

Impact of cardiac disease on couples' relationships

Romy Mahrer-Imhof¹, Andreas Hoffmann² & Erika Sivarajan Froelicher³

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¹Romy Mahrer-Imhof PhD RN
Research Associate
Nursing Faculty, Institute of Nursing Science,
University of Basel, Basel, Switzerland

²Andreas Hoffmann MD
Director
Karamba – Outpatient Rehabilitation
Programme, University Hospital Basel, Basel,
Switzerland

³Erika Sivarajan Froelicher PhD RN FAAN
Professor
Department of Physiological Nursing, School
of Nursing, and Department of Epidemiology
and Biostatistics, School of Medicine,
University of California, San Francisco,
California, USA

Correspondence to Romy Mahrer-Imhof:
e-mail: romy.mahrer@unibas.ch

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Abstract

Title. Impact of cardiac disease on couples' relationships

Aim. This paper reports a study to describe meanings that couples mutually assign to, and practices they develop, after the onset of cardiac disease and to understand the impact of the illness on the couples' relationships in everyday life.

Background. Patients as well as partners are affected by the onset of cardiovascular disease. Social support within intimate relationships has been shown to be important for patient survival and well-being, and couples' coping strategies are pivotal for well-being and adjustment to the chronic condition in both patients with cardiovascular disease and their partners.

Method. Twenty-four couples participated in this phenomenological study. Data were collected during 2003. Participants were interviewed after having been hospitalized due to an acute event and having participated in a rehabilitation programme. Three in-depth interviews were obtained for each dyad: one couple interview and two individual interviews with each partner of the dyad. Paradigm cases were sought and thematic analyses conducted.

Findings. All couples experienced a 'brush with death' at the onset of heart disease, which called for changes in lifestyle. Three distinct patterns of dealing with the illness emerged. The first revealed that some couples assess the illness as a positive, transformative experience in their lives, bringing them closer together. The second showed that a proportion of couples experience the illness as a threat which imposes fear on both partners. The challenges are faced as mutual tasks and new routines are developed. The third pattern revealed couples who experience a missed opportunity to change. These couples are disenchanted about each other but return to life as usual.

Conclusions. Nurses can use the information gained from this study to support couples in their attempts to come to terms with the illness, and can enhance their supportive role in rehabilitation efforts.

Keywords: coronary heart disease, counselling, couples, interviews, nursing, partners, phenomenology, rehabilitation

Introduction

While cardiovascular disease (CVD) is the major cause of death in industrialized nations, the majority of people survive

an acute myocardial infarction (MI) and treatment for acute coronary syndrome. As reflected by the general increase in life expectancy, an increasing number of people live subsequently with the chronic condition of CVD (Petersen *et al.* 2005,

Thom *et al.* 2006). If patients live in close relationship the disease also affects their partner's well-being (O'Farrell *et al.* 2000). Partners provide the biggest proportion of social support, although assumptions about their role in helping patients deal with illness vary (Kaerner *et al.* 2004b). Patients and partners rely on social support as positive, potentially health-promoting or stress-buffering aspect of the relationship.

Background

Social support is a key element for survival and adjustment to CVD after MI (Ruberman *et al.* 1984, Rosengren *et al.* 2004, Burg *et al.* 2005, Shen *et al.* 2005). A special form of social support in the wake of disease onset is support in intimate relationships (O'Shea *et al.* 2002). Patients' survival has been shown to depend highly on supportive ties to an intimate partner (Baumann *et al.* 1998, Berkman *et al.* 2000, 2003, Piffner & Hoffmann 2004). Mortality rates have been linked to marital status in both men and women, although being married has greater protective value for men than for women (Ross *et al.* 1990). Mortality in patients of both sexes has been associated with the quality of their marriages (Waltz 1986, Orth-Gomer *et al.* 2000, Kiecolt-Glaser & Newton 2001).

Patients' cardiac invalidism due to overprotective behaviours by partners has been identified as a negative effect of marital support (Clarke *et al.* 1996), whereas positive effects have been associated with adherence to medical regimens, psychosocial well-being and quality of life (Hilbert 1985, Badura *et al.* 1988). High satisfaction with the marriage correlates with low depression scores and positive adjustment (Badura *et al.* 1988, Brecht *et al.* 1994, Moser & Dracup 2004). Following a cardiac event, however, intimate partners are themselves affected by the illness (Mayou *et al.* 1978, Lukkarinen & Kyngas 2003, Svedlund & Danielson 2004). They experience major stress, and complain about the condition's impact on their health (Daly *et al.* 1998) and their lives over long periods of time (Arefjord *et al.* 1998). Partners have to come to term with stress levels that are as high as those of patients (Rankin 1992); they also experience anxiety, depression and uncertainty about the future (Moser *et al.* 1993, Moser & Dracup 2004).

As both partners of a couple experience stress following an acute cardiac event, researchers have explored relationship-focused coping and showed that couples who used problem-solving strategies have better well-being outcomes than those who used other types of strategies (Coyne & Smith 1991, Rohrbaugh *et al.* 2004). Although there is a body of knowledge about the meaning of illness as interpreted by

patients or partners (Spirig 2002, Kaerner *et al.* 2004a, 2004b, Petry *et al.* 2004, Stoltz *et al.* 2004), dealing with chronic CVD has seldom been viewed as a relational phenomenon, and dyadic adjustment to illness has not yet been well studied (Coyne *et al.* 1990). Conditions under which couples deploy helpful coping strategies that lower stress and enhance well-being in both partners may depend on the emotional and relational resources within their relationship (Benner & Wrubel 1989).

Regardless of marital status, supporting each other is lived in an interactive emotional relationship, and discovering what might constitute different healing climates could disclose diverse possibilities for counselling in couples. To date, the literature has not addressed meanings of the illness which are shared by partners and has not described practices that couples develop together in order to adjust to CVD.

The study

Aims

The aims of the study were: (1) to describe meanings that couples mutually assign to and practices they develop after the onset of cardiac disease; (2) to understand the impact of the illness on the couple's relationship in everyday life.

Design

An interpretive phenomenological approach with multiple interviews was used, and the data were collected between January 2003 and December 2003.

Participants

Eligible participants had been hospitalized in the north-western part of Switzerland for an acute cardiac event and treatment of acute coronary syndrome, had completed a cardiac rehabilitation programme within the last year, and had no diagnoses of heart failure. Eligible participants had lived in a stable partnership for at least 1 year; both partners agreed to participate in the study and were able to read and speak German. Couples were excluded if the patient or partner had coexisting terminal illness or mental disability, or if the couple was in counselling at the time of the study.

Data collection

Written information was sent to former participants by the director of an outpatient rehabilitation programme, asking patients to participate in this study together with their

partner. Thirty-three people agreed to be contacted. Six people were excluded because they had no partner. Three partners eventually refused to participate due to lack of time or interest. Thus, 24 couples participated. Interview appointments were scheduled at a place and time convenient to the participants. All couples chose to be interviewed in their homes by the first author, who is trained in qualitative research and interviewing.

An in-depth interview with the couple was followed by individual interviews with each partner within a 6- to 8-week period (Kvale 1996). All interviews were tape-recorded and transcribed verbatim. Socioeconomic and clinical data were obtained via patient interviews and from medical records.

Semi-structured interviews were conducted with an interview guideline covering the domains of disease onset, impact on everyday life, changes in the relationship, and meanings for present and future life. The subsequent individual interviews allowed individual perspectives to be included. The interviewer asked further questions to explore the couple's situation.

The couple interviews lasted on average 84.6 minutes (SD ± 19.5), and the individual interviews 55.7 minutes (SD ± 12.6) for patients and 52.5 minutes (SD ± 12.2) for partners, respectively. The first author translated whole interviews or text passages into English. Bilingual peers reviewed the translations for accuracy.

Ethical considerations

The study was approved by the Committee on Human Research of the University of California, San Francisco and the Ethics Committee Beider Basel, Switzerland. Participants were informed that they had the right to withdraw from the study, or to decline to participate in any interview session without negative consequences affecting their spouse's or their own health care. Each participant was given a copy of the consent document, which included phone numbers for contacting the researcher or the supervising person. Participants' privacy, anonymity and confidentiality were protected.

Data analysis

Transcribed texts were analysed continuously according to the methods described by Benner (1994) and Van Manen (1997). By reading and rereading the transcripts, significant cases were identified. Significant paragraphs were marked and tentative meanings noted. Passages with similar themes were compared among cases for commonalities and differences. This process allowed the identification of exemplars.

Earlier interviews were reread to compare contents with newly found interpretations, and this generated questions for probing in further interviews.

Consistent with established standards of rigour in qualitative research (Denzin & Lincoln 2000, Caelli 2001, Whitemore *et al.* 2001, Sandelowski & Barroso 2003), text passages and written summaries of interpretations were discussed with a peer group of PhD-prepared nurse colleagues, trained in qualitative research, to avoid personal interpretations not grounded in the data. For facilitation of data and analysis management, the computer program ATLAS.ti (2005) was used.

Findings

The majority of the patients were middle-aged, married men ($n = 20$, 83%) with a mean age of 60.9 years (SD 13.3). Their wives were slightly younger (57.8 years, SD 14.8). The length of their partnerships was between 4 and 60 years (median 35 years). Twenty-two couples had children and 12 had grandchildren. The majority of the patients had coronary artery disease ($n = 22$, 92%) and two (8%) had valve failure. The medical procedures were catheterization in 13 patients (54%), surgery in nine patients (38%) and other treatments in two patients (8%).

All couples experienced the illness as affecting their lives and defined the heart disease as 'a brush with death'. What the couples held in common was the sense of a failed body, a direct felt and culturally-mediated sense of possible death, and each felt 'a call to change'. In all couples, patients had symptoms that made them and their partners see the body as suddenly untrustworthy and pointing mercilessly to its own end. Life *per se* was at stake. In order to survive – and survival was no longer taken for granted – all necessary means must be pursued. All interviewed couples said that they were highly motivated to adjust to the recommendations of the professionals. Each of the participants could not escape a sense of an altered life. The illness meaning and practices for ameliorating the pain, vulnerability and insecurity experienced were diverse.

The quality of the marriage prior to the cardiac disease influenced patterns of adjustment to illness, and couples' previous marital satisfaction and coping strategies were addressed in the interviews by comparing their relationship to each other before and after the event, and three patterns emerged. For some couples, illness was 'a positive experience' as it allowed them to change together; others described it as 'threat and a fearful experience', as it entered their well-ordered lives unexpectedly and imposed great fear. Finally,

others saw it as 'an experience of missed chances' because the call to change reverberated between them unanswered.

These three patterns and the impact of the illness on couples' relationship over time will be presented. An interview excerpt from one couple will follow to illustrate the pattern. These descriptions are not intended as a definitive or predictable feature of how couples deal with cardiac disease, but are an outline that shows the variations.

Illness as a positive experience: discovering new meaning and reconnecting to each other

In the wake of the unexpected heart attack, fear of loss and premature death allowed these couples to reflect on their previous lives and to initiate changes. Nine couples described how the onset of the disease was experienced as an important and necessary event, which brought them closer together and had transformative power.

Although these couples had organized everyday life in ways that were satisfactory, they described themselves as not sensitive to important topics such as health or relational issues prior to the cardiac event. Partners realized sometimes that the patient was stressed prior to the cardiac event, and tried to discuss it but found themselves limited in influencing the life of the patient. Subsequently, patients experienced an acute cardiac event mostly in terms of excruciating pain. Their body demanded immediate attention and caused them to seek professional help immediately. The acute symptoms and high degree of urgency with which they were treated in hospital left patients feeling that they had gained a second chance in life.

These patients were enthusiastic about having survived, and partners realized that the patients were overwhelmed by gratefulness and eager to perform at pre-illness levels, even when they went over their limits. Therefore, partners kept observing carefully without interfering too often. Patients felt urged to make changes, but were worried that they would be trapped again in old stressful habits. They emphasized that they needed their partner's help to enhance awareness and to maintain the implemented changes towards a less stressful and more aware life. Partners acknowledged that they considered this to be a mutual task and were concerned about appropriately reorganizing daily life. These couples assessed recovery and the reorganization of daily life as taking a great deal of time and energy, but as worthwhile to pursue.

These couples became more attuned to each other and new possibilities to dialogue with and listen to each other emerged. Patients emphasized that they had become more mature and reliable. Patients and partners were able to

reconnect better with each other. These couples considered themselves as successful in taking on the challenges of the cardiac disease and in improving their relationship.

In this interview excerpt, a couple in their 50s discussed the way they dealt with the disease and how they benefited as persons and as a couple from this experience:

Partner: The infarction was mid-April. In January a friend of ours said: Can you do something that he works less? I said: He does not listen; I have to wait till he has a heart attack.

Patient: Yes, I could not hear it. Everybody had problems but me. I guess if I would have gone on, it would not have been so benign with me. Therefore, I have to say, the MI was just perfect. Early on, I could have jumped out of bed. I do not think that I could have made it. But I was so grateful to have survived...

Partner: This euphoria, a bit like being tipsy. You were not aware of physical strains and it took 4 weeks till it got normal. I saw it - when you got pale, I knew that you had gone over your limits.

Patient: I got a hold on my habits and could change, but after a while you are not aware anymore and you are trapped again. This is a very mean mechanism and it is very important that the people around you get involved. I informed the people and said to my wife: If you notice that I go berserk again, let me know please.

Partner: Oh yes, now we can speak about it and we changed our stressful lives. For example, I don't do the grocery shopping anymore. He (patient) goes now with the bike; cycling is good for him, and it brings him out from behind the computer.

Patient: Yes, that helps a lot. Sometimes she reminds me that I get stressed again. Now we are both more aware.

Partner: He used to be a very normal person but then he became reserved. When he suffered the heart attack, he emerged transformed. He is much more open, much more relaxed. Now we can speak together again. We have succeeded in turning our lives around.

Illness as threat and a fearful experience: overcoming insecurity with control and new rituals

Ten couples experienced the cardiac disease as a threat to their well-ordered, previously healthy lives. Although some patients did not feel sick, they sought help because the partner observed that they were weaker in performing their work. However, both patients and partners were puzzled by the diagnosis. As cardiac disease was unexpected for them, the fear that the illness could strike again at anytime was present throughout recovery and was still felt up to 1 year after the event. The couples' assumption that taking the right precautions and pursuing the right lifestyle can guarantee a healthy life had been challenged and disproved. They learned from illness that life is unpredictable and the future uncontrollable.

Fear of premature death and the anticipatory loss were powerful instigators for behavioural changes in these couples. Patients tried to follow recommended medical regimens. Illness was a threat that had to be managed. Partners responded to the patients' efforts and recovery became a shared responsibility. Both partners of these couples integrated even more healthy practices into their lives and added new routines, such as going for another walk twice a week or attending a heart group after finishing the rehabilitation programme. These couples remained committed to their new routines. They compared themselves with acquaintances who lacked persistence in changing their lifestyles, and felt proud of their achievements. However, some patients felt restricted and not really healthy anymore as they had to take medication or have regular follow-ups with their primary care physician.

Despite following very strict regimens and achieving a tremendous amount of healthy lifestyle behaviour, these couples still experienced insecurities. Planning future endeavours was difficult. Partners tried to shield their worries and emotional distress from each other, but often they knew each other so well that they realized the other's concern and were striving to regain an overall sense of optimism. Illness was seen as a threat that had to be conquered by increased closeness to each other. An excerpt about a couple in their mid-60s and early 70s is given below. They had always pursued a healthy lifestyle, and as retirement had spent a great deal of time walking, cycling and mountain-climbing together:

Patient: The physician who tested me said my heart is not good. I could not understand that. Why did this happen to me? I was always careful to eat healthy food and I never smoked.

Partner: Yes, that was really bad. We did not expect it. Why did this happen to us? We always took good care of our health. So I thought, now it is his (husband) turn and I will be a widow. It was a bad time.

Patient: I knew after the bypass surgery that it is in my best interest to follow strict orders and to be self-sufficient quickly. There were patients, maybe a few years older than I, who were so sluggish. That is not the way I will continue.

Partner: He went to the rehab. programme. I joined him whenever possible.

Patient: The rehabilitation programme had a big advantage. We both exercise every morning now.

Partner: That's wonderful. He does exercise routines with me. That is very positive.

Patient: However, I always feel restricted because I know that I have to take medication. If I can reduce those (medications), then maybe I will feel more relief, but till then I am not 100 percent healthy.

Partner: So we are always a bit worried. We planned a trip, but now we have to let that go. I know I don't need to be anxious, but it is

hard to plan for the future when he is not healthy. This illness is a pity, but at least we have each other.

Patient: So if she is worried, I realize it and take her out for a walk or she realizes it and tries to distract me from my worries. We are even closer then we were before.

Illness as an experience of missed chances: disenchantment and 'back to normal' in relationship

In five couples, patients and partners assessed diverse possibilities for positive changes, but did not achieve them. Therefore, they thought that the call for change through the illness reverberated unanswered. The patients thought their lives were in jeopardy only for a short period of time, and perceived that their partner and healthcare professionals overestimated the seriousness of the illness. These patients waited impatiently for their exercise tests, on which the decision for discharge depended. With symptom relief, they felt ready to proceed with life as usual but saw the need to change some of their habits. Therefore, they attended rehabilitation programmes from which they chose those recommendations they considered feasible for their lives. Their partners supported them in the attempt to implement lifestyle changes. Partners started to cook more healthy food or reminded patients to attend exercise classes. However, from the beginning, partners' perceptions and expectations and patients' efforts to regain normality did not match.

Patients wanted to be acknowledged for changes they had accomplished, whereas partners doubted the changes or expected different changes. In the main, both partners expected changes that would allow for more quality time together. Couples' expectations about the desired changes varied and caused arguments. One husband thought that increased sexual activities might lead to more closeness; his wife, however, wanted to talk about previous hurtful misunderstandings in their relationship.

As habits were stronger than the desire, imagination, or skill to change and partners did not meet each other's expectations, they tended to withdraw more from each other as time passed, and some wives longed even more for closeness. Both partners were left with feelings of sadness and being misunderstood. These couples returned to their old style and the possibility of more intense connection closed down. Some partners concluded that they need to focus more on themselves.

Often, both concluded that 'not much has changed as a result of the MI'. Their only possibility of knowing the other was entrenched in resistance and critical reaction towards the partner or their inability to tolerate differences. Previous

misunderstandings and painful events diminished their current possibilities of encountering the partner in new ways. These couples seemed to remain helpless in their attempts to change mutually.

The following interview excerpt is from a couple in their mid-60s. The wife tried to ease her husband's symptoms after the MI. When the situation worsened, she insisted he go to the emergency room. After 5 days in hospital, he was ready to go on with his life as usual:

Patient: My pain eased off fast. And after 5 days I wanted to go home because a fieldtrip with my colleagues came up. The physical therapist let me circle the unit twice and we walked a flight of stairs together. I told him: We can do three (flights) if you like. I really have no problems anymore.

Partner: Yes, you did better but you attended the rehabilitation programme, which I found very good.

Patient: In the rehabilitation programme they show you many things that you could do, but you cannot do all. I had to go on with normal life.

Partner: But you could do more. To be physically more active would be good for you. You should follow this recommendation. And you could work less. Now he works four half-days per week again.

Patient: But I take it easy.

Partner: Oh yes, but you don't spend time with me. I do not see what you do if you are at work. You are a craftsman and you notice what has to be fixed.

Patient: Yes, sure. But I am much slower. In the past I started all repairs immediately; nowadays I say: This can wait until tomorrow. Or I call someone in to help even if I could do it by myself.

Partner: Work and other things are much more important than that we spend time together. I have to rely on myself. I do not want to wait and be frustrated all the time. I could start nagging - how awful. So we live as we did before.

Discussion

To our knowledge, this study is the first to identify different patterns in how couples deal with illness after the onset of cardiac disease. We focused on the dyad and the couples' experiences after the onset of heart disease and describe three relational patterns. The cardiac event causes distress in patients as well as partners from the onset of disease, and this remains over the whole course of recovery (Moser & Dracup 2004). Couples described the event as a 'brush with death', which both partners considered 'a call to change'. Individual well-being is, therefore, highly linked to the well-being of the partner in a close relationship. As has been emphasized already, cardiac rehabilitation should start early on and should include the partners of patients (Johnston *et al.* 1999).

All couples were in a stable relationship and attempted to provide social support for each other. Couples chose relational patterns and lived through the illness experience according to the demands of the relationship (Lyons *et al.* 1995, Tapp 2004). All couples tried to confine the impact of the illness and to adapt their relationship to the new situation. Couples were concerned to deal with emotional aspects such as fear, as well as with instrumental aspects such as medical treatment and lifestyle changes (Charmaz 1991). In our study, couples assigned and agreed upon mutual meanings about the illness. The gender of the afflicted person might influence whether partners of a dyad assign mutual meanings. For example, Svedlund and Danielson's (2004) study revealed that couples did not share their experiences with each other when women were affected. Assumptions about the supportive roles of partners may open up possibilities within the relationship and influence whether mutual meanings are assigned (Kaerner *et al.* 2004b). Certainly mutual meanings are only possible against the background of a shared commitment to the relationship. Despite the communalities in incorporating the illness, differences emerged in couples' relationship patterns.

Couples who assess illness as a positive experience succeed in overcoming possible resentments within the relationship. These resentments are modifiable with the help of the other. According to attachment theory, these couples might be securely attached to each other and therefore believe that their partners will be effective in conquering the threat (Hunter & Maunder 2001). These couples can challenge rigid role enactments and come up with innovative and creative ways of dealing with the situation. Therefore, habits in everyday life can be discussed and new ways of taking up daily chores are lived as new worthwhile possibilities.

Couples who experience illness as threat seem to be more burdened. Illness reveals that life cannot be taken for granted. These couples oscillate between demoralization and remoralization, as Kleinman (1988) puts it, or between hope and despair. They try to get on top of things by dealing together with the illness, and follow painstakingly all medical recommendations and change. They conquer the threat of illness through closeness. Although closeness is satisfying for them, turning to the other in an anxious, clingy manner may lead to more despair (Klonen & John 1998). As long as the chronicity of the illness is not understood as a condition with possibilities and necessities to be negotiated daily, these couples cannot resume normal life.

Couples who feel they have missed opportunities for satisfying changes primarily highlight differences in their relationship, which impedes recognition and acknowledge-

What is already known about this topic

- People are increasingly surviving myocardial infarction and treatment for acute coronary syndromes and subsequently have to live with the chronic cardiovascular disease.
- Patients and their partners are affected by chronic cardiovascular disease and have to adapt to lifestyle changes.
- Marital quality, marital satisfaction and couple-focused coping styles have an impact on well-being and adjustment to cardiovascular disease.

What this paper adds

- Couples experience cardiac disease as a call to change, and attempt to deal with the illness experience jointly.
- Some couples assess the illness as a positive, transformative experience in their lives; some experience the illness as a threat to both partners, while others miss this opportunity to change and become disenchanted about each other.
- All couples have counselling needs that need to be individualized to their adjustment patterns but the most burdened couples have the greatest need.

ment of the partner's quest. A rather classic gender divide of women being over-responsible for negotiating relationships and men disengaging from them and turning attention to work may be frequent. An avoidant attachment style with former conflicts and misunderstandings may have influenced ways of connecting and communication (Luepnitz 1988, Hendrick & Hendrick 2000). Through disenchantment with the partner and by grieving for missed chances, these relationships tend to become even more distanced.

Study limitations

The findings of this study are limited, since the time which had elapsed since the event allowed capturing processes of change within couples' relationship, but the time span between the interviews, conducted within a 2-month period, was too short to detect further adaptive changes. Participants in this study were mainly male patients and their wives. Comparison of whether patterns differ by gender of the affected person was therefore not possible. In addition, all patients had participated in a cardiac rehabilitation programme, which further limits the generalizability of the findings.

Conclusion

As many patients, and especially women, still do not attend rehabilitation programmes, couples' opportunities should be addressed during hospitalization (Thompson 2003). It may also be beneficial to start considering this during the inpatient phase and continue during rehabilitation programmes, and even offer short-term marital therapy for couples who are very burdened by the illness experience (Priebe & Sinning 2001).

Our findings also support arguments for increasing involvement of couples in rehabilitation programmes and for focusing on a couple's own perspectives (Stewart *et al.* 2001, Kaerner *et al.* 2004b). Couples may further benefit when healthcare professionals' support is tailored to the couple's relational pattern.

Couples who assess the illness as a positive experience could benefit from acknowledging their relational skills. Particular information about lifestyle changes can be helpful, and they may benefit from experiential learning with the support of healthcare providers and peer groups.

It may be helpful for couples who experience illness as threat to have healthcare professionals acknowledge their fear of loss. To meet other couples who can reassure them that they can deal with the chronicity of the illness with less fear, might protect against anxious mutual attachment.

Couples who feel that they have missed opportunities could benefit from counselling which highlights possibilities of recognizing the partner's otherness and of valuing the merit of both positions. Counselling could provide these couples with more complex choices about how to negotiate more intimacy in a relationship in which each partner's needs and wants are respected.

Continuing interventions with couples in group sessions would allow them to benefit by knowing what others experience in comparable situations, and help them conquer fear and find new ways of living despite the illness. Healthcare professionals can learn how to be attentive to the meanings couples assign to cardiac disease and the illness experience. Our findings could also be valuable for peer support group leaders, as such groups have been shown to be helpful to couples (Stewart *et al.* 2001).

Further studies should be conducted to learn more about couples' dynamics when the woman is ill, as gender differences in role attribution may produce different results (Lemos *et al.* 2003). Patterns may change over time and a longitudinal design is needed to help care providers and couples know what to expect and to define critical transitions during

recovery. Furthermore, interventions tailored to the diverse patterns documented in the current study should be tested to determine if adjustment to illness can be smoother, adherence to lifestyle changes better, and satisfaction with self-care management increased in couples.

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Author contributions

RMI was responsible for the study conception and design and the drafting of the manuscript. RMI performed the data collection and data analysis. RMI and ESF obtained funding and AH provided administrative support. RMI, AH and ESF made critical revisions to the paper. ESF provided statistical expertise. ESF supervised the study.

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