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Original Article

The relationship between type D personality and perceived social support in myocardial infarction patients

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Abstract

BACKGROUND: Type D personality is based on two global and stable personality traits, including negative affectivity (NA) and social inhibition (SI). The aim of this study was to examine the relationship between type D personality and perceived social support in post myocardial infarction (MI) patients.

METHODS: One hundred seventy six consecutive patients following MI admitted to the cardiac care unit (CCU) of nine hospitals in Isfahan, Iran from April to September 2006 were selected based on the inclusive and exclusive criteria. The patients completed the Persian version of type D personality scale and the Persian version of multidimensional scale of perceived social support (MSPSS). Also, demographic and medical questionnaire was completed for each patient. Chi-squared test, t-test and MANOVA were used to analyze the data.

RESULTS: The findings indicated that 35.8% patients (35.8 %) were classified as type D. The results of MANOVA showed that type D patients were significantly different from non-type D patients (F = 8.72, p = 0.0001) on MSPSS scores and on all dimensions including family subscale (F = 11.52, p = 0.001), friends subscale (F= 16.16, p = 0.0001) and significant others subscale (F = 5.04, p = 0.026).

CONCLUSIONS: Type D personality substantially affects the way MI patients perceive availability of social support from different sources including family, friends, and significant others. One implication of this finding may be to develop tailor-made interventions for MI patients with type D.

KEYWORDS: Myocardial Infraction, Negative Affectivity, Social Inhibition, Type D Personality, Perceived Social Support.

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Personality is an important mediator of chronic stress.[1] Recently, a new personality construct, the type D or 'distressed' personality, has been proposed.[2] This construct is the result of an investigation of coping styles in men with coronary heart disease.[3] Many studies showed that type D personality is associated to poor cardiac prognosis, and increased mortality and morbidity in cardiac patients.[1]

The taxonomy of type D personality is based on two global and stable personality traits, including negative affectivity (NA) and social inhibition (SI).[2,3] Negative affectivity means the tendency to experience negative emotions across time/situations.[4,5] An individual with High-NA experiences more feelings of dysphoria, anxiety, and irritability; have a negative view of self; and scan the world for signs of impending trouble.[4] Social inhibition means the tendency to inhibit the expression of emotions/behaviors in social interactions to avoid disapproval by others.[2,4] An individual with High-SI tends to feel inhibited, tense, and insecure in social relationship.[4]

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A person recognized high in both NA and SI has a distressed or type D personality and he is vulnerable to stress and life events.[4] Type D patients are at high risk for a wide range of adverse health outcomes.[2] Physiological hyperreactivity,[6] immune activation,[7] and inadequate response to cardiac treatment[8,9] the Plausible processes by which the prodictive role of type D may be explained. Finally, type D patients are at high risk for clustering of psychological risk factors, including depression, anxiety, and irritability, and low levels of self-esteem, and impaired quality of life.[10]

The role of social support is well recognized in health, psychological adjustment, and in relationship between stress and physical symptoms.[11,12] The effect of social support on the prognosis of patients with coronary artery disease (CAD) remains one of the strongest findings in this literature. Myocardial infarction patients who reported both social isolation and high levels of stress represent fourfold mortality risk.[13]

Social support is a multidimensional and complex construct including both structural and functional aspects.[14] Both structural and functional aspects depend on the perception of the recipient of support.[14] Hence, researchers differentiate between perceived and received social support.[15,16] Perceived social support refers to cognitive appraisal of the recipient of accessibility and quality of support.[14,17] Perceived social support can be divided into the perception that social support is accessible when needed and the satisfaction with received social support.[18]

Social support seems to fulfill an important role in adaptation efforts of MI patients.[19] In order to understand the underlying mechanisms of the protective role of perceived social support, it is important to examine the factors associated with that. Perceived social support may also be associated with personality. Few studies, however, have examined this particular relationship. Research has shown that extraverts report higher scores on satisfaction with the social support they receive compared with introverts.[20,21] The purpose of this study was to exam the relationship between type D personality and perceived social support in post myocardial infarction (MI) patients.

Methods

Participants

The sample composed of 176 consecutive patients with MI admitted to the CCU of nine hospitals in Isfahan, Iran, over a 5-month period (from April to September 2006) were screened for this study. The mean age for the sample was 55.9 (SD = 10.05), from the age 32 to 84 years. Informed consent was obtained from each patient and the study protocol conformed to the ethical guidelines.

Patients were eligible if they met at least two of three criteria: 1) chest pain for at least 20 min, 2) creatinine phosphokinase (CPK) value twice or more than the normal values and 3) the presence of new pathological Q wave on the electrocardiogram in at least two leads. Patients were excluded if they had a life expectancy less than 1 year because of comorbid non-cardiac disease (e.g., malignancies), had poor cognitive functions, had major psychiatric disorders, were unable to speak or read Persian, had visual or auditory problems that precluded participation, had an MI during hospital admission for other reasons (except angina pectoris), could not be scheduled for follow-up visits in a participating hospital, or died before they could be approached or decide about participation. The patients completed the Persian version of type D personality scale (DS-14-P)[22] and the Persian version of multidimensional scale of perceived social support (MSPSS) at between one week to two weeks after MI. Also, demographic and medical questionnaire was completed for each patient. Data were collected with supervision of a psychologist.

Measures

Demographic and Medical Questionnaire

A demographic and medical checklist was completed for each patient. This checklist included questions about demographic characteristics, social and economic factors and the patients underwent a physical examination.

Medical data were obtained from medical records.

Demographic characteristics included age at the time of MI, gender, marital status, achieved level of education and socio-economic status. Education was categorized in three levels: low, representing primary school; medium, representing middle vocational training or secondary school; high, representing higher vocational training or university degree. Socio-economic status was assessed using the criteria based on current employment of subject or last job if subject was retired, accommodation, area of living, income, and education level. Socio-economic status was categorized in three levels: low, medium and high.

The Persian version of type D personality scale

The type D personality scale (DS14) contains 14 items and consists of two subscales, negative affectivity, and social inhibition containing seven items, respectively. The items are answered on a five point Likert scale from 0 (false) to 4 (true) giving maximum scores of 28 for negative affectivity and social inhibition. A predetermined cut-off point of ≥ 10 on both subscales is used to determine those with a type D personality.[1,12] Examples of items measuring negative affectivity are 'I often make a fuss of unimportant things', and 'I often feel unhappy'. 'I often feel inhibited in social interactions', and 'I find it hard to start a conversation' are examples of items of the social inhibition subscale. In an investigation on psychometric properties of type D personality scale (DS14) conducted by Denollet, the NA and SI scales were internally consistent (= 0.88/0.86; N = 3678), stable over a 3-month period (test–retest r = 0.72/0.82). By using this scale, the patients were divided into two groups with and without type D personality.

In a recent Iranian study, psychometric properties of Iranian version of DS14 were studied. Factor analysis of the Iranian version of DS14 yielded the two-factor structure; all of the NA and SI items loaded from 0.65 to 0.80 in patients with MI on their corresponding factor. The NA and the SI subscales had good test–retest stability over a 2-month period (test–retest r = 0.86/0.77, respectively) and high internal consistency with Cronbach's alpha coefficient has been found to be 0.84 for the NA sub-scale and 0.86 for the SI sub-scale.[21]

Persian version of Multidimensional Scale of Perceived Social Support (MSPSS-P)

The original version of the scale which was a twelve-item questionnaire developed by Zimet et al,[23] measures the perceived support from family, friends, and significant other that is a person with whom one shares a close relationship. This instrument provides response options ranging from 0 to 6 (very strongly disagree to very strongly agree). Psychometric properties of the English version of the MSPSS have been studied among several populations. The results have confirmed the validity and reliability of this scale.

Psychometric properties of Persian version of the MSPSS were studied. Factor analysis of scores of patient and healthy samples yielded the three-factor structure including family, friends and significant others. Cronbach's alpha coefficient has been found to be 0.84 for the scale and 0.90, 0.93 and 0.85, respectively for friends, significant others and family subscale from patient sample, and 0.92 for the scale and 0.89, 0.92 and 0.87, respectively for friends, significant others and family sub-scale from healthy sample. Test-retest stability over a 2-month period yielded 0.84 for the scale and 0.73, 0.78 and 0.84, respectively for friends, significant others and family sub-scale from healthy sample.[24]

Statistical Analysis

Demographic and medical variables were compared between type D patients and non-type D patients. Discrete variables were compared with the chi-squared test and continuous variables with t-test. Then, multivariate analyses of variance (MANOVA) was used to analyze the data of MSPSS between type D and non-type D patients. Also, correlation analyses were carried out to examine the relationship

between the dimensions of type D personality and dimensions of perceived social support.

Results

Table 1 compares the characteristics of those subjects with and those without type D personality. No statistically significant differences were found between the two groups on the characteristics.

The sample consisted of 176 consecutive patients [148 males and 28 females; mean age 56 (SD = 10.053) years; age range, 32–84 years, most were married (88%)] with MI. Using a cutoff point of 10 (NA_10 and SI_10), 63 patients (35.8 %) were classified as type D (52 males and 11 females).

Treating type D as a categorical variable, MANOVA revealed that type D patients were significantly different from non-type D patients (F = 8.73, p = 0.0001) on MSPSS scores and also type D individuals differed significantly on all Perceived Social Support Dimensions (Table 2).

Correlation analyses showed that negative affectivity was negatively correlated with all perceived social support dimensions including family (r = 0.224, p = 0.001), friends (r = 0.278, p = 0.001), and significant others (r = 0.153, p = 0.01), and also social inhibition was negatively correlated with all perceived social support dimensions including family (r = 0.337, p = 0.001), friends (r = 0.313, p = 0.001), and significant others (r = 0.1593, p = 0.01).

Discussion

This was a study for examining the relationship between type D personality and the dimensions of perceived social support including the perceived support from family, friends, and significant others.

Table 1. Comparison of the characteristics between those with and those without type D personality

Characteristics	Type D personality (n =63)	Non-Type D personality (n =113)	P Value
Age mean ±SD	52.93 (9.79)	57.57 (9.85)	0.94
Gender (female) n (%)	11 (17.5%)	18 (16%)	0.41
Educational level n (%)			0.32
High	5 (8%)	12(11%)	
Medium	21(33%)	26(23%)	
Low	37(59%)	75(66%)	
Marital status			
Married n (%)	54 (85.7%)	102 (90%)	0.25
Socio-economic status, n (%)			0.73
High	8 (12.7%)	15 (13.3%)	
Medium	20 (31.8%)	42 (37.2%)	
Low	35 (55.5%)	56 (49.5%)	

Table 2. Summary results for each of the Perceived Social Support Dimensions

Perceived Social Support Dimensions	Type D	Non-Type D	F	p-value
family	20.524(5.73)	23.159(4.44)	11.52	0.001
friends	11.270(6.22)	15.566(7.09)	16.16	0.000
Significant other*	16.873(7.27)	19.363(6.93)	5.04	0.026

The results are presented as mean (SD).
*Significant other means a person with whom one shares a close relationship.

This study indicated that 35.8% of post-MI patients were classified as type D. Type D post-MI patients differed significantly from non-type D post-MI patients on all dimensions of perceived social support including the perceived support from family, friends, and significant others. Thus, it seems that type D personality substantially affects the way MI patients perceive availability of social support from different sources including family, friends, and significant others.

The type D personality is characterized by the joint global traits including negative affectivity and social inhibition.[1,4] Individuals who are high in both NA and SI have a distressed or type D personality. The findings showed that negative affectivity and social inhibition as two global traits of type D personality are negatively correlated with all perceived social support dimensions. Negative affectivity is defined as the tendency to experience negative emotions across time/situations.[4] Persons with High-NA experience more feelings of dysphoria, anxiety, and irritability; have a negative view of self; and scan the world for signs of impending trouble.[1,4] Thus, type D individuals might interpret the behaviors of others more negatively and also tend to react more negatively upon others. As a result, the persons with type D are not easily reassured by others and they never receive enough social support to feel at ease.

Social inhibition means the tendency to inhibit the expression of affects/behaviors in social interactions to avoid disapproval by others.[2,4] Individuals with High-SI are socially inhibited and they tend to feel tense, and insecure in social interactions.[4] A consequence could be that persons with type D personality tend to receive less support from others compared with persons without type D personality. In contrast, persons without type D personality seek more support from significant others. Also persons with type D personality may tend to score lower on perceived social support.

To the best of our knowledge, no studies have conducted about the relationship between type D personality and perceived social support. Knowledge about this association may be useful for the developing tailor-made interventions for MI patients with type D personality. These findings may have serious implications for interventions. One implication is to try to educate persons with type D about the importance of social support, i.e., to teach them to request for help when they need support, or to learn how they can best discuss their needs when they are not satisfied. However, it is important to keep in mind that personality traits are quite stable.

Professionals should be aware of the important role of social support and personality trait and also their link to each other in adjustment with chronic medical conditions such as MI.

This study had some limitations. First, the main limitation was the use of a cross-sectional design. Future research should study the link between type D and perceived social support over time. Second, the potential moderating effects of depression and anxiety between type D personality and social support were not controlled. To pursue this issue, future studies should methodically control these possible confounders. Third, because of sample size, the generalizability of findings to the overall population of post-cardiac event patients can also be questioned.

The current study was the first to identify a strong association between type D personality and perceived social support among post MI patients. Thus, perceived social support may be mediator to explain the relationship between type D personality and post-MI depression.[1] Future research is warranted on this topic and should focus on evaluating the effectiveness of interventions aimed at changing perceived social support, in order to improve post-MI depression.

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Conflict of Interests

Authors have no conflict of interests.

Authors' Contributions

RB and HS carried out the design and coordinated the study, participated in data collection and prepared the manuscript. AB provided assistance in design. All authors have read and approved the content of the manuscript.

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