26. In multiple regression emotion-oriented coping style,

avoidant style and occurrence of negative automatic thoughts were excluded from the list of predictor variables.

**Tbale1. Correlation coefficient of variables**

	Mean	Standard deviation	1	2	3	4	5	6	7
Happiness	80.90	16.20							
Task-oriented	40.26	8.92	0.627						
Emotion-oriented	35.22	6.31	-0.257	- 0.020					
Avoidant	35.46	6.17	-0.053	- 0.122	-0.058				
Life quality	84.28	18.70	0.722	0.581	-0.257	0.016			
Occurrence of negative automatic thoughts	64.30	30.64	-0.695	- 0.544	0.396	-0.022	-0.743		
The degree of belief to negative automatic thoughts	65.01	30.68	-0.737	-0.571	0.372	0.025	-0.772	0.978	

P < 0.05

P < 0.001

**Table 2. Multiple regressions of predictor variables with happiness**

Predictor variables		T	P	F	Multiple regression	Coefficient of determination
Task-oriented	0.325	3.702	0.001	25.655	0.824	0.678
Emotion-oriented	-0.082	-1.096	0.277			
Avoidant	-0.031	-0.461	0.646			
Life quality	0.257	2.362	0.021			
Occurrence of negative automatic thoughts	0.506	1.549	0.126			
The degree of belief to negative automatic thoughts	-0.819	-2.391	0.019			

P < 0.05

**Table 3. Multiple regressions of predictor variables with happiness (stepwise method)**

Statistical index	Multiple regression	Coefficient of determination	F ratio P possibility	Regression coefficient ( ), (B)			value
				1	2		
The degree of belief to negative automatic thoughts	0.737	0.543	F = 92.750 P < 0.001	= 0.737 t= 9.631 p=0.001	-	-	106.210
Task-oriented	0.798	0.637	F = 67.434 P < 0.001	= 0.525 t= 6.271 p=0.001	= 0.372 t= 4.448 p=0.001	-	71.697
Life quality	0.815	0.664	F = 49.983 P < 0.001	= 0.349 t= 3.245 p=0.002	= 0.316 t= 3.758 p=0.001	= 0.269 t= 2.473 p=0.016	50.156

P < 0.05

**Discussion**

The relationship between life quality and happiness in patients with cardiovascular disease:

The aim of this study was to investigate the relationship between life quality, stress coping styles, negative automatic thoughts and happiness in patients with cardiovascular disease. The results of the study showed that there was a positive and significant association between life quality and happiness in patients with cardiovascular disease which is inconsistent with the previous studies (33, 34). Generally, life quality is a central foundation among several variables (35). The concept of happiness is one of such variables, which has strong association with life quality. Happiness or satisfaction of life is ones attitude toward his or her life quality as an ideal or not ideal phenomenon (36). As the central element of happiness is defined as ones attitude toward life quality and meanwhile the life quality involves true circumstances of life and ones attitude toward such circumstances, therefore, it can be stated that the more life quality of patients, the more happiness in their life (37). Thus, with an increased happiness in patients with cardiovascular disease, they would

have much more hope about improvement and consequently involve in the treatment process with more happiness and hope.

The relationship between stress coping styles and life quality in patients with cardiovascular disease:

In this study, it was found that there was a relationship between task-oriented, emotions-oriented stress coping styles and life quality in patients with cardiovascular disease. However, no association was found between life quality and avoidant style. These findings are in consistent with the other studies (38,39). Many researchers have emphasized on the positive effects of task-oriented coping style, while it is suggested that the stressful factor can be reduced with ones reaction. In fact, this style is preferable by most people and it is indicated that having more sense of control on raised issues would have more impact on reducing stress and increasing happiness (40). However, the emotion-oriented coping style may be slightly efficient in balancing ones emotion. An adaptive response to a stressful situation requires concentration on the task. However, the effect of stress coping style depends on the stressful situation (40). As patients with

cardiovascular disease are exposed to various problems and stressful conditions, the stress coping style can have important role in increasing their life quality and happiness. Therefore, using task-oriented coping style is a logical approach to adapt with the problem and this may be followed by more happiness. The other finding of this study was the negative association of negative automatic thoughts with happiness in patients with cardiovascular disease which is inconsistent with the findings of Alizadeh et al. (41). In fact, the more negative automatic thoughts, the less happiness one may experience, and in the other words, may become depressed. The failed views are theories and biased beliefs one may develop on himself or the world and his future (25). Such views and attitude may lead to a biased cognition and understanding of affairs and affect the emotions and behaviors and consequently increase the possibility of depression and other psychological complications in a person. Patients with cardiovascular disease live in a potentially critical situation according to their illness and so their attitude and action toward conditions can have an important effect on their general life quality and happiness. Therefore, having negative automatic thoughts seems to reduce the patients' happiness.

Negative automatic thoughts and task-oriented coping style as predictors of happiness:

The stepwise regression in this study showed that the most important predictors are the degree of belief to negative

automatic thoughts and task-oriented coping style. As the failed views are theories and biased beliefs one may develop on himself or the world and his future (25), they can directly associate with happiness of patients with cardiovascular disease. On the other hand, as the task-oriented coping style with having more sense of control on raised issues has more effect on reducing stress (40), it can give a sense of control to the person followed by more happiness.

In conclusion, according to the findings of this study, encouraging task-oriented coping styles and life quality and additionally coping with negative automatic thoughts can lead to more happiness in patients with cardiovascular disease and consequently can increase the possibility of improvement in these patients. Therefore, adopting such task-oriented coping styles and promoting the life quality of patients with cardiovascular disease are recommended to increase their happiness as the goal of health and treatment centers.

#### Limitations and suggestions

One of the limitations of this study was that subjects were selected by accessible randomly selection method, therefore, only hospitalized patients were included in this study and other patients were excluded. Therefore, expressing the results and overgeneralizing the findings for the other patients should be done with caution. It is recommended to conduct similar studies in other big cities with larger number of samples and include not hospitalized patients as well.

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