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Relationship between Different Psychological Coping Strategies and Anxiety and Depression Levels in Heart Attack Patients

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Review Article

Abstract

Background: Heart attack, as a threatening event, affects patients' mental health, thus causing symptoms of anxiety and depression. The current research was conducted to evaluate the relationship between different psychological coping strategies and anxiety and depression levels in heart attack patients.

Methods: The current research was a cross-sectional study. In 2021, 237 heart attack patients were referred to Ibn Al-Bitar Specialized Hospital for Cardiac Surgery, Al Budoor Hospital, and Saint Raphael (Al Rahibat) Hospital in Baghdad, Iraq. A simple random sampling method was used to select a statistical sample of 114 patients. The Pearson correlation coefficient method was utilized. The collected data were analyzed using SPSS software. The statistical findings were considered significant at the 0.05 level.

Results: There was a significant negative correlation between anxiety and self-reliant ($r = -0.538$; $P < 0.01$), optimistic ($r = -0.483$; $P < 0.01$), supporting ($r = -0.467$; $P < 0.01$), and confronting ($r = -0.391$; $P < 0.05$) coping strategies. In addition, there was a significant negative correlation between depression and self-reliant ($r = -0.342$; $P < 0.01$), confronting ($r = -0.317$; $P < 0.01$), supporting ($r = -0.292$; $P < 0.01$), and optimistic ($r = -0.209$; $P < 0.05$) coping strategies. Moreover, the results indicated a significant positive correlation between the fatalistic coping strategy and the anxiety ($r = 0.429$; $P < 0.01$) and depression ($r = 0.214$; $P < 0.05$) variables.

Conclusion: Coping strategies are one of the main methods of improving life expectancy and well-being and are essential in positive disease adaptation and reducing anxiety and depression levels in heart attack patients

Keywords: Anxiety; Depression; Heart attack; Coping strategies

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Introduction

Heart disease is one of the most common diseases in various societies today. (Al Alwany, 2022a). There are heart attacks among heart diseases; many of these patients are hospitalized, and due to the relative disability, many economic losses are caused to societies (Scott-Sheldon et al., 2020). Among the critical issues faced by heart patients are the mental and emotional problems of these patients, which should be recognized and addressed to reduce the discomfort caused by them; failing to address the stress and psychological reactions of the sufferers causes the disease to spread and exacerbate (Al Alwany, 2017; Biber et al., 2019).

Anxiety and depression are among the psychological problems experienced by heart attack patients. Anxiety and depression are significant obstacles to the treatment of heart attack patients, as they result in the rejection of the disease and a lack of motivation to continue treatment (Mazaheri, Daghaghzadeh, Afshar, & Mohammadi, 2013). Additionally, it negatively impacts the prognosis of cardiovascular disease (CVD). Depression and anxiety affect heartbeat rhythm. Increased hypertension, insulin, cholesterol levels, and stress hormones like adrenaline and cortisol increase CVD risk (Jaarsma et al., 2021).

Anxiety is an uncomfortable, pervasive, and disorienting sensation of tension and fear that confuses (Mariani, Renzi, Di, Trabucchi, Danskin, & Tambelli, 2020). Anxiety is frequently a response to an unknown and unspecified threat that may have its origins in internal conflicts, feelings of insecurity, and forbidden impulses. Similar to depression, anxiety is common after a heart attack. Anxiety is the most frequent and significant reaction to illness. Fear of death has been reported to be the most common source of anxiety in heart attack patients (Jha, Qamar, Vaduganathan, Charney, & Murrough, 2019; Rutledge, Reis, Linke, Greenberg, & Mills, 2006). Anxiety and negative thoughts about the likelihood of a second attack and sudden death threaten the physical and mental health of most heart attack patients. For this reason, anti-anxiety techniques and cognitive therapies that can alter negative beliefs and thoughts are regarded as crucial measures in these patients (Kasparian, Kan, Sood, Wray, Pincus, & Newburger, 2019; Al Alwany, 2021).

Depression is a common mental problem among heart attack patients. Depression is the most common mood disorder, with sadness as the dominant emotion. Clinical signs of depression include sadness in a depressed person's mood, a lack of enjoyment and interest in things, a lack of motivation and indifference, pessimism and disgust, and fault-finding (Johansson et al., 2019). Clinical depression manifests itself in various ways. Major depression strikes suddenly and lasts at least 2 weeks. Depression is a chronic disorder that lasts at least 2 years without remission (Capobianco, Faija, Husain, & Wells, 2020). Transient recurrent depression refers to recurrent episodes of major depression that last less than 2 weeks. Minor depression is characterized by the presence of mild depressive symptoms (Al Alwany, 2022c). This type of depression includes depression caused by substance abuse, depression caused by a general medical disease such as a heart attack, and unspecified depression (Silverman, Herzog, & Silverman, 2019).

Depression can affect anybody. Research indicates that these injuries can be significantly more prevalent in heart attack patients (Marino et al., 2012). Moreover, those with depression are at a higher risk of heart attack. Therefore, depressed heart attack patients are more likely to die than non-depressed patients (Bucourt et al., 2021). Despite significant advancements in brain research, depression is frequently not diagnosed and

treated early on. Families and relatives of heart attack patients and cardiologists who specialize in cardiovascular patients may mistake the symptoms of depression for heart attack symptoms (Li, Liu, Wang, & Smith, 2019; Al Alwany, 2022b).

Anxiety and depression have been linked to numerous complications in heart attack patients, including increased mortality, angina pectoris, arrhythmia, re-hospitalizations, long-term disability, and increased smoking (Smaardijk et al., 2020). Thus, a higher rate of mortality is observed among patients with a weak support system, and they report problems more frequently (Li, Yang, Wang, Yang, & Zhang, 2020; Pogosova et al., 2015). Therefore, heart attack patients' anxiety and depression can be treated through psychological interventions.

Patients who have suffered a heart attack may experience a variety of post-traumatic disturbances that result in the use of maladaptive coping styles (Sohrabzadeh-Fard, Parvaz, Bakhtyari, & Abasi, 2021). Moreover, confrontations that are not adaptive may result in psychological disturbances. One of the most impressive methods is emotion- and problem-oriented coping strategies. Multiple studies have demonstrated that the use of emotion-oriented methods by heart attack patients causes them to experience more anxiety and depression. However, if these patients use problem-oriented rather than emotion-oriented confrontations, they will have better social and psychological adjustment (Goli et al., 2024; Su et al., 2020). Researchers believe that most patients who use acceptance-focused coping accept the occurrence and immutability of a heart attack. In contrast, patients who use avoidant coping do not psychologically and behaviorally prepare themselves for the effects of a heart attack (Mohammadi, Zargar, Malekpour, Omidi, & Akbari, 2018). In addition, the researchers concluded that while using emotion-focused and avoidance coping strategies is related to associated symptoms, maladaptive practices are not necessarily associated with anxiety symptoms (Albus et al., 2019; Lichtman et al., 2008).

Given that the symptoms of anxiety and depression are common in heart attack patients, it is critical to understand the coping methods that reduce these two psychological symptoms in order to use them in psychological interventions based on coping method training. As a result, the current research was conducted to evaluate the effect of different psychological coping strategies on the anxiety and depression levels of heart attack patients. Due to the scarcity of studies in this field, the correlation between coping styles and anxiety and depression is unknown, which is considered the study's innovation.

Methods

The current research was a cross-sectional evaluation of the correlation of coping strategies with anxiety and depression in heart attack patients. The statistical population included 237 heart attack patients referred to Ibn Al-Bitar Specialized Hospital for Cardiac Surgery, Al Budoor Hospital, and Saint Raphael. (Al Rahibat) Hospital in Baghdad, Iraq, in 2021. A statistical sample of 114 patients was chosen utilizing simple random sampling.

The inclusion criteria included age of 30-70 years, chest pain (for more than 20 minutes), pathological changes in electrocardiography (ECG) indicating a heart attack and an increase in cardiac enzymes. The exclusion criteria included the patient's unwillingness to participate in the study, incomplete questionnaire, presence of another severe medical illness (which reduces life expectancy), presence of cognitive disorders or weakness in the patient's cognitive function, the patient's deplorable general medical conditions during hospitalization, and hospitalization for other

medical reasons. By ethical principles, the participants were assured that their identities would not be disclosed. The ethics committee of the College of Medicine at the University of Baghdad approved the current study. Before beginning the research, its methodology and aims were explained to the participants. The Jalowiec Coping Scale (JCS), Beck's Anxiety Inventory (BAI), and Beck's Depression Inventory (BDI) were utilized to compile the research data.

The JCS (Jalowiec, 2003) has been used to evaluate the coping behaviors of heart attack patients. This scale includes 60 items scored on a 4-point Likert scale ranging from 0 (never) to 3 (most of the time). This scale includes the confronting (face up to the problem), evasive (avoid the problem), optimistic (positive thinking), fatalistic (pessimistic thinking), emotive (release emotions), palliative (make yourself feel better), supporting (use support systems), and self-reliant (depend on yourself) coping strategies. Ulvik et al. (2008) reported the reliability and validity of JCS as 0.81 and 0.85, respectively. To check reliability, Cronbach's alpha of this scale was equal to 0.87. Also, its validity was equal to 0.83.

The BAI (Beck & Steer, 1993) measures the severity of clinical anxiety of an individual. This inventory includes 21 items, each of which describes a common anxiety symptom (mental, physical, and panic symptoms). The items are scored on a 4-point Likert scale ranging from 0 to 3; thus, the total score for this inventory ranges between 0 and 63. This inventory has a high degree of reliability. In previous studies, its content, concurrent, construct, diagnostic, and factor validity have been measured, all of which indicate its high efficacy in measuring the severity of anxiety. Ulusoy, Hisli Sahin, and Erkmen (1998) reported the reliability and validity of the BAI to be 0.75 and 0.92, respectively. In the current study, the reliability and validity of this inventory were found to be 0.87 and 0.91, respectively.

The BDI (Beck, Steer, & Brown, 1996) was developed to assess the severity of depression in individuals aged 13 and older. The 21-item inventory is divided into three categories: emotional symptoms, cognitive symptoms, and physical symptoms. Numerous studies have confirmed the reliability and validity of this inventory; for example, Ulusoy et al. (1998) reported its reliability and validity to be 0.80 and 0.74, respectively. The present study's reliability and validity were found to be 0.84 and 0.89, respectively.

The patients completed the demographic questionnaire before completing the abovementioned questionnaires. SPSS software (version 23; IBM Corp., Armonk, NY, USA) was used to analyze the results after collecting the data. The statistical indicators of the patient's demographic and psychological information and the eight coping strategies were described using descriptive statistics. The Pearson correlation coefficient was used to assess the relationship between the coping strategies and anxiety and depression levels. The statistical results were considered significant at a level of 0.05.

Results

Table 1 presents the demographic variables of the participants. The results indicated the participants' mean age was 56.47 ± 8.51 years. In addition, 78 (68.4%) participants were men, 69 (60.5%) had a secondary education, 67 (58.8%) were unemployed, and 71 (62.3%) did not smoke. The mean scores of anxiety and depression were 22.56 ± 4.38 and 21.63 ± 4.17, respectively.

Table 2 displays each coping strategy's mean (SD), minimum, maximum, and

proportion scores (PS).

Table 1. Demographic variables of the participants

Demographic variables	Range	n (%)
Gender	Male	78 (68.4)
	Female	36 (31.6)
Age (year)	30-50	35 (30.7)
	50-70	79 (69.3)
Education	Illiterate	8 (7.0)
	Secondary	69 (60.5)
	College	37 (32.5)
Job	Employed	47 (41.2)
	Unemployed	67 (58.8)
Smoking	Yes	43 (37.7)
	No	71 (62.3)

Due to the unequal number of items in each subscale, the raw scores were converted into PS to compare the eight coping strategies. According to the findings presented in Table 2, the self-reliant coping strategy (PS = 0.72) was the most commonly used strategy in heart attack patients, and the palliative coping strategy (PS = 0.51) was the least commonly used strategy.

Correlation coefficients were used to assess the relationship between the eight coping strategies and anxiety and depression. Table 3 displays the correlation coefficient matrix. There is a significant negative correlation between the anxiety variable and the self-reliant ($r = -0.538$; $P < 0.01$), optimistic ($r = -0.483$; $P < 0.01$), supporting.
($r = -0.467$; $P < 0.01$), and confronting ($r = -0.391$; $P < 0.05$) coping strategies. In addition, there is a significant positive correlation between anxiety and fatalistic coping strategy ($r = 0.429$; $P < 0.01$). In addition, the results demonstrated a significant negative correlation between the depression variable with the self-reliant ($r = -0.342$; $P < 0.01$), confronting ($r = -0.317$; $P < 0.01$), supporting ($r = -0.292$; $P < 0.01$), and optimistic ($r = -0.209$; $P < 0.05$) coping strategies. Moreover, there is a significant positive correlation between depression and a fatalistic coping strategy. ($r = 0.214$; $P < 0.05$).

In the relationship between coping strategies and anxiety and depression variables in heart attack patients, the correlation matrix in Table 3 indicates that the most common coping strategies include confronting, optimistic, fatalistic, supporting, and self-reliant strategies. The stepwise multiple regression method was used to identify the best predictors of anxiety and depression coping strategies, the results of which are presented in Table 4.

According to Table 4, the self-reliant strategy was entered into the first step of the anxiety equation and accounted for 12.1% ($P < 0.001$) of the variance.

Table 2. Descriptive indices and proportion scores for the use of coping strategies in heart attack patients

Variable	Mean ± SD	Minimum	Maximum	PS
Confronting	1.86 ± 0.43	0.93	2.89	0.71
Evasive	1.61 ± 0.37	0.74	2.65	0.54
Optimistic	1.91 ± 0.47	0.86	2.74	0.68
Fatalistic	1.56 ± 0.41	0.72	2.84	0.71
Emotive	1.52 ± 0.39	0.43	2.67	0.61
Palliative	1.48 ± 0.42	0.63	2.61	0.51
Supporting	1.76 ± 0.46	0.83	3.27	0.64
Self-reliant	1.87 ± 0.45	0.92	2.94	0.72

Anxiety	22.56 ± 4.38	11.76	42.19	0.83
Depression	21.63 ± 4.17	8.51	34.83	0.76

SD: Standard deviation, PS: Proportion score

Table 3. Correlation coefficient matrix of coping strategies with anxiety and depression

Variable	1	2	3	4	5	6	7	8	9	10
1	1									
2	0.219	1								
3	0.574	0.317	1							
4	-0.216	-0.266	-0.392	1						
5	-0.079	0.143	-0.156	0.349	1					
6	0.201	-0.047	0.231	-0.186	-0.113	1				
7	0.673	-0.217	0.614	-0.367	-0.154	0.086	1			
8	0.489	-0.256	0.679	-0.403	-0.191	0.114	0.813	1		
9	-0.391*	-0.116	-0.483**	0.429**	0.214	-0.129	-0.467**	-0.538**	1	
10	-0.317**	0.094	-0.209*	0.214*	0.073	-0.067	-0.292**	-0.342**	0.524**	1

1: Confronting, 2: Confronting, 3: Optimistic, 4: Fatalistic, 5: Emotive, 6: Palliative, 7: Supporting, 8: Self-reliant, 9: Anxiety, 10: Depression

*P < 0.05, **P < 0.01

In the second step, the entry of the optimistic strategy increased the variance to 19.4% (P = 0.006). In the third step, the supporting strategy was added, which increased the variance by 8.6% (P = 0.017). It is worth noting that the other variables were not entered into the equation. The self-reliant strategy was entered into the equation first for depression and accounted for 15.2% (P < 0.001) of the variance. The confronting strategy increased the variance by 13.8% (P = 0.009) in the second step. The regression equation did not include any other variables.

Discussion

The present research was performed to evaluate the relationship between different psychological coping strategies and anxiety and depression levels in heart attack patients. The results indicate that self-reliance and palliative strategies are the most and least common coping strategies. In addition, the correlation between coping strategies and anxiety and depression levels reveals that confronting, optimistic, supporting, and self-reliant coping strategies have a negative correlation with these two variables. In contrast, fatalistic coping strategies have a positive correlation with anxiety and depression. The mentioned results are consistent with those of numerous studies in this field (Hallas, Wray, Andreou, & Banner, 2011; Konstam, Moser, & De Jong, 2005; Reid, Ski, & Thompson, 2013), but not with the studies by Clarke and Currie (2009), and Dusseldorp, van Eldren, Maes, Meulman, & Kraaij (1999).

Many previous researches have demonstrated that the experience of a heart attack as a significant stressor multiplies the risk of anxiety and depressive symptoms in normal individuals (Liang et al., 2022; Martens, de Jonge, Na, Cohen, Lett, & Whooley, 2010). Interference and overlap of the psychological symptoms of physical illness is a problem that makes screening patients for anxiety and depression difficult.

Table 4. The stepwise multiple regression results for the best predictors of both anxiety and depression

Step	Variable	R^2	Adjusted R^2	F	Final β	P-value
Anxiety						
1	Self-reliant	0.117	0.108	13.618	0.238	< 0.001
2	Optimistic	0.143	0.138	11.576	0.141	0.006
3	Supporting	0.184	0.176	9.184	0.116	0.017

Depression						
1	Self-reliant	0.139	0.124	18.651	0.258	< 0.001
2	Confronting	0.178	0.166	13.409	0.186	0.009

For instance, fatigue, sleep disorder, and loss of appetite are physical symptoms frequently associated with various physical disorders and may not necessarily indicate depression and anxiety. In addition, there has always been a risk that specific symptoms typically associated with physical diseases may interfere with psychological symptoms and not be distinguished from one another when using standard screening tools on physical patients. Consequently, cognitive and affective symptoms are prioritized in most physical disease diagnostic instruments (Shen et al., 2018).

The anxiety variable depends on the relationship between the individual and circumstances that the individual perceives as beyond his/her control and a threat to his/her well-being. The two primary functions of coping are problem-oriented and emotion-oriented. In problem-oriented functioning, an individual confronts a problem that has caused confusion and stress, whereas emotion-oriented functioning regulates emotional responses to the problem (Sonia, 2005). The occurrence of a heart attack poses a grave threat to the patient, necessitating the utilization of coping behaviors to adapt to these challenges. According to the current research findings, the problem-oriented function of these confrontations is superior to their emotion-oriented function.

In the early stages of dealing with anxiety and depression, patients may rely primarily on emotion-oriented methods. In contrast, most prefer methods that result in situational change and problem resolution. In addition, the cognitive evaluation of obstacles plays a significant role in selecting a coping strategy (Garnefski, Van Den Kommer, Kraaij, Teerds, Legerstee, & Onstein, 2002). Theoretically, when people resort to emotionally driven confrontations, they do not evaluate the anxiety-inducing situation as malleable in their cognitive evaluation of difficult situations. Consequently, problem-oriented coping strategies are utilized in situations identified as malleable (Ferris, Sinclair, & Kline, 2005). This is related to the notion of individual control.

According to previous research, coping is a complex, multidimensional process that depends on environmental needs and resources. Coping can be of a positive or negative nature and is associated with the primary and secondary levels of evaluation (O'Doherty et al., 2015). While coping with emotional regulation during the anxiety process appears to be closely related to each other, there are exceptions. Simply put, the fundamental relationship between coping and adaptation strategies cannot be fully identified or verified (Yohannes, Willgoss, Baldwin, & Connolly, 2010). Specific avoidant coping strategies, for instance, have a clear association with adverse psychological outcomes (Tully et al., 2014).

Oliveri et al. (2018) reported that problem-oriented coping strategies reduce the psychological and physiological effects of problems and daily stressors. It is believed that the concept of personal control in the coping process has two meanings. In the first sense, personal control refers to a person's general belief that they can influence the outcomes and events of their life. The second interpretation is based on a situational evaluation of the controllability of a particularly stressful situation. Control as a generalized belief is an example of primary evaluation, whereas control in the context of a situational evaluation is an example of secondary evaluation (Konstam et al., 2005).

The main limitation of the present research is that the sample was restricted to heart attack patients in 3 hospitals in Baghdad. To conduct future research, it is suggested that investigations be conducted in regions with different cultures and customs. In addition, the sample size was somewhat limited due to the time constraint, the entry

requirements, and the limitations of the facilities and capabilities. The results should, therefore, be generalized with caution. Lack of detailed information regarding the role of factors like the history of heart disease, history of psychiatric disease, the drugs consumed and the amount consumed, and their role in coping strategies has hampered the ability to draw definitive conclusions from the present study findings. Therefore, it is recommended that using more precise research methods and controlling the role of these variables, different dimensions of coping strategies and their role in the adaptation of these patients be investigated in future studies.

Conclusion

Heart attack patients are frequently challenged in the maintenance of their quality of life (QOL) and well-being. In this process, the psychological operation of patients is significantly affected by their disease and coping strategies. The results of the current study indicate the high influence of anxiety and depression on heart attack patients. Specialists and medical teams must thoroughly understand the factors and conditions that may facilitate this adaptation. According to the present study's findings, coping strategies are one of the primary components of the process mentioned above and play a significant role in positive disease adaptation. In addition to paying particular attention to the psychological aspects of a heart attack, cardiologists should also request the participation of psychiatrists and psychologists in the treatment and rehabilitation of these patients through coping strategies.

Conflict of Interests

The authors have no conflict of interest.

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