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UNIVERSITÀ EDITRICE

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Psychology Hub (2020)
XXXVII, 1, 29-36

Article info

Submitted: 13 March 2020
Accepted: 23 May 2020
DOI: 10.13133/2724-2943/16899

A pilot study on couple relationships and cardiac disease: The role of alexithymia and attachment in the course of myocardial infarction

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Abstract

The aim of this study was to explore the links between alexithymia, romantic attachment in couples and the clinical course of myocardial infarction (MI). Thirty couples in which the male partner had experienced an MI participated. Both partners filled out the 20-item Toronto Alexithymia Scale (TAS-20) and the Experience in Close Relationship-Revised form (ECR-R); in addition, medical data (e.g., blood pressure, cholesterol) pertaining to the male patients were collected from their medical records, six months after the initial data collection point.

Analysis showed significant associations between the psychological characteristics of partners and patients and several medical follow-up outcomes in patients. Specifically, partners' alexithymia levels (total and factor scores) and avoidant attachment scores were related to several health variables in patients, even when partialling out the effects of patients' own psychological attributes. These findings suggest that their partners' ability to recognise and integrate their emotional states may be relevant to patients' disease management. Multidisciplinary treatments, including psychological interventions for couples, could be introduced to encourage the appropriate involvement of partners in patients' post-MI care.

Keywords: myocardial infarction; alexithymia; attachment; couple.

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Introduction

According to recent epidemiological information, cardiovascular disease remains the leading cause of death globally, and 80% of all deaths from cardiovascular disease are caused by heart attacks and strokes (WHO, 2014). It has also been shown that 80% of the risk of developing heart disease relates to lifestyle and psychosocial factors such as diet, smoking, psychological health, stress and relationship distress in couples (Oldenburg et al., 2016; Taylor & Sirois, 2014). From a psychological point of view, it is important to note that heart disease is considered a chronic illness. As such, those who suffer from it must adjust their lives (work, sexual activity, marital role, eating habits and more) to their new health status (Falvo, 2013).

With regard to relational factors linked to cardiac health, romantic relationships can be a protective factor for health, moderating or even eliminating some of the risk elements listed above; alternatively, where conflicts in a relationship exacerbate or promote unhealthy behaviours, they can be a further risk factor. For instance, it is well known that committed couples' relationships are associated with the discouragement of pathogenic behaviour, thereby decreasing members of those couples' vulnerability to heart disease (Thoits, 2011). Conversely, studies have shown significant correlations between loneliness and poor outcomes following a heart attack, such as greater likelihood of a further heart attack, depression, mortality and disability (Lett et al., 2005; Randall et al., 2009). In addition to loneliness, relationships characterised for the most part by negative interactions and conflict have been linked to high blood pressure, high cardiac output and overactivation of the sympathetic nervous system (Smith et al., 2009).

Couple relationships fraught with conflict are therefore considered a risk factor for heart disease. Furthermore, a review of the literature has found that people who have no romantic partner experience more difficulties adapting to chronic illness, including heart disease (Fletcher et al., 2015). The social support offered by a romantic partner thus appears to be an important source of protection; it goes hand-in-hand with better adaptation to illness and better recovery (Randall et al., 2009). Moreover, emotional accessibility and responsiveness in romantic partners is related to low blood pressure and reduced cardiac reactivity (Gottman, 2011).

With regard to individual characteristics that influence romantic relationships and health, alexithymia—which is characterised by impairments in one's ability to identify and express emotions, poor imaginary processes and an externally oriented cognitive style—appears to impede one's ability to grow and maintain close relationships, as well as rendering one more vulnerable to physical and mental disorders (Luminet et al., 2018; Nemiah & Sifneos, 1970; Taylor et al., 1997). Several studies have shown higher alexithymia levels to be associated with lower levels of marital adjustment and satisfaction in partners, and lower dyadic coping in couples (Epözdemir, 2012; Hesse et al., 2015; Untas et al., 2015). The literature also suggests that alexithymia may be associated not only with clinical symptoms but also with prognoses in patients with heart disease. For example, Kenyon and colleagues (1991) found that alexithymia can lead patients with acute myocardial infarction to delay seeking treatment,

presumably because of confusion over their emotions and bodily sensations. Furthermore, Brzezinski and Rybakowski (1993) discovered that individuals with high alexithymia levels had five times more myocardial infarctions over an eight-year period than did individuals with low alexithymia levels. More generally, Tolmunen et al. (2010) found that the risk of death from cardiovascular disease in a sample of middle-aged men rose by 1.2% for each one-point increase in their alexithymia score, leading the researchers to conclude that alexithymia is associated with higher cardiovascular mortality.

A number of studies have shown a link between alexithymia and attachment styles. For example, insecure attachment has been found to be related to difficulty recognising and discussing emotions (Besharat & Shahidi, 2014; Dewitte et al., 2010; Karukivi et al., 2011; Stevens, 2014) and is considered a psychological vulnerability factor in the aetiology of cardiovascular disease (McWilliams & Bailey, 2010; Oladi & Daraghi, 2018). In Balint et al. (2016), insecure attachment predominated in their sample of hypertensive patients, while in non-clinical populations only about half of individuals exhibit such attachment patterns. In Oladi and Dargahi's study (2018) there was a significant difference in attachment styles between coronary artery disease patients and healthy controls, with insecure attachment styles more frequent in the former than in the latter. Finally, Schmidt et al.'s (2002) findings indicated that secure attachment style reduces the risk of heart disease and improves the manner in which cardiovascular disease is dealt with where it does occur.

The overall aim of this pilot study was to explore, in couples where the male partner had experienced a myocardial infarction, possible associations between patients' and partners' alexithymia and attachment levels as well as various medical variables affecting the clinical course of the myocardial infarction measured at a six-month follow-up. Specifically, the first aim was to investigate possible associations between several medical variables and patients' alexithymia and romantic attachment levels. The second aim was to explore possible associations between partners' alexithymia and romantic attachment levels and patients' medical variables, additionally partialling out the effects of patients' alexithymia and romantic attachment dimensions. We hypothesised that higher levels of alexithymia and insecure attachment in both members of the couple would be related to a worse state of health in the patients (e.g., high levels of high-density lipoprotein and triglycerides, high blood pressure, the presence of hypertension), six months on from the myocardial infarction. A further aim was to investigate associations between patients' and partners' alexithymia and romantic attachment levels. We hypothesised a relation between the two members of the couple in terms of the ability to regulate affect and romantic attachment.

Method

Participants and Procedure

Participants were 30 couples: 30 male patients who had experienced a myocardial infarction (MI) (mean age = 54.73

years, SD = 5.11; mean educational level = 11.73 years, SD = 3.55; mean body mass index = 26.96, SD = 3.78; mean weekly alcohol units = 2.60, SD = 3.54; n = 21 smokers; n = 4 diabetic patients; n = 6 patients performing one hour a week of physical exercise); and their corresponding partners (mean age = 55.13 years, SD = 8.63; mean educational level = 12.33 years, SD = 3.40). The inclusion criterion was as follows: a first-time diagnosis of acute MI that resulted in admittance to a cardiology unit. The exclusion criteria were as follows: suffering from other major diseases or severe comorbidities; the presence of dementia; a history of psychiatric illness; being younger than 18 years of age.

The entire sample was recruited from the cardiology department of the San Giovanni Hospital in Rome. The research protocol was implemented by a qualified researcher in collaboration with the cardiologist of the department. Couples were informed of the study during the patients' cardiology visit one month after the MI. The cardiologist screened the patients for eligibility and after their medical visit introduced those eligible and their partners to the researcher responsible for implementing the study protocol. At this point, the researcher described the study protocol in more depth. Those patients who agreed to participate then signed an informed consent form before completing the tests. Both members of the couple completed the same questionnaires for assessing alexithymia and the attachment dimensions. The six-month follow-up data concerning the course of the MI were collected by the cardiologist, in collaboration with the researcher, from the patients' medical records.

The study was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. Ethics approval was granted by the Ethics Committee of the Department of Dynamic and Clinical Psychology of the University of Roma "Sapienza".

Measures

The 20-item Toronto Alexithymia Scale (TAS-20) (Bagby et al., 1994a; 1994b Bressi et al., 1996) is the most widely used self-report questionnaire for assessing the alexithymia construct. It consists of 20 items and is structured around three factors: 1) difficulty identifying feelings (DIF) (e.g., "When I am upset, I don't know if I am sad, frightened, or angry"); 2) difficulty describing feelings (DDF) (e.g., "I find it hard to describe how I feel about people"); 3) externally oriented thinking (EOT) (e.g., "I prefer talking to people about their daily activities rather than their feelings"). Each item is rated on a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). This instrument provides both a total score and a score for each factor, with total scores ranging from 20 to 100; higher scores indicate higher levels of alexithymia. The questionnaire has adequate internal reliability (total score Cronbach's alpha = .75) and test-retest reliability ($r = .83$). A Cronbach's alpha for the score of .79 was obtained in the present study.

The Experiences in Close Relationships-Revised (ECR-R) (Busonera et al., 2014; Fraley et al., 2000) is a 36-item, self-

report questionnaire used to assess romantic attachment dimensions. Each item is rated on a seven-point Likert scale where 1 = "strongly disagree" and 7 = "strongly agree". Higher scores are associated with higher endorsement of the construct. The ECR-R measures individuals on two subscales (each comprising 18 items) of attachment: Avoidance and Anxiety. The Avoidance dimension measures discomfort with closeness to and dependence on others (e.g., "I prefer not to show a partner how I feel deep down"), whereas the Anxiety dimension assesses fear of rejection or abandonment (e.g., "I often worry that my romantic partner doesn't really love me"). The questionnaire has good internal reliability (anxiety: Cronbach's alpha = .90; avoidance: Cronbach's alpha = .89). With the current sample, the ECR-R demonstrated good internal reliability (Anxiety: Cronbach's alpha = .82; Avoidance: Cronbach's alpha = .79).

Medical variables gauging the course and progression of the myocardial infarction were collected from patients' medical records. They included high-density lipoprotein (HDL) levels, low-density lipoprotein (LDL) levels, triglycerides (TRY) levels, blood pressure, heart rate, hypertension, obesity, weight, body mass index (BMI) and diabetes. We also collected information on smoking, alcohol consumption and physical activity.

Statistical Analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences version 24 (SPSS version 24). Data are reported as means and standard deviations for continuous variables and as frequencies for discrete variables. Pearson's correlations analyses were conducted in order to investigate associations between patients' medical variables affecting the course of myocardial infarctions and both patients' and partners' alexithymia and romantic attachment dimension scores. Pearson's correlations analysis was also conducted in order to investigate the relationship between partners' alexithymia and attachment scores and patients' medical outcomes, partialling out the effects of patients' psychological test scores. A $p < .05$ was considered significant. There were no missing data.

Results

Correlations between patients' psychological characteristics and medical variables at six-month follow-up

As shown in Table 1, several significant correlations emerged between patients' alexithymia levels and various medical variables collected at the six-month follow-up. Specifically, TAS-20 total scores were positively related to Maximum Blood Pressure (MMHG MAX; $r = .399$, $p = .020$), while externally oriented thinking scores were positively related to MMHG MAX ($r = .569$, $p = .001$), Minimum Blood Pressure (MMHG MIN; $r = .461$, $p = .010$) and the presence of diabetes ($r = .371$, $p = .044$).

Regarding romantic attachment, significant positive associations were apparent between Anxiety scores and both

frequency of exercise ($r = .451, p = .012$) and cardiac frequency ($r = .431, p = .017$).

Correlations between partners' psychological characteristics and patients' medical variables at six-month follow-up

Several significant correlations emerged between partners' alexithymia levels and the medical variables of patients at the six-month follow-up (see Table 2). Specifically, TAS-20 total scores in partners were positively related to the presence of obesity ($r = .506, p = .004$) and of diabetes ($r = .591, p = .001$),

and to body mass index levels (BMI) ($r = .508, p = .004$) in patients. Difficulties in Identifying Feelings scores in partners were positively related to the presence of diabetes ($r = .616, p = .001$) and low density lipoprotein levels (LDL) ($r = .418, p = .021$) in patients. Difficulties in Describing Feelings scores in partners were positively related to MMHG MAX ($r = .485, p = .007$), obesity ($r = .384, p = .036$), diabetes ($r = .504, p = .005$) and BMI levels ($r = .477, p = .008$) in patients. And finally, Externally Oriented Thinking scores in partners were positively related to MMHG MIN ($r = .373, p = .043$) and the presence of diabetes ($r = .472, p = .008$) in patients.

Tab. 1. Correlations between patients' psychological characteristics and medical variables at six-month follow-up

	MMHG Max	MMHG Min	Obesity	Diabetes	BMI	Alcoh Freq	HDL	LDL	TRY	Smoke	Exer Freq	Card Freq
TAS-20 Total	.399*	.338	-.134	.204	-.083	-.026	-.269	-.189	-.115	.142	-.136	.228
TAS-20 DIF	.185	.195	-.165	.014	-.129	-.119	-.304	-.203	-.080	.210	-.004	.096
TAS-20 DDF	.070	.041	-.349	.027	-.231	.046	-.156	-.042	-.131	.178	-.186	.129
TAS-20 EOT	.569**	.461*	.185	.371*	.153	.016	-.126	-.158	-.043	-.060	-.107	.257
ECR-R Anxiety	.150	.105	-.001	.252	.002	-.284	.076	.243	-.077	.054	.451*	.431*
ECR-R Avoidance	-.029	.077	-.119	.223	-.171	.164	.098	.143	-.036	.171	.085	.027

* $p \leq .05$; ** $p \leq .001$

MMHG Max: Maximum Pressure; MMHG Min: Minimum Pressure; BMI: Body Mass Index; Alcoh Freq: Alcohol Frequency; HDL: High-density Lipoprotein; LDL: Low-density Lipoprotein; TRY: Triglycerides; Exer Freq: Frequency of Physical Activity; Card Freq: Cardiac Frequency.

TAS-20: Toronto Alexithymia Scale; DIF: Difficulties Identifying Feelings; DDF: Difficulties Describing Feelings; EOT: Externally Oriented Thinking; ECR-R: Experiences in Close Relationships – Revised.

Tab. 2. Correlations between partners' psychological characteristics and patients' medical variables at six-month follow-up

	MMHG Max	MMHG Min	Obesity	Diabetes	BMI	Alcoh Freq	HDL	LDL	TRY	Smoke	Exer Freq	Card Freq
TAS-20 Total	.300	.316	.506**	.591**	.508**	-.210	-.183	.165	.026	-.022	.053	.130
TAS-20 DIF	.019	.081	.336	.616**	.352	-.072	-.194	.418*	.056	-.018	.102	.308
TAS-20 DDF	.485**	.311	.384*	.504**	.477**	-.096	-.157	.002	-.083	.053	-.106	-.083
TAS-20 EOT	.226	.373*	.472**	.227	.359	-.342	-.066	-.083	.086	-.088	.124	.048
ECR-R Anxiety	.184	.040	-.153	.123	.010	.383*	.148	-.017	-.381*	.305	-.038	.048
ECR-R Avoidance	.301	.296	.040	.434*	.169	.292	.258	.096	-.185	.084	.417*	.139

* $p \leq .05$; ** $p \leq .001$

MMHG Max: Maximum Pressure; MMHG Min: Minimum Pressure; BMI: Body Mass Index; Alcoh Freq: Alcohol Frequency; HDL: High-density Lipoprotein; LDL: Low-density Lipoprotein; TRY: Triglycerides; Exer Freq: Frequency of Physical Activity; Card Freq: Cardiac Frequency.

TAS-20: Toronto Alexithymia Scale; DIF: Difficulties Identifying Feelings; DDF: Difficulties Describing Feelings; EOT: Externally Oriented Thinking; ECR-R: Experiences in Close Relationships – Revised.

Regarding romantic attachment, partners' Anxiety scores were positively related to partners' alcohol consumption frequency ($r = .383, p = .037$); and, partners' Avoidance scores were positively related to the presence of diabetes ($r = .434, p = .016$) and the frequency of physical activity ($r = .417, p = .022$) in patients.

Partial correlations between partners' psychological characteristics and patients' medical variables at six-month follow-up

The above analyses were repeated, controlling respectively for patients' TAS-20 and for ECR-R scores using partial correlations. As shown in Table 3, when patients' TAS-20 total scores were controlled for, the association between partners' alexithymia levels and patients' medical variables at the six-month follow-up showed the following significant correlations: partners' TAS-20 total scores were significantly related to MMHG MAX ($r = .420, p = .023$), MMHG MIN ($r = .414, p = .026$), obesity ($r = .494, p = .007$), diabetes ($r = .657, p < .001$) and BMI ($r = .503, p = .005$); partners' Difficulty Identifying Feelings scores were significantly related to diabetes ($r = .669, p < .001$) and LDL ($r = .401, p = .031$); partners' Difficulty Describing Feelings scores were related to MMHG MAX ($r = .500, p = .006$), obesity ($r = .397, p = .033$), diabetes ($r = .502, p = .006$) and BMI ($r = .486, p = .008$); and finally, partners' Externally Oriented Thinking scores were positively related to MMHG MAX ($r = .446, p = .015$), MMHG MIN ($r = .576, p = .001$) and obesity ($r = .459, p = .012$), and negatively related to patients frequency of alcohol consumption ($r = -.381, p = .041$).

When patients' attachment scores were controlled for, the association between partners' attachment score and patients' medical variables at six-month follow-up showed the following significant correlations: partners' Anxiety scores were negatively related to triglycerides level ($r = -.415, p = .028$); and, partners' Avoidance scores were negatively related to the presence of

diabetes ($r = .386, p = .043$) and positively related to frequency of exercise ($r = .395, p = .038$) (see Table 3).

Correlations between patients' and partners' psychological characteristics

Statistical analyses showed patients' TAS-20 total and Difficulty Describing Feelings scores to be negatively related to partners' TAS-20 Externally Oriented Thinking scores (respectively $r = -.382, p = -.037$; $r = -.447, p = .013$). Furthermore, patients' Avoidance levels were positively related to partners' Anxiety levels ($r = .430, p = .018$).

Discussion and Conclusions

Romantic relationships can protect and foster health through direct (e.g., the calming effects of loving interactions) and indirect (e.g., positive influences on healthy behaviours) pathways. Couple relationships can also play an important role in the management of disease, such as MI, affecting the likelihood of a further heart attack, the presence of psychopathology and death (Thoits, 2011). Alexithymia and attachment dimensions are psychological characteristics related to the ability to grow and maintain close relationships; they also represent two individual vulnerability factors for developing physical and mental disorders (Luminet, 2018; McWilliams & Bailey, 2010; Ravitz et al., 2010; Taylor et al., 1997).

The principal aim of this study was to analyse associations between the psychological characteristics of each partner and the clinical course of myocardial infarction in the patient. As regards patients, we detected significant positive associations between alexithymia—as measured by both total scores and

Tab. 3. Partial correlations between partners' alexithymia levels and patients' medical variables at six-month follow-up, controlled for patients' TAS-20 and ECR-R scores.

		MMHG Max	MMHG Min	Obesity	Diabetes	BMI	Alcoh Freq	HDL	LDL	TRY	Smoke	Exer Freq	Card Freq
	TAS-20 Total	.420*	.414*	.494**	.657**	.503**	-.220	-.249	.133	.004	.006	.028	.183
Controlled for Patients' TAS-20 total scores	TAS-20 DIF	.088	.142	.322	.669**	.345	-.077	-.247	.401*	.039	.004	.083	.357
	TAS-20 DDF	.500**	.306	.397*	.502**	.486**	-.094	-.144	.016	-.076	.043	-.098	-.102
	TAS-20 EOT	.446*	.576**	.459*	.337	.356	-.381*	-.189	-.171	.046	-.037	.079	.151
Controlled for Patients' ECR-R scores	ECR-R Anxiety	.237	.017	-.111	.052	.098	.340	.124	-.068	-.315	.263	-.045	.092
	ECR-R Avoidance	.303	.278	.136	.386*	.217	.329	.237	.035	-.174	.042	.395*	.088

* $p < .05$; ** $p < .001$

MMHG Max: Maximum Pressure; MMHG Min: Minimum Pressure; BMI: Body Mass Index; Alcoh Freq: Alcohol Frequency; HDL: High-density Lipoprotein; LDL: Low-density Lipoprotein; TRY: Triglycerides; Exer Freq: Frequency of Physical Activity; Card Freq: Cardiac Frequency. TAS-20: Toronto Alexithymia Scale; DIF: Difficulties Identifying Feelings; DDF: Difficulties Describing Feelings; EOT: Externally Oriented Thinking; ECR-R: Experiences in Close Relationships – Revised.

externally orientated thinking scores specifically—and systolic pressure, diastolic pressure and diabetes. Thus, in the present study, higher alexithymia levels were associated with a worse quality of health; thereby confirming the role of alexithymia as a vulnerability factor for physical wellbeing too (Chatzi et al., 2009; Korkoliakou et al., 2014; Martínez et al., 2015). Alexithymia is also associated with maladaptive coping strategies (Besharat, 2010; Polloni et al., 2017), making it possible to conclude that alexithymic individuals may face considerable difficulty coping with stressful situations, such as MI and related treatments, further adversely affecting their health. We also detected associations between attachment anxiety and frequency of exercise on the one hand, and between attachment anxiety and cardiac rate on the other, making it difficult to characterise attachment anxiety as either a protective factor or a risk factor.

An interesting finding of the present study concerns the association between partners' psychological characteristics and the medical variables of the patients collected at the six-month follow-up. Here, with specific regard to partners' alexithymia levels, several significant associations emerged: partners' total alexithymia score was strongly related to the presence of obesity, the presence of diabetes and BMI in patients; partners' Difficulty Identifying Feelings score correlated with patients' LDL level and the presence of diabetes; partners' Difficulty Describing Feelings score was associated with the systolic pressure, BMI, presence of obesity and presence of diabetes in patients; and finally, partners' Externally Orientated Thinking was related to patients' diastolic pressure and the presence of obesity.

In the literature there is evidence to support an association between alexithymia and both hypertension and excessive body weight in MI patients (Fernandes et al., 2018; Grabe et al., 2010; Todarello et al., 1995), whereas in this study it was the partners' alexithymia that was strongly correlated with these risk factors. Applying a systemic and circular perspective, we hypothesise that patients who have a poor understanding of their own emotions and the needs of their partner may, in a particularly difficult situation such as post myocardial infarction, use the consumption of food to regulate affectivity (Luminet et al., 2018; Taylor et al., 1999). Furthermore, low attunement of partners to patients' needs may increase stress levels in patients, thus affecting the latter's blood pressure and cardiovascular health.

However, in terms of the relationship between partners' attachment dimensions and patients' medical variables in this study, the results are more difficult to interpret. Partners' fear of rejection and abandonment (anxiety) appeared to be positively related to alcohol use and negatively related to triglycerides levels in patients. These associations may highlight, on the one hand, how partners' anxiety and fear of losing their husband/partner may induce stress in patients emotionally loaded by their partners' fears, thereby causing them to increase their alcohol use; on the other hand, partners' fears may lead to the adoption of healthy eating. As regards partners' discomfort with closeness and dependence on others (avoidance), this appeared to be positively associated with the presence of diabetes and frequency of physical exercise. Both these associations may support the hypothesis of a link

between partners' avoidance dimension and patients' attempts to regulate their emotional states through activity. In fact, we observed partners' attachment dimensions to be generally linked to patients' health-risk behaviours. This appears to be in line with King et al.'s (2012) findings suggesting that being in a satisfying relationship has a positive effect on patient's health, making it possible to hypothesise that both partners' support and emotional support represent elements that motivate patients to adopt a healthy lifestyle.

It is worth noting that correlations between patients' medical variables at six months and partners' psychological features (essentially, alexithymia) were more numerous and stronger than were correlations between the variables and patients' own psychological features. It may be that in a moment of heightened stress or threat, such as following a heart attack, the attitudes of the support figure assume an even greater importance over one's own psychological attributes. It is also interesting to note that correlations between partners' psychological features and patients' biological variables were more numerous and stronger than were correlations between couples' psychological features.

A further objective of the present study was to explore relations between alexithymia and attachment in the two members of the couple. Few noteworthy associations emerged between patients' alexithymia and attachment avoidance levels and partners' attachment anxiety levels. This could serve to consolidate each partner in his or her position, making those positions more solid and less amenable to change, for better or for worse.

The results of the present study must be interpreted in light of some limitations. The first of these concerns the limited size of the sample. In this study, as in many clinical studies, the need to recruit individuals with a serious disease and their partners, and to follow them over time, dictated a limited number of participants. Another limitation arising from the nature of the study is the absence of baseline measures. For example, it would have been interesting to know not just patients' blood pressure levels six months after infarction but also how this differed from baseline levels, i.e., before infarction. A further limitation is the absence of a control group, something that a future study should take into account. Finally, the absence of a global variable for cardiovascular health restricted our ability to investigate the potential predictive effect of couples' psychological dimensions on patients' health. Future studies should therefore consider a specific index of cardiovascular health.

In conclusion, managing their MI imposes new lifestyles and habits on cardiac patients and their loved ones. This has an impact on patients' social relationships, especially couple relationships, which can play an important role during this period. The results of this study showed that the ability of both patients and partners to be in touch with and describe their emotions, and to feel confident in their relationship, may assume a protective role for the health of MI patients. In fact, such skills can foster the uptake of healthy behaviours in patients as well as their ability to manage stress relating to the disease event.

Identifying the variables associated with worsened health over the course of an MI, and implementing specific multidisciplinary interventions for patients and their partners, appears to be crucial for preventing further adverse medical events. In this vein,

according to the findings of the present study, psychological treatment focusing on improving the ability to identify and describe emotions and on adopting useful coping strategies could support those involved in managing feelings associated with the MI condition. Furthermore, in future studies it may be interesting to examine the effect of psychological interventions focusing on alexithymia and romantic attachment dimensions on the course of MI and on the quality of life of the couples involved.

Author Contributions

MDT contributed to all phases of the study; CDM participated in the statistical analysis and in writing and editing the manuscript; AR participated in research design development, results interpretation and writing the manuscript; FB collected data and participated in data scoring; VB participated in data scoring and in editing the manuscript; FD participated in the statistical analysis; PSG participated in research design development and supervised the manuscript; LS participated in research design development, and coordinated and supervised all the research activity.

Compliance with Ethical Standards

Conflict of interest

The authors declare that they have no competing interests.

Funding

The authors received no financial support for the research and publication of this article.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethics standards of the institutional and national research committee, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Ethics approval for the study was provided by the Department of Dynamic and Clinical Psychology, University of Rome, Sapienza.

Informed Consent

Informed consent was obtained from all individual participants in the study.

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