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## Caregiving styles and anxiety among couples: coping versus not coping with cardiac illness

Sivan George-Levi<sup>a</sup> , Noa Vilchinsky<sup>a</sup>, Eshkol Rafaeli<sup>a</sup>, Gabriel Liberman<sup>b</sup>, Abid Khaskia<sup>c</sup>, Morris Mosseri<sup>c</sup> and Hanoch Hod<sup>d</sup>

<sup>a</sup>Department of Psychology, Bar-Ilan University, Ramat-Gan, Israel; <sup>b</sup>Data-graph, Research and Statistical Counseling, Holon, Israel; <sup>c</sup>Department of Cardiology, Meir Medical Center, Kefar Saba, Israel; <sup>d</sup>Department of Cardiology, Sheba Medical Center, Ramat-Gan, Israel

### ABSTRACT

**Background and Objectives:** partners' caregiving efforts are not always beneficial to both recipient and provider. Bowlby's conceptualization of caregiving style as a stable predisposition may clarify such caregiving effects. The relationship between caregiving style (compulsive and sensitive) and anxiety among couples coping with cardiac illness and a matching control group not coping with cardiac illness were assessed. We hypothesized that one's compulsive caregiving would associate positively, and one's sensitive caregiving would associate negatively, with one's and one's partner's anxiety across contexts (cardiac and non-cardiac) and gender. **Design:** A comparative design of 131 couples with a diagnosis of husbands' acute cardiac syndrome and 68 matched couples in the community was applied. **Methods:** The Adult Caregiving Questionnaire and the Brief Symptoms Inventory were administered. **Results:** Structural equation modeling revealed that one's compulsive caregiving was positively associated with one's anxiety, across most contexts. Multi-group analyses revealed that the associations between one's compulsive caregiving and one's partner's anxiety levels differed depending on gender and context. **Conclusions:** The distress which emerges in an individual who takes on a caregiving role and in his/her partner seems to result not only from the demands of the concrete caregiving situation but also from one's and one's partner's developmental history.

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## Introduction

Caregiving is one of the most essential contributors to human survival, social adjustment, and emotional well-being (Bowlby, 1973, 1982; Revenson et al., 2015; Shaver, Mikulincer, & Shemesh-Iron, 2010). Caregiving is especially essential in adult romantic relationships (Collins, Ford, Guichard, Kane, & Feeney, 2010), both in times of routine daily life and when couples are coping with one partner's illness (Revenson & DeLongis, 2011). Adult romantic relationships distinguish themselves from other kinds of relationships by virtue of the fact that *both* partners act simultaneously as providers and recipients of care (Rafaeli & Gleason, 2009). In fact, according to Bowlby (1988), it is only when partners acknowledge their roles as caregivers for each other that they will attain truly intimate and highly functioning close relationships.

Despite the vast body of research that has been conducted to date on adult intimate relationships, many questions remain regarding couples' caregiving processes. For example, there is still much

inconsistency regarding the effectiveness of caregiving in ameliorating the distress of both partners. The explanations offered for these findings have focused mostly on the kind of care that is provided and received (Coyne, Wortman, & Lehman, 1988; Manne, Norton, Ostroff, Winkel, & Fox, 2007). For example, it has been found that certain kinds of harmful caregiving efforts such as overprotectiveness (Vilchinsky et al., 2011), directive support (Fisher, La Greca, Greco, Arfken, & Schneiderman, 1997) and unskillful support (Rafaeli & Gleason, 2009) have been detrimental to the recipient's well-being. Moreover, findings show that even those caregiving behaviors which are considered to be positive, such as active engagement (Hagedoorn et al., 2000) or nondirective support (Fisher et al., 1997), do not always benefit the recipient and at times even contribute to recipients' negative outcomes (Bolger, Zuckerman, & Kessler, 2000; Vilchinsky et al., 2010).

Much less is known about the kinds of provided care that bear negative consequences for the *caregiver* (Revenson et al., 2015). Studies usually point to protective buffering, one of the ways of providing support, as consistently associated with providers' negative outcomes (Coyne & Smith, 1991; Langer, Brown, & Syrjala, 2009; Langer, Rudd, & Syrjala, 2007; Suls, Green, Rose, Lounsbury, & Gordon, 1997).

Bowlby (1982) argued that human beings have an inherent capacity for caregiving which manifests itself in a repertoire of supportive behaviors. These behaviors are organized by an innate behavioral system: *the caregiving behavioral system*. Like other behavioral systems, namely attachment and sexual mating, the caregiving behavioral system is considered to be evolutionarily designed to enhance successful coping with environmental demands. We therefore wish to suggest that a fruitful way to understand the caregiving-distress inconsistency may be by viewing caregiving tendencies not merely as a set of actions performed when another person is in need (supportive behaviors), but as an inherent part of one's personality style; that is, the consistent manner in which a person provides care across different life contexts.

According to Bowlby (1982), the manifestations of caregiving can be divided into two distinctive styles: the *sensitive* caregiving style (which consists of the ability to be attuned, responsive and in harmony with another's support-seeking behavior) and the *compulsive* caregiving style (which consists of the tendency to provide intrusive, poorly-timed, and unnecessary care). Both types of caregiving involve responses to a loved one in need. Nonetheless, they reflect very different motivations (Bowlby, 1979): sensitive caregiving is associated with the motivation to care for the other without overlooking one's own emotional needs. Compulsive caregiving reflects extreme over-involvement with the recipient's problems, to the point that providers neglect their own feelings and needs. This style is considered a form of "bad concern" (Tolmacz, 2010) for both recipient and provider alike.

Caregiving styles are relatively stable since they are usually crystallized early in life, as the result of primary interpersonal interactions with attachment figures (Bowlby, 1982). Being characterized by a certain caregiving style may therefore have consequences for one's well-being as it reflects a fundamental disposition toward life, above and beyond the actual demands placed on an individual in a specific context (such as the context of caring for an ill partner) (Lakey, 2013). These inherent caregiving dispositions are also assumed to be communicated to partners via actual acts of support and non-verbal gestures (Patterson, Gardner, Burr, Hubler, & Roberts, 2012; Stulz, Boinon, Dauchy, Delalogue, & Bredart, 2014). Thus, one's characteristic style of caregiving may also make a constant and regular contribution to one's *partner's* distress, above and beyond contexts.

The current study's aim was therefore to test the premises of Bowlby's theory of caregiving by assessing the relationship between caregiving styles and anxiety of both partners in adult romantic relationships across two life contexts: couples with no major medical crisis in the family at the time of the study and couples coping with a major health crisis, specifically an abrupt cardiac event. Whereas caregiving among partners during routine times of daily life is comprised of mutual support and ongoing attention to the other partner's needs and difficulties, caregiving in the context of a major cardiac crisis may pose additional caregiving-related pressures depending on the specific social role inhabited by each partner (ill partner/healthy partner).

Cardiovascular diseases (CVD) are the leading cause of death worldwide (Centers for Disease Control and Prevention, 2016). The most prevalent manifestation of CVD is coronary artery disease (CAD); in its acute clinical manifestation (i.e., Acute Coronary Syndrome, or ACS), which includes both myocardial infarction [MI] and severe unstable angina [UA]), it can lead to disability and death (Falvo, 2014). A decrease in psychological well-being, manifested in particular by depression and anxiety, are quite common both among patients with ACS and among their partners and are associated with poor adjustment after a heart attack (Coyne & Smith, 1991; Randall, Molloy, & Steptoe, 2009; Roest, Martens, de Jonge, & Denollet, 2010). The psychological ramifications of one partner's illness on the other's well-being are driven in part by the stressors inherent in these life-threatening situations, but may also stem from the healthy partner's role as caregiver (Vilchinsky et al., 2011). Studies have also shown that among couples coping with heart disease, some of the support behaviors enacted by the healthy partners are detrimental to themselves, even when they benefit the support recipient (e.g., Coyne & Smith, 1991, 1994).

### ***Study's rationale and hypothesis***

In order to better understand individual and dyadic caregiving dynamics, we used a comparative design and compared the associations among caregiving styles and anxiety among couples coping with husbands' ACS and a matched control group of couples not coping with any acute medical crisis in the family at the time of the study. The idea was that the study of these two groups would enable us to detect whether the effects of caregiving are primarily context-related or primarily personality-related; if the former, one would argue that since support is considered to buffer individuals from the harmful consequences of stressful events, and thus be especially beneficial during periods of high stress such as coping with an illness (Cohen & Willis, 1985), the associations among caregiving styles and anxiety would be significantly stronger in the *cardiac* context than in the *non-cardiac* context. If the latter, however – that is, primarily personality-related – then the effects would presumably be stable across both contexts: highly stressful (acute cardiac illness) and less stressful (no acute illness).

In keeping with Bowlby's approach to personality, therefore, this study's hypothesis was that a sensitive caregiving style would be negatively associated with both partners' anxiety, *across contexts*, while the compulsive caregiving style would be positively associated with both partners' anxiety, *across contexts*.

## **Method**

### ***Participants and procedure***

The target population was defined as all men who were hospitalized with the diagnosis of a first Acute Coronary Syndrome (ACS: Myocardial Infarction (MI) or unstable angina (UA)) and their female partners. Eligible patients were recruited during the years 2011–2013 from the Cardiac Care Unit (CCU) of The Chaim Sheba Medical Center, the largest medical center in Israel, and Meir Medical Center, located in a more peripheral region of Israel. During this period, 1862 patients were hospitalized in the CCU. Exclusion criteria were patients who: had a diagnosis other than ACS; had a history of a previous cardiac event; had co-morbid conditions (such as severe cancer and severe psychiatric illness); had severe cognitive or physical impairments; had been transferred for bypass surgery or been discharged from the CCU; were unable to fill out the questionnaires in Hebrew; either didn't have a partner, or the partner had undergone a life-threatening disease within the previous five years; and finally, died during hospitalization. Of the 223 eligible patients, 66 refused to participate in the study (29.60%), and 26 had partners who refused to participate in the study (11.66%). The cardiac sample thus consisted of 131 couples (58.7% recruitment rate).

During the patients' hospitalization in the CCU, all eligible patients and partners were approached by the research team 48 hours after patients' admission. Patients and partners were given the study questionnaires and instructed to complete them independently. A research assistant was available to answer questions and offer assistance. Patients and partners who completed all study questionnaires at hospitalization and at follow-up (the follow-up data is not introduced in the current report) received a gift certificate in the amount of \$55. The study was approved by the institutional review boards (IRB) of the Sheba and Meir Medical Centers.

The non-cardiac group was retrieved from a dataset of 120 couples (80% response rate) who lived in the same general community in which the cardiac patient group lived, and consisted of 68 couples whose demographic variables matched those of the cardiac patient group; they were recruited between 1 April 2011 and 15 March 2012 via a convenience sample ("snowball" procedure). The research team was instructed to look for middle-aged couples among their and their parents' acquaintances, of whom neither of the partners had experienced any severe illness (said information was elicited by a question in the questionnaire regarding a history of severe illness such as advanced cancer, ACS, stroke or other debilitating conditions) during the past five years and who were able to complete the questionnaires in Hebrew. Both members of the couples were instructed to fill out the questionnaires at a time and place of their choosing, as long they did so independently, without consulting one another. A research assistant from the research team was available to answer their questions by phone. Upon receiving approval from the Sheba and Meir Medical Centers' institutional review boards, the couples volunteered to participate in the study, and no incentives were offered.

## Measures

### Anxiety

Anxiety symptoms were measured using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). Each participant was asked to rate the degree to which he/she experienced each symptom during the previous month (and, in the cardiac group, from the time of the onset of the ACS event) on a scale ranging from 1 (*not at all*) to 4 (*very much*). Scores were averaged so that higher scores represented higher levels of depression and anxiety. We used the 12-item validated Hebrew translation of the subscales of depression and anxiety symptoms (Gilbar & Ben-Zur, 2002). Among the cardiac group, Cronbach's alphas were .67 and .82 for depression and anxiety, respectively. Among the non-cardiac group, Cronbach's alphas were .81 and .79 for depression and anxiety, respectively.

### Caregiving styles

Participants' caregiving styles were measured using the two scales of the sensitive and compulsive caregiving styles from the Hebrew version of the Adult Caregiving questionnaire (Kunce & Shaver, 1994). Each factor contained seven items and each participant rated his/her own orientation on a scale ranging from 1 (*not at all like me*) to 7 (*very much like me*). An example item from the sensitive caregiving style is, "I am very attentive to my partner's nonverbal signals for help and support," and for the compulsive caregiving style: "I tend to get over-involved in my partner's problems and difficulties." Two separate scores (a *compulsive* caregiving style and a *sensitive* caregiving style) were calculated by averaging the responses on the relevant items. Among the cardiac group, Cronbach's alphas were .85 and .73 for the sensitive and compulsive caregiving styles, respectively. Among the non-cardiac group, Cronbach's alphas were .83 and .70 for the sensitive and compulsive caregiving styles, respectively.

### Socio-demographic data

Participants were asked to complete a short demographic questionnaire including age, duration (in years) of relationship, number of children, years of education, and socioeconomic status (SES) as measured on a scale of 1 (*excellent*) to 5 (*very poor*).

### **Illness severity**

The severity of the patient's illness was estimated by two senior cardiologists using two sets of criteria: an echocardiogram score, which assesses cardiac damage, and an angiogram score (status of obstructed arteries), which assesses the risk of future damage. Both scores were measured on a scale ranging from 1 (*normal*) to 5 (*extremely severe*).

### **Data analysis plan**

Descriptive statistics were used to describe the demographic details of the sample and the study's measures. We used *t*-tests in order to compare the differences between the cardiac group and the non-cardiac group in terms of demographic variables. A  $2 \times 2$  General Linear Model (GLM) analysis was applied in order to compare the means of the caregiving styles and anxiety between the cardiac and non-cardiac groups, and between men and women. Pearson correlations were conducted in order to examine the associations among the study variables (caregiving and anxiety). In order to examine the contribution of caregiving styles to anxiety among the cardiac and non-cardiac groups and among men and women, a multi-group analysis was conducted applying structural equation modeling (SEM). We estimated the model by applying M-Plus software (Muthén & Muthén, 2007). In accordance with Byrne (2010), we examined a multi-group measurement model. More specifically, we tested the invariance between the cardiac and non-cardiac groups (e.g., Gregorich, 2006). We examined one model which included two groups (the cardiac group versus the non-cardiac group). Caregiving styles (compulsive and sensitive) were assumed to predict anxiety levels.

We evaluated the goodness of fit of each model by using the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Chi-square values, the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR). We also used the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC).

## **Results**

### **Characteristics of the samples**

Due to the fact that Little's test for MCAR (Little, 1988) was non-significant, indicating that all of the missing values in the current sample were indeed missing at random  $\chi^2(1225) = 1160.89, p = .90$ , a multiple imputations procedure was applied. Since all of the items except two had fewer than 2% missing values, only one repeat was performed (Little, 2013; p. 55).

Characteristics of the cardiac and non-cardiac groups, and *t*-test values for assessing significant differences between them, are shown in Table 1. As can be seen, participants were highly educated, in their 50s, married for approximately 30 years, and the majority of them reported a moderate economic status. As these two groups were a-priori matched, *t*-test analyses showed no significant differences between the cardiac and non-cardiac groups in age, education level, economic status, length of relationship, and number of children. Among the cardiac group, the overall degree of patients' illness severity was found to be moderate. Illness severity was the only variable that was measured exclusively in the cardiac group; thus, we assessed its associations with the dependent variables of the patients. No significant associations were found between the degree of illness severity and patients' anxiety levels ( $r = -.09, p = .55$ ).

GLM analysis showed that women reported higher levels of anxiety than did men ( $F_{(1, 394)} = 16.46, p < .00$ ), and that dyads from the cardiac group reported higher levels of anxiety than did dyads from the non-cardiac group ( $F_{(1, 394)} = 32.7, p < .00$ ). No significant differences in group and gender were found for either of the caregiving styles.

Table 2 presents the correlations among the study variables (caregiving styles and anxiety). The upper triangle shows the correlations among the non-cardiac group, whereas the lower triangle shows the correlations for the cardiac group. It can be seen that compulsive and sensitive styles

**Table 1.** Characteristics of the cardiac and non-cardiac groups.

	<i>Cardiac (n = 131 couples)</i>		<i>Non-cardiac (n = 68 couples)</i>		<i>t</i>
	<i>Men M (SD)</i>	<i>Women M (SD)</i>	<i>Men M (SD)</i>	<i>Women M (SD)</i>	
Age (years)	56.17 (8.15)	52.72 (8.49)	56.90 (8.66)	54.84 (8.23)	2.52
Education (years)	14.00 (3.30)	14.63 (3.22)	14.58 (2.2)	15.00 (2.42)	3.11
Relationship length (years)	27.82 (12.16)	–	30.37 (11.42)	–	1.96
Number of children	2.96 (1.32)	–	2.95 (.97)	–	.20
Anxiety	1.69 (.70)	2.12 (.76)	1.55 (.45)	1.60 (.57)	
Sensitive caregiving style	5.53 (.78)	5.63 (.77)	5.45 (.65)	5.46 (.80)	
Compulsive caregiving style	3.71 (1.16)	3.75 (1.21)	3.48 (.97)	3.50 (1.23)	
	<i>Men (%)</i>	<i>Women (%)</i>	<i>Men (%)</i>	<i>Women (%)</i>	
<b>Perceived economic status</b>					
Very good	17.6%	9.9%	13.2%	5.9%	
Moderate	79.4%	82.4%	85.3%	86.7%	
Bad	3.1%	7.6%	1.5%	7.4%	
<b>Illness severity</b>					
<i>Echo score:</i>					
Normal–moderate	65.6%	–	–	–	
Severe–extremely severe	34.4%	–	–	–	
<i>Angio score:</i>					
Normal–moderate	78.6%	–	–	–	
Severe–extremely severe	21.4%	–	–	–	

Note: In the cardiac group, all of the patients are men and all of the caregivers are women.

were negatively associated among individuals beyond group and gender. In addition, significant associations between anxiety and the sensitive caregiving style were detected only within individuals, and only among women in the non-cardiac group, whereas the association between the compulsive caregiving style and anxiety was detected both within individuals and between dyads, and in both groups.

### **Assessment of the multi-group measurement model**

In order to be able to compare the groups in the model we assessed the following four models: (1) a configural model (a free unconstrained model): CFI = .946, TLI = .931, RMSEA: .060, Chi-Square = 326.62,

**Table 2.** Correlations among the study variables.

		Non-cardiac					
		Men sensitivity	Men compulsivity	Women sensitivity	Women compulsivity	Men anxiety	Women anxiety
Cardiac	Men sensitivity	–	–.17	.18	–.02	–.18	.12
	Men compulsivity	–.25*	–	–.16	.53**	.09	.16
	Women sensitivity	.18*	.03	–	–.41**	–.16	–.39**
	Women compulsivity	.09	.28**	–.12	–	.27*	.49**
	Men anxiety	–.04	.25*	.16	–.12	–	.06
	Women anxiety	–.04	.23*	.06	.09	–.04	–

Note: In the cardiac group, all of the patients are men and all of the caregivers are women.

\* $p < .05$ .

\*\* $p < .01$ .

df = 240,  $p < .001$ ; (2) (Model-1) a weak invariance model in which men's and women's loadings were constrained to be equal: CFI = .941, TLI = .930, RMSEA: .061, Chi-Square = 353.45, df = 258,  $p < .001$ ; (3) (Model-2) a weak invariance model in which both the loadings among the genders and the groups (cardiac and non-cardiac) were constrained to be equal for each factor: CFI = .923, TLI = .912, RMSEA: .068, Chi-Square = 390.52, df = 267,  $p < .001$ ; and (4) a strong invariance model in which the intercepts of all factors were constrained to be equal among the two groups: CFI = .902, TLI = .892, RMSEA: .075, Chi-Square = 437.16, df = 279,  $p < .001$ . Note that the gender invariance was preliminarily tested to show a similar factorial pattern. Overall, our analyses supported the second weak invariance model, thus directing us to test a structural model constraining the equality of loadings between both genders and groups (one model which included two groups: the cardiac group versus the non-cardiac group).

### Assessment of the multi-group structural model

Assessment of the structural model showed good indices of fit (see Table 3). In order to assess the structural differences between the two study groups, we ran the same model, this time constraining all the structural coefficients between the two groups. Since the second model showed a decrease in the fit indices, pointing to the existence of structural differences between the groups, we applied Wald's test to assess the differences for each path coefficient (see Table 3). The Fit indices were: CFI = .921, TLI = .910, RMSEA = .068, Chi-Square = 388.54, df = 267,  $p < .001$ ; SEM INVARIANCE: CFI = .908, TLI = .900, RMSEA = .071, Chi-Square = 424.65, df = 282,  $p < .001$ .

Results indicated that the men's anxiety was positively associated with their own compulsive style in both the non-cardiac and the cardiac group. The men's anxiety was also associated with the women's compulsive style; however, this association was negative in the cardiac group and positive in the non-cardiac group (the latter finding was non-significant, but we suspect this was due to the relatively small sample size since the effect itself was substantial). The women's anxiety was strongly and positively associated with their own compulsivity but only in the non-cardiac group. The women's anxiety was also associated with the men's compulsivity for both the non-cardiac and cardiac group, but in opposite directions: men's compulsivity was negatively associated with women's anxiety in the non-cardiac group but positively associated in the cardiac group. Wald's test shows that all of the abovementioned group differences were significant. Figures 1 and 2 present the results of the final multi-group model for each group. It is important to mention that in the cardiac group patients were all men and caregivers were all women. The non-cardiac group

**Table 3.** The structural model estimates including Wald's comparative test between cardiac and non-cardiac groups.

	Anxiety					
	Male			Female		
	Non-cardiac	Cardiac	Wald	Non-cardiac	Cardiac	Wald
Male sensitivity	-.14 (.08)	-.04 (.10)	0.61	.16 (.12)	.03 (.12)	0.60
Male compulsivity	.32*** (.07)	.34** (.13)	0.01	-.33** (.11)	.34** (.12)	15.97***
Female sensitivity	.05 (.13)	.08 (.09)	0.02	-.12 (.17)	.10 (.12)	1.03
Female compulsivity	.25 (.13)	-.32** (.11)	10.50**	.56** (.19)	.04 (.14)	4.91*
$R^2$	.20*** (.05)	.15* (.07)		.29** (.09)	.12, $p = .06$ (.06)	

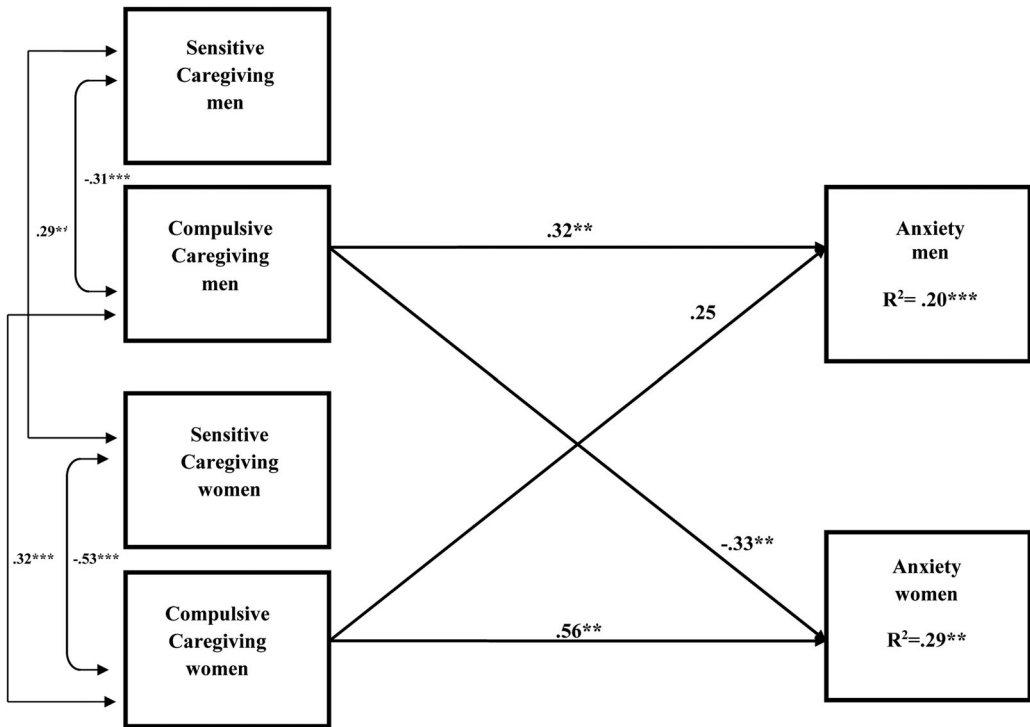
Note: Numbers in parentheses represent standard errors. In the cardiac group, all of the patients are men and all of the caregivers are women.

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .





**Figure 1.** The results of the model testing among the non-cardiac group.

consisted, as stated before both men, and women, both acting as each other's' caregivers simultaneously.

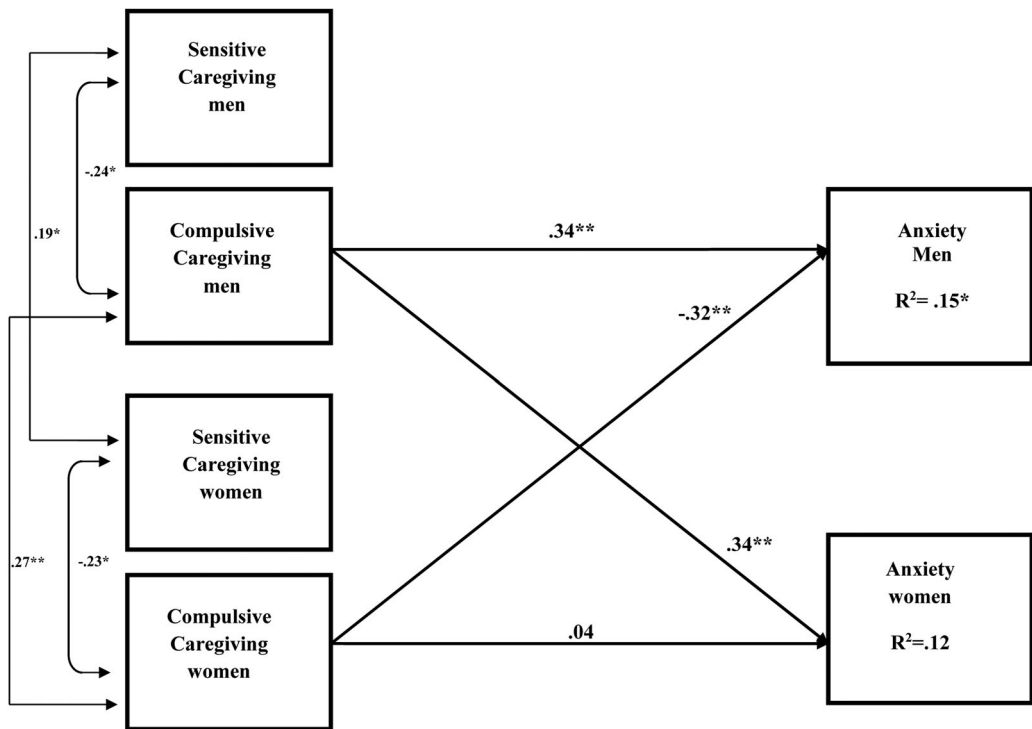
## Discussion

The current study adopted a personality perspective in order to better understand individual and dyadic caregiving dynamics. We followed Bowlby's conceptualization of an innate caregiving behavioral system and investigated – among couples either coping or not coping with a cardiac illness– this system's assumed individual and dyadic effects. Indeed, results pointed to the existence of *both* individual *and* dyadic effects on anxiety, and these effects differed depending on gender and context.

### *Anxiety levels among couples either coping with or not coping with cardiac illness*

Before testing the study's hypotheses, our first step was to examine the differences in anxiety across both groups and genders (it should be noted that in the cardiac group all patients were men), in order to clarify the basic differences between the contexts in question. Our finding that both men and women from the cardiac group reported higher levels of anxiety than matched couples in the non-cardiac group is not surprising and is consistent with many previous reports (Coyne & Smith, 1991; Herrmann-Lingen & Buss, 2007; Sirois & Burg, 2003). The cardiac event leads to a rapid and sudden change in the physical condition of the patient, and this period is considered to be highly stressful for both patients and partners (Atik, Neşe, Çakır, Ünal, & Yüce, 2015).

Moreover, and also consistent with previous findings (Piccinelli & Wilkinson, 2000; Pigott, 1999), the anxiety levels of the female partners in both contexts were found to be higher than the male partners. This finding may be attributed to typical gender differences, that is, a woman's greater willingness to disclose negative feelings (Sigmon et al., 2005).



**Figure 2.** The results of the model testing among the cardiac group.

### **Caregiving styles and anxiety: individual effects**

As hypothesized, we found that, other than the women in the cardiac group, individuals who were higher on the *compulsive* caregiving style also experienced higher levels of anxiety. Overall, the compulsive style seems to be strongly associated with one's distress. These findings corroborate Lakey's (2013) claim that one's caregiving style characterizes, to a great extent, one's personality and is therefore consistently associated with one's mental health.

Our cross-sectional design, however, precludes us from determining the causal direction of this association. On the one hand, a compulsive caregiving style may increase providers' anxiety levels; on the other hand, already anxious individuals may become more compulsive. Actually, it is quite possible that the association between a compulsive caregiving style and anxiety is bidirectional. Personality theorists have suggested that compulsive caregiving is activated in response to negative feelings resulting from fear of losing the partner and from low self-esteem (Mikulincer & Shaver, 2009). To maintain or increase proximity to their partners, individuals who employ compulsive caregiving tend to get over-involved with their partners' problems, often neglecting their own feelings and needs and ultimately experiencing greater distress and lower self-esteem (Bowlby, 1979). This behavioral and emotional chain of events may ultimately increase the emotional distress which was high to begin with.

As mentioned before, no association was found between women's compulsive caregiving style and their own anxiety in the specific context of being the partner of a cardiac patient. It is reasonable to assume that very shortly after the onset of partners' ACS, female partners' anxiety stems more from situational factors such as the patient's being in a life-threatening situation, the fear of losing one's partner, the patient's health condition, financial worries, etc. (Coyne & Smith, 1991) than from specific personality characteristics such as their caregiving style.

### **Caregiving styles and anxiety: dyadic effects**

When looking at the dyadic effects on anxiety, complex dynamics among gender and context emerged. Based on the literature on caregiving styles, we were not surprised to detect that one partner's compulsive style was associated with the other partner's anxiety. This positive association fits well with Bowlby's conceptualization of the compulsive caregiving style as a "bad" form of concern for the receiver (Tolmacz, 2010). However, these associations were not consistently found across contexts: women's compulsive caregiving was indeed associated with *higher* levels of their male partners' anxiety, but only in the non-cardiac group. In addition, male patients' compulsivity was associated with their female partners' anxiety, but only in the cardiac group.

In the opposite contexts, surprisingly, *positive* effects of compulsive caregiving were detected. That is, in the cardiac group, women's compulsive caregiving style was associated with their male partners' *lower* levels of anxiety. When struggling with an acute and life-threatening event such as a heart attack, having a female partner who is very involved and preoccupied with the patient's needs – that is, someone who is a compulsive caregiver – may convey to the patient the feeling that he is being well cared for and attended to. A partner's compulsivity may therefore lead to the patient feeling comforted, reassured and, consequently, less anxious.

In addition, in the non-cardiac group, the more compulsive the men were, the *less* anxious their female partners were. One possible explanation for this finding may be that since most studies on couples show that women report receiving less support from their male partners than men report receiving from their female partners (Finch & Groves, 1983; Lemos, Suls, Jenson, Lounsbury, & Gordon, 2003; Revenson et al., 2015), it may be that women who live with partners who are overly involved with their (female partners') problems and needs may see this tendency as a sign of care, attention, and reassurance, all of which makes them feel less anxious, at least when not in the context of an acute medical situation.

In sum, during routine times, women seem to benefit from male partners characterized by a compulsive caregiving style. However, this compulsivity among men during times when they are acutely ill and their female partners must take on a more formal caregiving role seems to be anxiety-provoking for the women. Also, while compulsivity in wives seems to heighten their male partners' anxiety during routine times, when they are coping with an acute, life-threatening event such as a heart attack, their female partners' compulsive caregiving style seems to be *anxiety-reducing*.

Thus, it seems that the dyadic effects of caregiving are personality-related but also contextual and gender-related. What seems to be helpful in regular daily routine life is not necessarily helpful when individuals are coping with a major health crisis, and vice-versa. Also, that which benefits women seems to be different from that which benefits men – but again, depending on the relevant context. Also, and in contrast to Bowlby's theory, compulsive caregiving, in specific circumstances, may have *positive* consequences for the other partner. Nevertheless, it should again be noted that since the current study is cross-sectional, these conclusions must be interpreted cautiously. Though less likely, it is possible that one's partner's anxiety has an effect on the other partner's caregiving style, rather than the other way around.

Finally, we expected the sensitive caregiving style to be associated with *lower* levels of anxiety beyond contexts. Although no previous studies have explored this association directly, we arrived at our prediction from earlier work demonstrating that this adaptive caregiving style was associated with positive relationship variables such as comfortableness with closeness and pro-social orientation (Feeney, 1996; Feeney & Hohaus, 2011; Feeney & Hohaus, 2001). However, our results did not fully support this prediction (since the significant correlations among sensitive caregiving style and anxiety were suppressed in the multilevel analyses). Fundamentally, the current results are consistent with former studies showing that negative or adverse effects evoke stronger responses than neutral or positive ones (Taylor, 1991). It is also possible that the sensitive caregiving style is more tied to relationship-related features than to one's own or one's partner's anxiety levels, and that this is why it was difficult to detect significant associations with the sensitive caregiving style in the current study.

## Limitations and future directions

The current study has several limitations. First, since it is not possible to manipulate when and how an illness occurs, it is also not possible to assess whether caregiving operates differently when it is not an optional matter. Following a large cohort of couples until a sizable number of them incidentally become affected by an illness is prohibitively time-consuming, and therefore unfeasible. To overcome this methodological difficulty we recruited samples both of couples who were coping with ACS and couples who were not coping with ACS. However, since we were comparing two different samples (albeit matched), we could not come to a definite conclusion about changes in levels of caregiving or anxiety, nor about the associations among them: something we would have been able to do if the same individuals had been moving from one context to another.

Second, the current cross-sectional design precludes us from determining causality in the association between a compulsive caregiving style and anxiety. Third, because the cardiac group was pre-selected to include only male cardiac patients,<sup>1</sup> our results do not permit us to draw conclusions regarding gender as separate and distinct from the caregiving role. Specifically, we cannot generalize our findings to samples in which the patients are women and the healthy partners are men. Next, it is important to mention that the cardiac and non-cardiac groups were treated differently in the administration of the study questionnaire (i.e., a research assistant was available to answer questions from the couples in the cardiac group, whereas the couples in the non-cardiac group were instructed to fill out the questionnaires independently).

It should also be said that the non-cardiac group included only couples in which neither partner had experienced any severe illness during the past five years. However, we have no record regarding any *other* life stressors or chronic conditions among the partners in the non-cardiac group, or for that matter among the partners in the cardiac group, that may have impacted the couple's distress and caregiving processes. Finally, we also have no information regarding the possible caregiving role participants played for other family members at the time, a factor which may have impacted their levels of distress.

In the current study we focused on couple members' anxiety levels. However, future studies should also examine the associations between caregiving style and *positive affect* as well as the associations with *relational* variables. In addition, these associations should be assessed longitudinally. It should also be kept in mind that the process of coping with stressful events such as ACS may itself be dynamic; the caregiving required in the acute phase of a first heart attack may differ considerably from that which is required during the more chronic phases of the coping process (Dekel et al., 2013).

Clinically, the current study suggests that greater attention should be paid to individuals high on compulsive caregiving, because they themselves are prone to greater emotional distress. Indeed, Coyne and Smith (1991) asserted that the field's emphasis on recipients' outcomes may obscure the risk that some patterns of caregiving may bear for providers. Overall, the current findings highlight the idea that, regardless of the context, the constructs of personality and caregiving must be better integrated. While the goal is not to change people's personalities, understanding personality and the part it plays in couple functioning may very well lead to the creation of better dyadic interventions (Monin, Martire, Schulz, & Clark, 2009). Most effective, we believe, would be specifically adapted interventions, ones that take into account the individual's particular personality characteristics, especially his/her caregiving style.

In sum, compulsive caregiving has been found at most times, to be detrimental to one's mental health. Yet, the dyadic effects of compulsive caregiving are dependent on both gender and context, and can be either detrimental or beneficial for recipients. Thus, the personality perspective employed in this study may shed light on the possible terms in which providing care is either beneficial or mal-eficent for individuals and their partners.

## Note

1. The rationale for solely targeting male patients is that the average female cardiac patient is older, more likely to be widowed, and therefore less likely to have social support provided by a romantic partner (Lemos et al., 2003)

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## ORCID

Sivan George-Levi  <http://orcid.org/0000-0002-1235-0978>

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