

A Pilot Study Concerning Psychological and Psychiatric Problems among Ischemic Heart Patient

Saeed Shoja Shafti

University of Social Welfare and Rehabilitation, Razi Psychiatric Hospital, Tehran, Iran

Corresponding Author: Saeed Shoja Shafti, University of Social Welfare and Rehabilitation, Razi Psychiatric Hospital, Tehran, Iran

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Abstract:

Introduction: Psychosocial stresses and psychiatric problems may make worse the prognosis of patients with ischemic heart disease. Therefore assessing their incidence among this group of patients may perhaps enhance our perception concerning their dynamic significance in the field of psychological medicine.

Method and Materials: 101 patients with diagnosed ischemic heart disease, in the coronary care unit of a general hospital, had been interviewed by a psychiatrist to find that is there any meaningful association between psychiatric complications or psychosocial strains and ischemic cardiac events.

Results: Ischemic events were meaningfully more prevailing amongst patients with both biological risk factors and psychiatric problems. Moreover, the quantity of patients suffering from psychiatric difficulties was significantly more than patients without psychiatric complications. Besides, there was a significant alteration between male and female patients as regards the category of psychosocial stress. Seventy-nine percent of psychosocial stresses had been experienced by patients who had psychiatric complications. Besides, while more dysthymic illness was evident in the acute assembly of patients, more major or minor depressive disorder was noticeable in the chronic group of cardiac patients; a variance which looked significant.

Conclusion: The high incidence of psycho-social stresses and psychiatric problems among ischemic heart patients, which may act as cofactors in triggering the pathogenicity of organic risk factors, ask for enough care for recognition, checking, and controlling of them, by way of reasonable clinical and psycho-social interventions.

Keywords: coronary artery disease; ischemic heart disease; psychiatric comorbidities; depression; anxiety disorders; psychosis

Introduction:

Psychological distress can be generally defined as a negative internal state of the individual that is dependent on analysis or evaluation of risk, hurt, or demand (1). Myocardial infarction and sudden cardiac death can be elicited by emotional distress (2). The susceptibility for these acute coronary disorders is mainly determined by the presence of coronary artery disease (CAD) and/or structural myocardial injury (3). Long-lasting psychiatric, psychological and social situations can influence the slow progression of cardiovascular disease and may further boost the probability or extent of emotion-related causes of acute coronary syndromes, principally in patients with underlying cardiovascular disease (4, 5). Distress and other psychological risk factors may have straight physiologic and biologic influences pertinent to CAD progression. In addition, risk linked with psychological distress may be interceded by adversative health actions such as smoking (6) and customary cardiovascular disease risk factors (for example, hypertension, dyslipidemia, and metabolic disorder) (7). On the other hand, the majority of patients at risk of adverse cardiac consequences based on psychological influences do not have clinical psychiatric illnesses (8). A general factor of "psychological distress" includes a large portion of the prognostic standards of various specific psychological cardiovascular risk factors containing anxiety, depression, enmity, and low perceived social care (9). Severe and prolonged overwhelming distress can result in clinical and sub-clinical conditions categorized by adverse affect that usually occur

in psychiatric problems (8) and conditions that generally fall outside the range of clinical psychiatry such as vital exhaustion and burn-out syndrome. The increased cardiovascular disease risk related with depression develops at levels well below clinical diagnostic standards for major depressive disorder (10). Psychological distress is an unceasing variable and evidence proposes a dose-response association between the rigorosity of psychological distress with bio-behavioral associates in addition to cardiovascular disease risk (11). Nearly one in five acute coronary syndromes is heralded by an acute trigger. Substantial surges in central and autonomic nervous system activity are a common occurrence that link acute psychological, psychiatric and neurologic events to major cardiac pathologies (12). While acute psychological distress may play a contributing role in clinical syndromes in the absence of well-defined anatomical or structural disease, the role of psychological distress in cardiovascular disease differs with the period of the illness (13). Acute stressors are principally of importance as triggers of acute coronary disorders in the presence of relatively progressive coronary artery ailment, though incidents of continued elevated distress are connected with increased susceptibility for acute coronary conditions, and enduring distress related to characters and/or stable adverse socio-environmental issues is related with the slow progression of coronary artery disease (13). While there seems to be a dose-response association between the severity of psychological distress and the hazard of cardiovascular ailment, more study is desired to determine whether general psychological distress by itself or clinical disorders such as major depressive and anxiety disorders are better conjecturers of adverse cardiovascular health consequences

(11). It is important, as well, to consider the surroundings in which these problems are addressed (9). In the current local evaluation, the rate of recurrence of psychiatric complications and psychosocial strains, which were existent earlier than ischemic heart events, had been appraised, to study their possible triggering effect with respect to the said morbid processes.

Method and Materials:

101 ischemic heart patients, who were admitted in the coronary care unit (CCU), were elected systematically during a 6-months period, from August 2011 up to December of the same year. After the primary work-up and management by a cardiologist and just before release from CCU, an inclusive clinical interview was accomplished by an associate colleague (psychiatrist) to explore the presence of any kind of psychiatric symptom or stress in patients. In this regard, supplementary data, too, was obtainable from patient’s families, personnel, and medical doctors, who were visiting cases every day. Psychiatric disorders had been identified in line with the criteria of ‘Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (DSM IV- TR)’ (14), which was the basis of diagnosis during present evaluation. In addition, a self-made form, as a kind of assist for surveyor (the aforesaid psychiatrist), had been designed, which involved all psychiatric symptoms, substance abusing, physiognomies of type A behavior pattern, and psycho-social stresses. Precedence of symptoms and stresses before admittance was a requisite for ultimate exploration.

Statistical Analysis:

Statistics were evaluated by Z and chi-square (χ^2 -test) formulary. The statistical significance was demarcated as P value equal or less than 0.05.

Results:

According to data, 40.6%, 36.6% and 22.8% of patients had been diagnosed as unstable angina, acute myocardial infarction, and congestive heart failure, respectively. 49.5% of cases were female and 50.5% of them were male patients. In the present sample, acute myocardial infarction was meaningfully more widespread amongst men and unstable angina amid women ($P < 0.01$). Moreover, while 22.8% of cases were single or widowed, 77.2% were married ($P < 0.05$). Patients were between 32 and 84 years old (mean = 56.72 ± 14.57) with 43.6% above 60. Among them 33.7% had academic educations, 7.9% had high school diploma, 15.8% were uneducated, and the remaining had some literacy. 51.48% of the patients were from families with an income no less than 500 US Dollars per family member per year. 38.6% had personal house and 61.4% were tenant or else. In the present assessment, no significant relationship was evident between the above-mentioned factors (as psychosocial stresses) and cardiac events. While 44.5% of patients had concomitant psychiatric problems and biological risk factors (hypertension, diabetes mellitus, hyperlipidemia, or cigarette smoking), 14.9% of them had neither psychiatric problem nor somatic risk factor. In this regard, 21.78% had organic risk-factor without any psychiatric disorder and 18.81% had a psychiatric disorder without any organic risk-factor (Table 1).

Cardiac patients	Male	%	Female	%	Total
Without psychiatric problem Without biological risk factor	11	21.56	4	8	15
Without psychiatric problem With biological risk factor	13	25.49	9	18	22

With psychiatric problem Without biological risk factor	7	13.72	12	24	19
With psychiatric problem With biological risk factor	20	39.21	25	50	45
Total	51	100	50	100	101

Table 1: Prevalence of psychiatric problems and biological risk factors among cardiac patients.

Amongst the aforementioned risk-factors, hypertension was noticeable in 55%, diabetes mellitus in 38%, hyperlipidemia in 37%, and cigarette smoking in 32% of patients. More than one medical risk-factor was evident in 62% of the patients, which was more prevalent among female cases. According to analysis, ischemic happenings were meaningfully more widespread among patients with both psychiatric complications and organic risk-factors, in comparison with patients without both of them ($P < 0.05$). As stated by the findings, co-morbidity of these two had augmented the danger of cardiac happenings around three times, and presence of psychiatric complications had amplified the detrimental effects of organic risk-factors around two times. Totally, 63.36% of cases had some kind of psychiatric problem. Among them, 67% had some kind of depressive illness, like major depressive disorder, minor depressive disorder or dysthymic disorder, and 15% had an anxiety

disorder, like generalized anxiety disorder, obsessive compulsive disorder, or phobia. 17% of cases did not have any particular disease and so could be classified as not otherwise specified (NOS) (Table 2) (Figure 1 and 2).

Cardiac patients	Male	%	Female	%	Total	%
Without psychiatric problem	24	47.05	13	26	37	36.63
With psychiatric problem	27	52.94	37	74	64	63.36
Total	51	100	50	100	101	100

Table 2: Prevalence of psychiatric problems among patients.

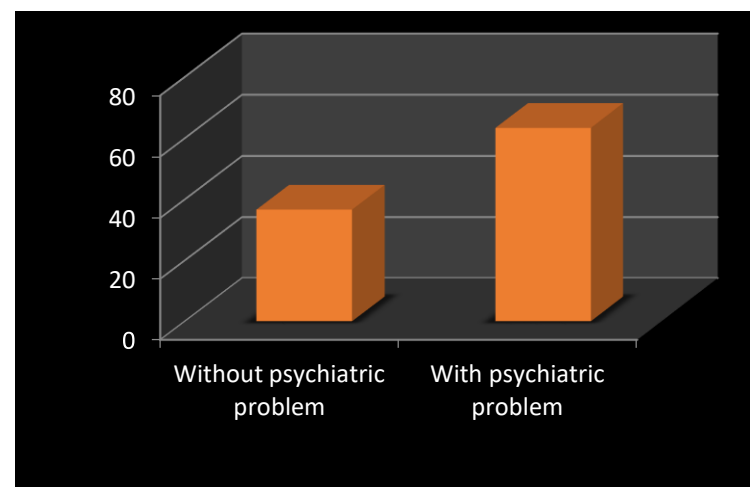


Figure 1: Dominance of psychiatric problems among cardiac patients.

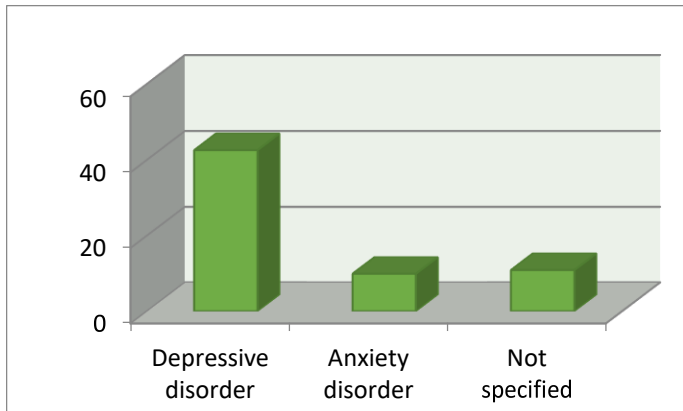


Figure 2: Frequency of psychiatric problems among cardiac patients.

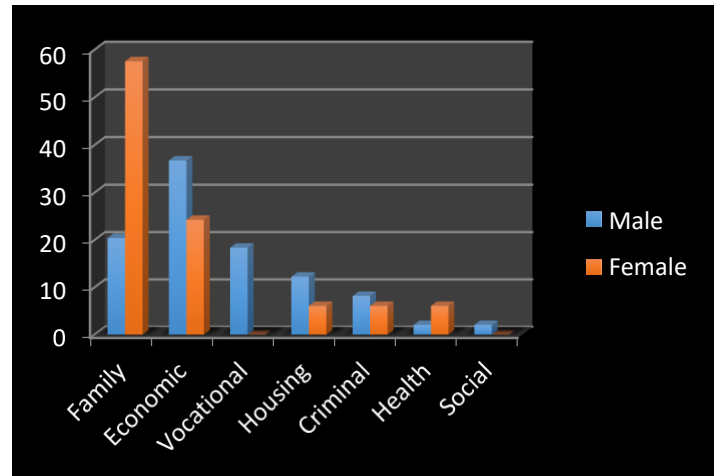
As regards the psychiatric symptoms, 42.6% of cases had depressed attitude and exhaustion, 48.5% had petulance and hostility, 39.6% reported sleeplessness, 23.7% stated loss of interest, 17.9% indicated loss of appetite, and 25.7% had declared anxiety as a distressing symptom in the last months. Regarding substance abuse, 4% reported alcohol abuse and dependency, 3% had dependency on opium, and 20.8% were dependent on cigarette smoking. So, quantity of patients with psychiatric complications was meaningfully more than cases without that ($P < 0.05$). Also, depression was around two times and anxiety 1.5 times more common among female patients ($P < 0.001$) (Table 3).

Psychiatric problems	Male	%	Female	%	Total	%
Depressive disorder	14	13.9	29	28.7	43	42.57
Anxiety disorder	4	3.9	6	5.9	10	9.90
Not specified	9	8.9	2	1.9	11	10.89
Without psychiatric problem	24	23.8	13	12.9	37	36.67
Total	51	50.5	50	49.5	101	100

Table 3: Prevalence of psychiatric problems among male and female cardiac patients.

Regarding psycho-social stresses, 52% of men and 47% of women had experienced some kind of strain during the days before admission (Table 4) (figure 3).

Psychosocial stresses	Male	%	Female	%	Total
Family	10	20.40	19	57.57	29
Economic	18	36.73	8	24.24	26
Vocational	9	18.36	0	0	9
Housing	6	12.24	2	6.06	8
Criminal	4	8.16	2	6.06	6
Health	1	2.04	2	6.06	3
Social	1	2.04	0	0	1
Total	49	100	33	100	82



By the way, 58% of men and 17% of women were experiencing numerous stresses. Family stress for women and economic stress for men were the most prevailing stresses (49% and 44%, respectively), which revealed a significant difference ($P < 0.01$). Concerning association between psychiatric complications and stresses and according to the findings, among patients without psychiatric difficulties ($n = 37$), the ratio of patients without stress ($n = 25$) to patients with that ($n = 12$) was '2.08:1', and in the group with psychiatric difficulties ($n = 64$) the ratio for patients with stress ($n = 41$) to patients without stress ($n = 17$) was '2.76:1'. Therefore around 79% of total stresses were experienced by patients who had psychiatric complications and this occurrence was affiliated with four times escalation in the risk of cardiac events, against patients with no similar complications ($P < 0.0001$) (Table 5).

Cardiac patients	With stress	%	Without stress	%	Total
Without psychiatric problem	12	20.33	25	59.52	37
With psychiatric problem	47	79.66	17	40.47	64
Total	59	100	42	100	101

Table 5: Prevalence of psychosocial stresses among patients with or without psychiatric problems.

While in this regard no significant difference was evident between males and females, with exclusion of psychiatric complications, no significant difference was evident, too, between patients with or without stress ($P > 0.05$). Nevertheless, while among patients with myocardial infarction the ratio of male patients with stress to female patients was '2:1', in the group of patients with unstable angina it was '1:1.4', and in all the said groups the patients with stress were numerically more than patients without that. Characteristics of type A behavior, as well, were noticeable in 32%, 13%, and 14% of patients with myocardial infarction, unstable angina, and congestive heart failure, respectively (Table 6).

Figure 3 - Frequency of psychosocial stresses among male and female cardiac patients.

Table 4: Prevalence of psychosocial stresses among male and female cardiac patients.

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Cardiac patients	Males with type A behavior	Females with type A behavior	Male and females without type A behavior	Total
Myocardial infarction	8	3	23	34
Unstable angina	3	4	46	53
Congestive heart failure	1	1	12	14
Total	12	8	81	101

Table 6: prevalence of type a behavior among patients.

While in the infarcted group the ratio of male to female with type A behavior was '2.6:1', this difference was not significant ($DF = 2, \chi^2 = 6.04, P < 0.25$). Likewise, In the infarcted group, around 60% had some kind of the depressive illnesses; 18% as minor or major depressive disorder, and 42% as dysthymic disorder. In the chronic group of patients

(unstable angina and congestive heart failure), as well, 51% were diagnosed as minor or major depressive disorder and 18% as dysthymic disorder, and in general 69% of cases in the later group had some kind of depression (Table 7).

Duration of cardiac disorders	Depression (major + minor)	Dysthymic disorder	Anxiety disorders	NOS	Total
Acute	6	14	5	6	33
Chronic	17	6	5	5	33
Total	23	20	10	11	64

Table 7: prevalence of psychiatric problems among acute and chronic ischemic patients.

Therefore, the ratio of depression in the acute infarcted patients to chronic ischemic ones was about '1:2.7', and for dysthymic disorder it was about '2.6:1'. So, a significant difference ($P < 0.001$) was evident as regards the severity of depression between acute and chronic patients; a pattern which was not observable concerning anxiety disorders.

Discussion:

Cardiovascular psychological risk factors can be grouped based on the period and chronological proximity to the occurrence of coronary disorders :1) acute psychological risk-factors (e.g. outbursts of anger, mental activity, and acute distress) that may act as causes of cardiac happenings within one hour; 2) occasional psychological risk factors with a duration lasting from a number of weeks to two years (e.g. depression, exhaustion and episodes of distress related to job loss, divorce and exposure to extreme physical or mental adversity); and 3)chronic psychological risk factors that stimulate the gradual progression of coronary artery illness (e.g. personality traits and adverse socio-environmental circumstances). Long-lasting psychological issues are connected with increased reactivity to acute stressors and also stimulate the risk of the development of episodic psychological risk-factors [15]. Recent evidence, too, proposes that occasional risk factors such as depression are related with an increased emotional and biologic reaction to acute stressors. These forms of psychological risk-factors are linked with distinctive organic and functional processes that play distinct roles at different sickness periods. These psychological risk-factors often need to be realized in the context of genetic background dynamics and customary cardiovascular risk-factors such as dyslipidemia, diabetes mellitus and hypertension. On the other hand, since numerous patients will not meet traditional classification standards for psychiatric diagnosis, innovative psychiatric and psychological strategies will need to be settled to address distress-related psychological risk-factors. So, it is important to appraise psychological distress in terms of its environmental precipitants and causes that may intensify susceptibility to these happenings (i.e. discrimination, low socioeconomic status, and adversative early life experiences) as well as psychological and social

factors that can act as safeguards (coping style, social support and optimism) [15]. Moreover, innovative biologic and physiologic cardiovascular disease markers are constantly developed to enhance risk stratification for adverse cardiovascular health consequences. Such unique biomarkers may not only improve identification of patients who are "at risk", but may also rise our understanding of the bio-behavioral processes by which psychological distresses are related to adverse cardiovascular illness. For example, psychological distress and depression are connected with increased oxidative stress markers, which may have significant consequences for the distress-cardiovascular disease pathways [15]. Anyhow, more study is required on the interaction between biologic and behavioral links of psychological distress [12]. This would possibly lead to multidimensional monitoring of high-risk patients who are treated with psychological and behavioral interventions [16]. For example, even in the lack of clinical cardiovascular disease, the effectiveness of antidepressant pharmacotherapy is less if patients have biological risk-factors or psychological stresses [16]. Maybe a healthcare system approach, rather than individually-based depression reduction policies, may be superior in reducing secondary cardiovascular happenings in clinically depressed patients with cardiovascular disease [17]. In contrast to the variable conclusions for antidepressant interventions, reduction of psychological distress seems to have more consistent effects in declining adversative cardiovascular endpoints (18). Back to our discussion, objectives of the present assessment could be identified as: 1) prevalence of psychiatric difficulties among ischemic heart patients; 2) probing any meaningful relationship between psychosocial stresses and ischemic events; and 3) searching any noticeable harmful influence thanks to TABP. With respect to the first query and along with the outcomes, frequency of psychiatric illnesses, specifically depression amongst patients with ischemic heart disease was significantly high. On the other hand, by with respect to chronicity or acuteness of cardiac events, it was obvious that there was a straight affiliation between chronicity of cardiac ailments and increasing severity of depression. In a comparatively analogous study in India on patients with IHD, major depressive disorder and anxiety disorders were found in a noticeable percentage of patients and around 95.4% of patients reported some kind

of psychiatric problem [15], which was quantitatively far more than the outcomes of the current assessment. On the other hand, while anxiety and depression were more prevailing among female patients, in comparison with male patients (2- and 1.5- folds, resp.), male patients without definable psychiatric complications were two-folds more than female cases. This finding showed that unfavorable effects of psychiatric problems could have some gender-based physiognomies. Otherwise, such a variance is similar, too, to the frequency of anxiety and depression in general public. Regarding the interaction of organic risk factors and psychiatric difficulties, we found a two-times escalation in the pathogenicity of organic risk-factors in presence of psychiatric complications, and three-times upsurge in cardiovascular harms when both of organic risk-factors and psychiatric difficulties co-exist. Most of the patients in the present evaluation had both of them. Concerning psycho-social stress and its interaction with ischemic happenings, findings revealed that the chance of patients with psychiatric problems in comparison with cases without that, for personal experience of stress, were around '4:1'. Thus, 79% of stresses had been concentrated in cases with psychiatric problems. Therefore, we may say that psycho-social stresses and psychiatric complications had a reciprocal aggravating effect on each other. Likewise, it is a renowned fact that mental stress-induced ischemia is much more common than exercise-induced ischemia in patients with clinically stable coronary heart disease. Females and unmarried males are at higher risk for mental stress-induced ischemia [16]. While mental stress induces transient myocardial ischemia in one third to one half of patients with CAD, it is usually without pain and happens at lower levels of oxygen demand than ischemia induced by physical exercise and, also, not connected to the severity of coronary blockade. Though stress-induced hemodynamic fluctuations, principally increases in systemic vascular resistance, coronary artery vasoconstriction, and micro-vascular variations, may all contribute to the pattern of ischemia, there is huge variability in responses to mental stress [17]. So, this morbid process together with the harmful effects of organic risk-factors can be accounted as the most risky combination. Moreover, in the present study, there was a substantial difference between male and female patients, with regard to description of psychosocial stresses, who had declared family conflicts and economic problems, separately, as their most important stresses. So, maybe more incidents of cardiac happenings among married people, in comparison with the singles, could be ascribed to the joint unfavorable effect of multiple stresses. Considering more acute infarction in male patients in comparison with the female cases and, besides, more feeling of stress among infarcted males, might disclose, over again, gender-based adverse effect of stress on acuteness of cardiac events, a phenomenon which was evident, once again, regarding the link between type A behavior and acuteness of cardiac events among male patients. Furthermore, management of psychiatric syndromes in ischemic heart patients can be perplexing due to cardiovascular side effects of many of the psychotropic drugs, besides potentiality of drug interactions. Additionally, many of the hypertensive or cardiac drugs have psychiatric side effects. Anyhow, acute psychological distress is a significant cause of acute coronary diseases [18]. Evaluation of myocardial ischemia and markers of cardiac electrical instability, induced by emotional arousal in controlled clinic or laboratory settings, can be used to develop pathophysiologic prototypes explaining the association between acute psychological distress and adverse cardiovascular outcomes [19]. Clinical psychiatric conditions such as major depressive disorder are pointedly associated with poor cardiovascular effects and the prognostic value of psychological distress for adverse cardiovascular disease progression is not an artifact of original atherosclerotic disease processes [19]. Psychological distress is related with adverse cardiovascular consequences via probable biologic pathways, including neuro- hormonal issues, autonomic nervous

system dysregulation, raised inflammation and coagulation factors and reduced response to injury, in addition to adverse health activities such as smoking, physical inactivity, poor dietary habits and medication non-adherence [20]. Absence of non-CCU cohort group, limitation of outcomes to a solitary academic center, and also small sample sizes were among the weak points of this estimation. Certainly, supplementary methodical investigations in future will increase our understanding regarding these dynamic interactions in the realm of psychological medicine.

Conclusion:

The high incidence of psycho-social stresses and psychiatric problems among ischemic heart patients, which may act as co-factors in triggering the pathogenicity of biological risk factors, ask for enough attention for recognition, checking, and controlling of them, by way of reasonable clinical and psycho-social interventions.

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