Original Article

The Relationship Between Death Depression and Death Anxiety with Coping Style Among CHD Patients

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Abstract

Objectives: This study aimed to unveil the effect of depression death and anxiety death on coping style among coronary heart disease (CHD) patients in Tabriz, a city in the Northwest of Iran.

Materials and Methods: In this cross-sectional study, 293 coronary heart disease patients were recruited from three hospitals in Tabriz from January to July 2015. Socio-demographic characteristics and CHD clinical history were archived by a checklist. Validated self-administered questionnaires were used to measure death depression, death anxiety, and coping style. The association between death depression and death anxiety with coping style was evaluated, using multivariable linear regression.

Results: In this study, the participants were 60 ± 11 years of age. Death depression was most significantly influenced by occupation, and the death anxiety level was affected by the history of hospitalization with CHD. The coping style level was not statistically significant across sociodemographic and CHD clinical history characterises. In death depression, the third quartile was significantly and inversely associated with coping style, compared to reference category; β (95% CI); -1.60 (-2.97 to -0.27), P value = 0.02.

Conclusions: Among CHD patients, death depression and death anxiety could be influenced by sociodemographic and CHD history background characteristics, respectively. Death depression could be considered as a determinant for coping style.

Keywords: Anxiety Disorders, Coping Behaviour, Coronary Disease, Depressive Disorder, Iran

1. Background

Coronary heart disease (CHD) is one of the most common types of cardiovascular diseases and the leading cause of death worldwide (1). According to one of the latest reports in Iran, CHD was the leading cause of death among people aged over 35 years (2). It has been found that CHD also affects emotional, mental, social, and economic conditions of the patients. In other words, heart injuries, not only create physical symptoms and disabilities, but also have a harmful effect on the mental state of a person dealing with it, and may result in psychological stresses such as death depression, death anxiety and coping style dysfunction (3, 4).

It has been acknowledged that death depression and death anxiety could be equivalent entities (5). Death anxiety and death depression are the results of conceptualizing the presentiment generated by death notification. Death anxiety is a complex matter, and there is debate between psychiatrists and psychologists about its definition, determinants and treatment. However, it refers to the state in which an individual, stimulated by knowledge of own death, experiences emotional reactions such as apprehension (6, 7). Death anxiety describes realization of risk to life in daily events more than acute conditions. Death anxiety has multidimensional features, which contain anticipation of death (8). However, in addition to death anxiety, other emotions and attitudes around death's domain such as depression should be considered. Suffering, hopelessness, loss, and sadness may occur as depressive components in response to death (9).

Coping styles are the behaviors, thoughts, and emotions that we use to respond to psychological stress. There are many coping styles that some may prove more effective than others, depending on the nature of the stressful situation and the person who is employing them. Ineffective coping mechanisms, also referred to as maladaptive coping, may be applied to stressful events or internal

conflicts. Coping styles are commonly assigned broad categories that draw distinctions between methods. For example, instrumental coping (referred to as problem-solving) focuses on ways to tackle the issue to reduce stress around a given situation, while emotion-focused coping gathers tools to nurture one's emotional health during a stressful period (10-12).

Many studies have revealed that death depression and death anxiety are common among patients with CHD (13, 14). Death anxiety and death depression can also increase the risk of cardiovascular death in these patients, and ignoring them can decrease the chance of successful recovery and reduce recovery from other risk factors for heart disease (15).

It has been identified that demographic, socioeconomic status (SES), and some CHD background variables are associated with the level of death anxiety or death depression, so that female gender, socially disadvantaged, lower education, suitable religious beliefs and physical health are moderately to strongly associated with lower death anxiety and other psychological problems (16-18). On the other hand, the coping literature reveals that the association between coping style and SES is inconsistent (19). Review of studies indicates inconsistency of the results with regards to the relationship between psychological problems and coping style. Some studies in different contexts revealed that coping style dominants could be a function of depression or fear of death, so that death depression could predict how well patients cope with their disease (20, 21). In studies that examined the relationship between coping attitudes and anxiety, it was found that individuals with anxiety symptoms or disorders did not have effective coping mechanisms (22).

In many clinical settings, the relationship between death depression and death anxiety with coping style have been investigated in patients with chronic, or terminal illnesses such as cancer or HIV/AIDS (18), but the evidence on CHD context is scarce.

2. Objectives

The aim of this study was to examine the effect of sociodemographic factors along with some CHD clinical history characteristics on depression death, anxiety death and coping style, and to find how death depression and death anxiety affect coping style among CHD patients.

3. Materials and Methods

3.1. Participants

This was a cross-sectional study conducted from January to July 2015 in Tabriz, Iran. A two-stage random sampling procedure was used to recruit the patients, and three teaching hospitals of Tabriz University of Medical Sciences (Aali Nasab, Shahid Madani, and Shahid Mahalati) were considered as strata. A simple random sampling was conducted considering the proportion to size of patients in the hospitals.

Among the patients who were eligible to be included in the study, 293 patients completed the self-administered questionnaires through a structured interview. The inclusion criteria were as follows: Age 18 and older, ability to complete the questionnaires or interviews, being hospitalized in one of the wards in the hospitals under study, and willing to participate in the study.

3.2. Data Collection Materials

The required data were collected, using sociodemographic and CHD clinical history checklist, Templer's death anxiety, death depression scale, and template questionnaires (23) and Lazarus "ways of coping" questionnaire (24). Templer's death anxiety is a 15- item self-report questionnaire with yes or no answers. It has been used most frequently to measure death anxiety (25, 26). In this scale, psychological and life experience factors related to death are measured.

Templer's death depression questionnaire includes 21 items, ranging from 1 (completely disagree) to 5 (completely agree). It is a psychometric instrument for assessing depression associated with the topic of death. In this scale, death dread, death sadness, death despair and death loneliness were measured. These two questionnaires were validated, using content and face validity. After translating the questionnaires from English into Farsi and resolving any translation-related problems, ten professors from the nursing and midwifery department of Tabriz University of Medical Sciences analyzed and verified the materials of the study. To ensure repeatability and internal consistency, test-retest method was used for 20 patients. The Cronbach's alpha coefficients for death depression and death anxiety were estimated to be 0.71 and 0.71, respectively. Another study reported the internal consistency coefficient by Cronbach's alpha to be 61 to 79%, and found the reliability of the test-retest to be 59 to 83% within four weeks (27).

Construct validity was validated by confirmatory factor analysis (CFA). The goodness of fit statistics suggested that the considered pattern for the two questionnaire was fitted on data (for Templer's death anxiety, $\chi^2 = 221.46$, df = 24, P value < 0.001, CFI = 0.91, GFI = 0.85, NFI = 0.91 and RMSEA = 0.06 and for Templers death depression, $\chi^2 = 201.28$, df = 19, P value < 0.001, CFI = 0.89, GFI = 0.86, NFI = 0.89 and RMSEA = 0.09).

Coping styles questionnaire (CSQ), developed by Lazarus and Folkman, analyzes four problem-focused

(problem-solving, positive reevaluation, responsibility, and seeking social support), and four emotion-focused coping styles (direct confrontation, self-confrontation, preventive, denial). The coping styles questionnaire includes 66 items on a 5 point Likert scale (Never = 1, sometimes = 2, usually = 3 and almost = 4). In this study, Cronbach's alpha for this questionnaire was 0.71.

Goodness of fit statistics revealed that the questionnaire was confirmed on data (χ^2 = 188.51, df = 31, P value < 0.001, CFI = 0.90, GFI = 0.87, NFI = 0.92 and RMSEA = 0.08). The achieved score for death depression, death anxiety and coping style, using standard score = [(crude score - possible minimum) / (possible maximum - possible minimum) × 100] ranged 0 to 100.

3.3. Statistical Analysis

Independent t-test and one-way ANOVA test were used to compare depression death, anxiety death and coping style across sociodemographic and CHD clinical history characteristics. Multiple linear regressions method adjusted to age, sex, education and occupation were constructed to model the relationship between death depression and death anxiety as independent variables, and coping style as a dependent variable. In this model, difference mean of coping style on each group, compared to reference group, was considered as the effect measure of association. P-value $\leq$ 0.05 was considered as statistically significant. Statistical analyses were performed, using SPSS 19, and the goodness of fit statistics for construct validity of instrument was calculated by EQS 6.1.

4. Results

Table 1 presents the sociodemographic and CHD clinical history of the participants. One hundred fifty nine men (54.3%), and 134 women (45.7%) participated in this study, most of whom were married (82%), 29% were illiterate, and 32% were housewives.; 92.2% and 92% of the participants did not have ischemic stroke background, or coronary angiography background (Table 1).

Depression death was statistically significant across some variables, including sex, education, occupation, and type of discharge (P value $\leq$ 0.05). Sex, history of hospitalization with CHD and number of hospitalization history with CHD affected anxiety death. The mean (SD) of depression death, anxiety death and coping style across the sociodemographic and CHD clinical history variables is demonstrated in Table 2 in detail.

In univariable model, death depression in the third quartile, compared with reference category, was inversely related to coping style; β (95% CI) = -1.67 (-3.04 to 0.31) P

Table 1. Descriptive Characteristics of the Participants (n = 293)

Sociodemographic Characteristics[a]	
Age	60.03 (11.03)
Sex	
Male	159 (54.3)
Female	134 (45.7)
Marital status	
Single	52 (17.7)
Married	241 (52.3)
Education	
Illiterate	85 (29)
Elementary	56 (19.1)
Secondary school	55 (18.8)
Diploma	60 (20.5)
Graduated	37 (12.6)
Occupation	
Worker	41 (14)
Farmer	23 (7.8)
Clerk	66 (22.5)
Military man	66 (22.5)
Retired	19 (6.5)
Housewife	94 (32.1)
Unemployed	18 (6.1)
Academic career	6 (2)
Type of discharge	
With insurance	169 (57.3)
Without insurance	20 (6.8)
Supplementary insurance	98 (33.4)
Insurance & Supplementary insurance	6 (2)
CHD clinical History characteristics[a]	
History of coronary angiography	
Yes	24 (8.2)
No	269 (91.8)
History of ischemic stroke	
Yes	19 (6.5)
No	274 (93.6)
History of CHD hospitalization	
Yes	157 (53.6)
No	136 (46.6)
Type of angiography	
By stant	193 (66.6)
Without stant	71 (24.5)
Coronary artery bypass graft	26 (9)

[a] Continuous and Categorical Variables Presented as Mean (SD) and n (%), respectively.

value = 0.01. In addition, death anxiety in the fourth quartile was statistically significant compared to the reference group; β (95% CI) = 1.32 (0.11 to 2.96) p-value=0.05. In the multivariable model, an inverse association was found for the third quartile of death depression; β (95% CI) = -1.60 (-2.97 to -0.27) P value = 0.02 (Table 3).

Table 2. Comparison of Death Depression, Death Anxiety and Coping Style Across Explanatory Variables

Variables	Depression Death		Anxiety Death		Coping Style	
	Mean (SD)	P Value	Mean (SD)	P Value	Mean (SD)	P Value
Sex		< 0.001[a]		0.01[a]		0.81[a]
Male	51.2 (8.6)		66.6 (13.6)		52.9 (3.9)	
Female	60.1 (8.8)		70.6 (14.3)		52.8 (4.2)	
Age category		0.4		0.81		0.12
≤ 55	55.1 (10.2)		67.8 (15)		53.5 (4)	
56 - 65	56.1 (9.8)		68.4 (14.1)		52.5 (4.2)	
≥ 66	57.1 (9.2)		69.1 (13.1)		52.7 (3.9)	
Marital status		0.7[a]		0.74[a]		0.4[a]
Single	56.5 (9.1)		67.9 (13.4)		52.5 (3.7)	
Married	55.9 (9.9)		68.6 (14.2)		53 (4.1)	
Education		0.007		0.72		0.20
Illiterate	58.6 (9.4)		68.3 (12.3)		52.3 (3.4)	
Elementary	57.2 (10.3)		70.5 (14.9)		53.1 (4.3)	
Secondary school	55.5 (9.5)		68.8 (14.5)		52.3 (3.8)	
Diploma	54.1 (8.9)		67.4 (13.3)		52.7 (4.2)	
Graduated	52.5 (10.3)		67 (16)		54.2 (4)	
Occupation		< 0.001		0.74		0.35
Worker	60.6 (9)		67.7 (10.4)		52 (4.3)	
Farmer	52.8 (7.9)		68.4 (12.6)		53.4 (3.4)	
Clerk	54.2 (9.9)		62.3 (15.1)		54 (2)	
Military man	55.1 (6.7)		66.1 (14.3)		53.5 (3.7)	
Retired	55.1 (6.7)		65.7 (14.7)		51.8 (3.9)	
Housewife	62.1 (8.7)		70.7 (14.7)		52.7 (4.3)	
Unemployed	52.5 (9.1)		66.6 (15.5)			
Graduated	53.1 (10.3)		66.8 (14.7)		54.5 (4.4)	
Type of Discharge		0.05		0.33		0.11
With insurance	56.5 (9.9)		68.9 (14.4)		53.1 (4.1)	
Without insurance	56.1 (6.6)		63.8 (16.1)		54.1 (3)	
Supplementary insurance	54.7 (9.9)		68.3 (12.8)		52.4 (4.1)	
Insurance & supplementary insurance	65.3 (6.5)		74.4 (16.4)		50.4 (3.6)	
History of early CHD disease		0.17		0.56		0.39
No	55.2 (9.9)		69 (14.6)		53.1 (3.7)	
Yes	56.8 (9.7)		68 (13.6)		52.7 (4.3)	
Number of years with CHD		0.81		0.70		0.07
0	55.4 (9.5)		69.2 (14.5)		53.1 (3.5)	
1	56.8 (9.3)		67.4 (15)		53.7 (4.2)	
2	56.2 (11.2)		67.1 (12.4)		52.3 (4.4)	
> 3	56.5 (9.4)		69.3 (13.4)		51.9 (4.4)	
History of hospitalization with CHD		0.6		0.02		0.29
No	55.7 (9.4)		70.4 (13.2)		52.6 (3.7)	
Yes	56.3 (10)		66.7 (14.5)		53.1 (4.3)	
Number of hospitalization history with CHD		0.56		0.04		0.77
0	55.7 (9.4)		70.4 (13.2)		52.6 (3.7)	
1	57.7 (10.4)		68.8 (14.1)		53.1 (3.8)	
2	56.7 (9.9)		68 (13.3)		53.1 (4.3)	
> 3	55.2 (10)		64.6 (15.6)		53.2 (4.6)	
History of ischemic stroke		0.11		0.44		0.57
No	55.8 (9.8)		68.6 (14.1)		52.8 (4.1)	
Yes	59.5 (9.4)		66.1 (13.9)		53.4 (3.3)	
History of coronary angiography		0.24		0.4		0.17
No	56.2 (9.8)		68.8 (14)		52.8 (4)	
Yes	53.8 (8.8)		66.1 (14.5)		54 (4.6)	

[a] Based on independent t- test; all other tests are based on ANOVA test.

Table 3. Multiple Linear Regression (β, 95% CI) of Death Depression and Death Anxiety with Coping Style in CHD Patients

Variables	Univariable		Multivariable[a]	
Death depression	β^b (95% CI)	P Value	β (95% CI)	P Value
Quartile 1	Reference		Reference	
Quartile 2	- 0.30 (-1.81 to 1.20)	0.69	- 0.27 (-1.82 to 1.20)	0.69
Quartile 3	-1.67 (- 3.04 to - 0.31)	0.01	-1.60 (- 2.97 to - 0.27)	0.02
Quartile 4	- 0.50 (-1.86 to 0.84)	0.46	- 0.45 (-1.84 to 0.92)	0.51
Death anxiety				
Quartile 1	Reference		Reference	
Quartile 2	0.63 (- 0.83 to 2.10)	0.39	0.60 (- 0.84 to 2.09)	0.40
Quartile 3	0.20 (-1.16 to 1.57)	0.77	0.01 (-1.36 to 1.40)	0.90
Quartile 4	1.32 (0.11 to 2.96)	0.05	1.20 (- 0.25 to 2.65)	0.10

[a]Adjusted for sex, age, education and occupation.
[b]Difference mean.

5. Discussion

To the best of our knowledge, this was the first study to examine the effect of some explanatory variables on death depression, death anxiety and coping style among CHD patients simultaneously in Iran in addition to examining the effect of psychometric determinants on coping style. Our findings revealed that some factors including sex, education, occupation and type of discharge could affect the death depression and sex, history of hospitalization with CHD and number of hospitalization history with CHD on death anxiety. Death depression could be a determinant for coping style.

In non-clinical populations, many researches suggest that occupation does affect health and lower-status work leads to adverse health outcomes (28). Our findings revealed a reverse association between occupation and death depression. We found that homemakers and workers had the most death depression score, respectively. A notable point was the negligible difference between the unemployed and those with high position jobs such as being on a science committee or having an academic career.

In this study, age variable did not contribute to death depression, death anxiety and coping style. Age was an inconsistent determinant in the literature, so in some studies investigators found that death anxiety was not higher in older people compared to the younger (16, 17), but other studies found that age monotonically increases with death anxiety level (29).

In this study, lack of association of the studied explanatory variables on coping style was oblivious. In Iran, one of the good evidences about the effect of socioeconomic status on coping style and coping strategy was derived from Isfahan healthy heart program. In that study, the investigators found the significant effects of the education variable on coping strategy, and detected a positive and negative association between the number of education year with adaptive coping strategies and maladaptive coping strategies, respectively; interestingly, the sex variable could modify its effect. In addition, compared to other job positions, they found that manual workers used maladaptive strategies more frequently (30). This difference effect could be the result of the type of studied population. Our study and Isfahan healthy heart program were conducted on a clinical and non-clinical population, respectively, so type of studied population could be considered as an interaction variable.

We found that increasing the level of death depression led to a decrease in coping style. The presence of severe death depression level could worsen the coping style of the patients with their disease; for example, non-adherence of treatment may occur, indicating avoidant coping style (31). Some other studies found that anxiety could be considered as a prohibitive factor to efficient hypertension management (32, 33). In one study, investigators argued that coping style of coronary artery disease (CAD) patients was independent of emotional distress indicators, including depression and anxiety, meaning that regardless of whether CAD patients acknowledge the low level of emotional distress, those who use a repressive coping style were more at risk of clinical events (34).

We found that history of ischemic stroke and history of coronary angiography were not related to death depression, death anxiety and coping style, but hospitalization was a determinant of a decrease in anxiety level. Pajak et al. found that the prevalence of depression and anxiety is

high among CHD patients in general, and indicated that no history of invasive treatment is associated with more frequent depression and anxiety in hospitalized CHD patients (35).

There are a few possible reasons for the low level of depression and anxiety in CHD patients following a hospitalization. First, after hospitalization, the patient receives an efficient social support from the family, friends, the hospital physician and the nurse, which could affect health-related quality of life and in-turn lead to a decrease in anxiety and depressive symptoms. Secondly, up to 75% of the patients had almost mild diseases, and such situation in disease severity could influence the depression or anxiety level.

Some points could strengthen our study. We used CHD clinical history factors and found that they could be remarkable determinants in this context. The study samples were collected from several hospitals, which helps generalizing the results to a bigger plausible population. However, this study had some limitations that should be considered. Firstly, some of the important determinants such as spirituality, self-esteem or religious beliefs that are related to death depression or death anxiety were not considered. Secondly, in cross-sectional studies, no time order or causality can be proved so useful coping strategies may lead to lower depression and anxiety levels (34). Longitudinal studies are needed to clarify the temporality of this association. Thirdly, as data collection was done by a self-administered questionnaire, which could induce some measurement biases, a matter that should be considered when interpreting the findings.

In summary, this study provided evidence for an increase in death depression, with low educational level and homemakers and workers among CHD patients. Hospitalization due to CHD could be a determinant of death anxiety level. The results point to the importance of the sociodemographic and CHD clinical history characteristics to minimize unfavorable psychometric conditions, including death depression and death anxiety among CHD patients. Psychometric conditions could affect the coping style of CHD patients.

Acknowledgments

Footnotes

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