Support Groups and Cardiac Rehabilitation: Effects of Partner Participation on Anxiety and Depression

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Abstract. This study analyzes the effect on levels of patient anxiety and depression of a partner joining a cardiac rehabilitation program support group, also taking into account the sex of the patient. The study was undertaken using a two-group comparison design with pre-and post-test measures in non-equivalent groups. The sample comprised patients in the cardiac rehabilitation program (CRP) at the Ramón y Cajal Hospital, Madrid (Spain). Analysis of covariance (ANCOVA) showed direct effects of sex and partner participation in support groups on the anxiety trait. Similarly, interaction effects were observed between the sex variable and partner participation. These results indicate the pertinence of designing separate groups for patients and partners.

Cardiovascular diseases are one of the principal causes of mortality in contemporary societies and also responsible for a significant percentage of permanent disabilities (Wielgosz & Nolan, 2000). In Spain, according to the Spanish National Statistics Institute, 27% of deaths in 2010 (the most recent available data) were due to ischemic and cerebrovascular diseases. Within this group, ischemic heart and cerebrovascular diseases were the primary cause of death among males and females respectively (Spanish National Statistics Institute, 2012).

Together with traditional risk factors (hypertension, cholesterol, smoking, diabetes, obesity, etc.), research has for decades demonstrated the importance of psychosocial factors relating to stress and lifestyle, which play a significant role both in the etiology of the disorder and in the recuperation of those affected (Holt-Lunstad & Smith, 2012). Anxiety and depression are two of the most studied of the aforementioned factors, in terms of both possible etiological influence on these diseases and impact on patients' adjustment, recuperation, and prognosis. As such, in addition to their etiological impact, it is important to emphasize that

states of anxiety and depression frequently arise as a consequence of cardiovascular disease (Grace et al., 2005). Approximately 20% of patients develop severe depression and another 20% minor depression (Carney & Freedland, 2008). Moreover, the appearance of these disorders is clearly related to greater problems in the rehabilitation process, with various studies demonstrating that anxiety and depression are risk factors significantly increasing patient mortality and morbidity (Almeida, Alfonso, Flicker, Hankey, & Norman, 2012; Carney & Freedland, 2003; Frasure-Smith & Lespérance, 2008; Garvey, 2012).

While anxiety and depression may worsen the prognosis for recuperation from the aforementioned diseases (Pajak et al., 2013), other factors, in this case environmental and social, have demonstrated an inverse effect. The research has afforded particular significance to social support, revealing it to be a consistent key factor affecting the illness-health process in general (Uchino, 2004, 2006; Wilkinson & Marmot, 2003) and cardiovascular diseases in particular (Orth-Gomer, 1994). Various studies have shown that sufferers of heart attacks with a low level of social support have higher rates of post-heart attack mortality, with consistent findings across the research, even where techniques for measuring support and composition of groups studied change (Berkman, 1995). Along the same lines, an absence of social support (social isolation) is linked to a greater risk of healthy persons developing cardiovascular disease and a worse prognosis for those who have already developed the disease (Barth, Scheneider, & Von Känel, 2010; Mookadam & Arthur, 2004; Peuler, Scotti, Phelps, McNeal, & Grippo, 2012; Udell et al., 2012).

Social support can encourage health and wellbeing by engendering a sense of belonging and closeness or developing competence and self-sufficiency (Sánchez & Barrón, 2003). It is similarly justifiable to view the relationship between social support and cardiovascular disorders through the prism of its impact on risk factors such as diet, tobacco and alcohol, rather than as a direct relationship (Albus, 2010; Suls & Bunde, 2005). Classical hypotheses in the study of social support offer empirical evidence showing the direct and protective impacts of social support on cardiovascular disease. Among the possible mechanisms explaining the direct effect, it has been hypothesized that positive social relationships increase self-esteem, reduce anxiety, raise perceived control over an environment, give meaning to the social and physical environment, satisfy the need to belong, and increase wellbeing (Cohen, 1988; Gorkin, Follick, Wilkin, & Niaura, 1994). Various studies have returned favorable results regarding the existence of this direct effect (Gorkin et al., 1994; Stansfeld, Fuhrer, Shipley, & Marmot, 2002).

Social support also has a protective effect, reducing feelings of threat in stressful situations by allowing the patient to reevaluate the event and thereby reducing anxiety. The provision of instrumental assistance reduces the impact of the stressor, just as the provision of emotional support following the appearance of a stressor can help to alleviate distress, psychological suffering, anxiety, and depression, with a consequential reduction in physiological disturbances. Again, empirical evidence supports the existence of these protective effects (Orth-Gomer, Rosengren, & Wilhelmsen, 1993; Steptoe, 2000; Uchino, Uno, & Holt-Lundstad, 1999).

Of the interventions oriented towards increasing social support, support groups have proven effective in various contexts, both for mental health (Pistrang, Barker, & Humphreys, 2008) and physical health (Uchino, 2004). In the case of cardiovascular diseases, the literature is relatively scarce, both within and outside institutional healthcare contexts (Jackson, Gregory, & McKinstry, 2009). However, self-help groups have obtained positive results with respect to improvement of prognoses and reduction of morbidity and mortality rates, due in large measure to their alleviating effect on anxiety and depression. There is evidence that patients using cardiac rehabilitation services that include support groups show higher self-esteem and lower anxiety than patients undergoing rehabilitation without support groups (Dracup, 1994; Maroto, Artigao, Morales, De Pablo, & Abraira, 2005). Among the benefits of cardiovascular patients participating in such support groups as part of cardiac rehabilitation programs (CRPs) are reduced emotional tension, anxiety, confusion, uncertainty, and depression, as well as helping the patient confront their situation and improve self-esteem (Clark,

Hartling, Vandermeer, & McAlister, 2005; Helgeson, Cohen, Schulz, & Yasko, 2000).

As a consequence of the abundant empirical evidence concerning the particularly significant role of the partner as a source of support for patients (Benyamini, Medalion, & Garfinkel, 2007; Kärner, Dahlgrem, & Bergdahl, 2004; Schokker, Links, Luttik, & Hagedoom, 2010), support groups frequently include partner participation. For patients having suffered acute myocardial infarction, the partner is key to the entire recuperation process. However, the usefulness of including partners in support groups is not clear, given that the empirical evidence shows that a heart attack is one of the stressful life events with the greatest impact on partners and the family. Problems encountered include (a) tension, (b) uncertainty, (c) fear of death, (d) fear of change in roles and lifestyle, and (d) financial, sexual, and support service-based difficulties. Along these lines, it is proven that partners of patients who have suffered heart attacks are more vulnerable to various disorders and show symptoms of depression and anxiety equal to or even greater than the patients themselves (Coyne, Ellard, & Smith, 1990; Ell, 1996; Gorkin et al., 1994).

In 1979, Stern and Pascale proposed the creation of educational groups specifically aimed at partners, in which they would receive necessary information regarding the recuperation process of the patient and could openly express their feelings regarding issues such as fear of a repeat episode, avoidance of straightforward communication due to fear of worrying the patient, fear of sexual relations, overprotectiveness, and overload. Recent studies, though scarce, confirm these results and propose the same solution (Moore, 1996; Stewart, Davidson, Meade, Hirth, & Weld-Viscount, 2001). In summary, there is contradictory evidence concerning whether it is worthwhile including partners in patient support groups as part of CRPs.

Our research considers the impact of partner participation in support groups on levels of anxiety and depression of patients participating in CRPs containing such support groups. The specific aim is to analyze changes experienced in levels of patient anxiety and depression as a function of the participation or otherwise of the partner in the support groups, incorporating the sex variable into the analysis. It is difficult to establish a hypothesis regarding the impact on the patient of partner participation in support groups, since as previously mentioned, the literature offers contradictory evidence. Bearing in mind that the strong impact of cardiopathies on the partner may reduce partner effectiveness as a source of support in addition to suggestions in the literature regarding the need to create separate groups of patients and partners, we hypothesize that those patients attending groups with their partner

will show greater levels of anxiety and depression than those attending alone. Finally, it is not possible to formulate specific hypotheses regarding sex, given that the majority of studies focus on samples of males due to the greater incidence and prevalence of cardiopathies among the male population (Abbey & Stewart, 2000; Regitz-Zagrosek, Lehmkuhl, & Weickert, 2006).

To test these hypotheses, we undertook research in the only Spanish program including support groups within the scope of a CRP. The hospital's Clinical Research Ethics Committee approved the research. The unit is multidisciplinary, being composed of four cardiologists, one rehabilitative doctor, two psychologists, one psychiatrist, two nurses, two physiotherapists, and one social worker.

The CRP begins two weeks after patient discharge from hospital and extends over approximately twelve weeks and is divided into three phases: preparatory, rehabilitation program and rest of participants' life. This article focuses on phase II. During this phase, support groups meet on a weekly basis. Patient participation is obligatory. In other words, the support groups form an essential and integral part of the CRP, and compliance is required just as it is with other program elements. Patient attendance is hence regular and structured. Partner participation is voluntary but encouraged. Support groups are not split according to partner participation, so the same group may contain patients attending with or without their partner. The sample description provides detailed information on participant profiles. Group size varies between 10 and 15 participants and sessions last an hour. Sessions run in accordance with conventional parameters for this type of intervention, including the presence of a doctor with the sole objective of avoiding the improper communication or use of relevant medical information.

Method

Sample and Procedure

The sample constituted all the participants in the CRP at the time of obtaining the data. This amounted to 546 persons, of whom 84% were male, 80.8% were married or lived with their partner, and 74.4% did not have dependent children. Average age was 56 years, with a standard deviation of 9.87 and an interval of 34–77 years. With regard to work, 11.9% were inactive during pretest (T1, phase 1 of CRP) (16.5% in posttest, T2, phase 2 of CRP), 57.8% on sick leave (53.2% in T2), 25.7% retired (25.7% in T2), and 3.7% disabled (3.7% in T2). Concerning the type of illness, 66.1% had suffered heart attacks, 16.1% angina pectoris, 4% valvular heart disease, 1.1% congenital cardiopathy, 5.8% angina and heart attack, and 6.7% other cardiopathies. Of the

participants, 44.2% attended support groups with their partner, while the remaining 55.8% went alone.

At the beginning of phase I of the CRP (pretest, T1), a group session was convened to explain the aim of the study and the measures to be taken, in addition to obtaining informed consent and freely given personal agreement to participate in the study. The measures in the study were naturally thus incorporated into the reception protocol for patients in the cardiac rehabilitation unit at the hospital, forming part of the standard package of psychological and clinical tests. The questionnaires were self-completed by the patients in the presence of a member of the unit team who would intervene only to resolve doubts regarding its completion. The completion of the range of measures took approximately 45 minutes. On completing phase II of the CRP (posttest, T2) data were again collected for the measures in the study in order to evaluate their evolution. The duration established for this phase is 12 weeks. Questionnaires were self-completed.

Measures and Data Analysis

The State-Trait Anxiety Inventory (STAI)

(Spielberger, Gorsuch, & Lushene, 1970; Spielberger, 1989). Consists of two 20-item self-report measures. The STAI State assesses how respondents feel at the moment of responding, while the STAI Trait targets how respondents generally feel. The STAI State and Trait have each been found to contain two factors, which Spielberger labeled *anxiety-present* and *anxiety-absent.* Respondents are asked to rate themselves on each item on a four-point Likert scale, ranging from *not at all* to *very much so* for the STAI State and from *almost never* to *almost always* for the STAI Trait. The present study used the Spanish adaptation developed by Bermúdez (1978). The internal consistency of the STAI State was 0.929 at baseline (T1) and 0.933 at posttest (T2). For the STAI Trait, the internal consistency was 0.888 (T1) and 0.896 (T2).

The Beck Depression Inventory (BDI-II)

(Beck, Steer, & Brown, 1996), adapted in Spain by Sanz, Perdigón, and Vázquez (2003), assesses depressive symptoms longitudinally. The BDI-II is a reliable and well-validated 21-item scale using a forced-choice four-alternative response format. BDI-II and the former version (BDI) have been widely used in the general population, and in chronic illness populations including cardiac patients (Frasure-Smith, 1991; Shnek, Irvine, Stewart, & Abbey, 2001). Higher scores reflect greater depressive symptomatology. The internal consistency of the BDI was 0.847 at baseline (T1) and 0.831 at posttest (T2).

For data analysis, only those persons who lived with their partner were chosen, and then divided into those whose partner participated in the support groups and those who partner did not attend. Separate analysis of covariance (ANCOVA) sets were conducted for male and female patients using SPSS v.19. Three outcome measures (BDI, STAI Trait, and STAI State) were assessed, with pretest scores for each outcome and age included as covariates. Age was included to partial out the effects of preintervention, since it was not possible to randomize groups. Analyses were performed using SPSS 19. This software produces an index of effect sizes for linear models, considering the partial η^2 as a sign of small (.01), medium (.06) and large (.14) effects (D'Amico, Neilands, & Zambarano, 2001).

Results

Prior to the ANCOVA calculation, a t-test was performed to determine whether the scores for anxiety-state and anxiety-trait depression differed in the pretest measures depending on the participation of patient partners. The results showed no significant differences for any of the variables considered ($t = 1.106$; $p = .161$ for depression; $t = 0.099$; $p = .921$ for anxiety-state; $t = 1.544$; $p = .123$ for anxiety-trait). However, concerning sex, significant differences were found for depression ($t = 4.640$; $p < .001$; $d = .45$), anxiety-state ($t = 3.852$; $p < .001$; $d = .41$ and anxiety-trait ($t = 4.920$; $p < .001$; $d = .50$), with females presenting higher average scores. A t-test was also performed (in this case, for paired samples) to test the ultimate change in average scores of the dependent variables in T1 (on entering the program) and T2 (on completing the program). As shown in table 1, the results indicate that anxiety and depression levels were lower on completion than on entering the program.

An ANCOVA analysis, as previously outlined, was undertaken to test the effect of partner support group participation and sex on levels of patient anxiety and depression. For the depression measure, direct effects were not found for partner participation, $F(42, 811) = 1.59$, $p = 0.21$, or for sex, $F(17, 270) = 0.641$, $p = .42$. No interaction effect was found, $F(4, 649) = 0.173$, $p = .68$.

For anxiety, in its twin dimension of state and trait, the results are collected in table 2. With respect to the results obtained for STAI State, neither direct nor interaction effects were found for the variables in the study. On the contrary, the STAI Trait scores clearly show a direct effect for partner support group participation. The marginal means demonstrate that patients attending with partner score more highly on the anxiety-trait measure ($M = 22.63$; $p < .05$) than patients attending without partner ($M = 19.57$; $p < .05$). There is also a direct effect for the sex variable, with women scoring higher ($M = 22.96$; $p < .05$) than men ($M = 19.25$; $p < .05$). Moreover, there is an interaction effect ($F(402,17) = 7.12$; $p = .008$) with partner participation, meaning that, as shown in table 3, female patients attending with partner score significantly higher ($M = 26.48$; $p < .01$) for anxiety-trait than males in the same situation ($M = 18.78$; $p < .01$). There are no significant differences for patients, whether male or female, whose partner did not attend the groups.

Discussion

As discussed in the first part of this article, there is uncertainty regarding the optimum composition of support groups. Perhaps the main debate in this context is whether it is useful to include patient partners in support groups, or, conversely, create separate groups for patients and partners. The results obtained in our research appear to confirm our initial hypothesis for anxiety-trait. Rather than partner participation in support groups having beneficial effects for patients, our results in fact show the opposite: partner participation has a negative effect on the reduction of levels of anxiety, as indicated by previous studies (Moore, 1996; Stewart et al., 2001). Specifically, partner participation in support groups tends to reduce the positive effect of such groups on anxiety-trait.

Possible explanations for the data are manifold. To the extent that groups focus exclusively on patients' problems, there is no positive effect for the partners but rather a constant exposure to a highly important stressor. Moreover, new issues related to the illness may come to light through the support groups, leading partners to use coping strategies to manage their own anxiety that interfere with the recuperation and

Table 1. *Mean and mean differences for pretest and posttest measures of depression and anxiety*

Measure	T1 Mean (*SD*)	T2 Mean (*SD*)	Mean differences (SE)	*t*-value	*d*
BDI	8.65 (6.81)	7.74 (6.66)	0.91 (0.30)	3.06**	.32
STAI-STATE	23.13 (10.43)	19.72 (9.53)	3.41 (0.48)	7.08***	.74
STAI-TRAIT	22.24 (9.88)	19.61 (9.34)	2.63 (0.41)	6.41***	.67

**p < .01 ***p < .001

Table 2. *ANCOVA results for anxiety*

	Mean T1 (SE)	Mean T2 (SE)	F	p-value	η²
STAI-STATE					
Attending partner	22.76 (1.90)	21.31 (1.56)	0.635	0.426	0.001
Non-attending partner	24.82 (0.74)	19.97 (0.61)			
Male	22.20 (0.64)	19.28 (0.53)	2.613	0.107	0.006
Female	25.38 (1.93)	22.00 (1.57)			
Partner * Sex			2.008	0.157	0.005
STAI-TRAIT					
Attending partner	23.62 (1.78)	22.63 (1.40)	4.174	0.042	0.01
Non-attending partner	24.10 (0.70)	19.57 (0.55)			
Male	21.10 (0.60)	19.25 (0.47)	6.027	0.014	0.014
Female	26.62 (1.81)	22.96 (1.42)			
Partner * Sex			7.122	0.008	0.017

df = 4. Estimated marginal means are reported. Covariates are pretest measure and age.

Table 3. *Marginal means for interaction between attending partner and sex of patient*

	STAI-STATE		STAI-TRAIT	
	Mean T1 (SE)	Mean T2 (SE)	Mean T1 (SE)	Mean T2 (SE)
Male				
Attending partner	22.09 (1.13)	18.76 (0.83)	20.69 (1.06)	18.78 (0.83)*
Non-attending partner	22.30 (0.61)	19.80 (0.50)	21.51 (0.57)	19.72 (0.45)
Female				
Attending partner	23.44 (3.62)	23.86 (2.98)	26.56 (3.40)	26.48 (2.66)*
Non-attending partner	27.33 (1.35)	20.14 (1.13)	26.69 (1.27)	19.43 (1.01)

*p < .01

adaptation of patients, such as overprotectiveness, a coping mechanism frequently used by partners of cardiopathic patients. The problem stems from the evidence that this form of coping has a major negative impact on patient adjustment to the illness (Coyne & DeLongis, 1986; Ell, 1996), given that it limits the patient's autonomy and personal responsibility in terms of their own care. Thus, the partner can end up becoming a source of stress for the patient.

This coping style also influences the patient's sense of self-efficacy, which has been shown to be one of the best predictors of patient adjustment (Coyne et al., 1990). In a well-known study, Taylor, Bandura, Ewart, Miller, and DeBusk (1985) show that the patient's perceived self-efficacy influences performance in strength tests. Moreover, the partner's perceived efficacy is a determinant of the patient's perceived self-efficacy, leading the authors to conclude that interventions need to be designed not only for patients but also for partners. It thus seems that, in effect, partners can stop fulfilling their role as principal source of support,

interfering in the optimal provision of social support in the context of support groups.

That our results show higher anxiety scores for women suggests that when designing interventions it is necessary to bear sociodemographic characteristics in mind – or at least that of sex. In this regard, Stewart et al. (2001), working with a support group for patients having suffered acute myocardial infarction, show that a perceived lack of similarity with peers regarding said variables made social comparison and identification difficult, these latter aspects being mentioned unprompted by all participants as one of the principal benefits of the intervention.

The interaction our results show between partner participation and sex may be interpreted along the same lines, as when patients are female, levels of anxiety-trait are particularly high among those attending support groups with their partners. Nonetheless, recent research instead highlights the importance of identification with the group. This is seen in the work of Wakefield, Bickley, and Sani (2013), who found a relationship between the aforementioned variable and lower scores for anxiety and depression in a sample of

patients afflicted by multiple sclerosis, identification with the group being greater in the case of women. Perhaps this argument may be applied to partner participation in support groups. One may hence hypothesize that male partners identify less with the support group than female partners, which would explain why, in our study, women attending with their partner benefited less than men attending with their partner (or were even negatively affected). This line of research is particularly intriguing and relatively undeveloped.

In summary, our results support the classic position of Stern and Pascale (1979) suggesting that the appropriate strategy for the partner to recover their role as key source of social support does not merely consist of including partners in groups designed for patients, but rather requires that groups be specifically designed for partners, focusing on the problems they may encounter in coping with their partner's cardiac illness.

All the above is applicable to the analysis of anxiety, but our study did not find direct or interaction effects for the variables considered with respect to depression. This result, though surprising, may be explained by the nature and characteristics of the rehabilitation process for a cardiac illness: daily, continuous, chronic stress and tension (Avison & Turner, 1988). It is possible to hypothesize that these characteristics affect certain types of social support and not others. In this regard, partner attendance or non-attendance at support groups may have an impact on certain support functions and not others. Specifically, it does not appear to necessarily affect what Brown and Harris (1978), in their classic study, labeled *intimacy*, a fundamental source of emotional support and hence clearly linked to depression (Antonucci, Fuhrer, & Dartigues, 1997). In other words, it may be hypothesized that partner participation in support groups would negatively affect certain of the mechanisms outlined by Thoits (2011), such as sense of control or mastery, behavioral guidance, or social control – but not others (specifically those related in large measure to depression), such as purpose and meaning, or belonging and companionship.

With regard to the limitations of the study, it is appropriate to highlight that the posttest measures were taken a relatively short period of time after the pretest collection of data. The evaluation of the effects of patient and partner support group participation is hence limited to a relatively short period. The evaluation also took place immediately following the conclusion of the CRP, for which reason it is not possible to reach any conclusions regarding longer term effects. This aspect is currently the object of further research.

It is also appropriate to consider the role that other variables not considered in our study may play, such as the length of the relationship with the partner or the existence of other medical conditions. It should also be borne in mind that partner participation was voluntary, a fact that may have caused an element of bias in the sample.

Given the importance of reducing levels of anxiety for cardiopathic patients, with the aim of reducing morbidity and mortality rates by improving the effectiveness of CRPs, it must be considered fundamental that the partner maintains their role as principal provider of social support. Support groups as a main intervention strategy based on social support have been shown to be effective in terms of reducing anxiety and depression. However, in the case of cardiopathies, it appears necessary to design separate groups for patients and partners, allowing the latter to properly manage the problems associated with this pathology. There would be a double effect. First, partners of cardiopathic patients could develop better coping strategies. Second, as a consequence, partners would provide better social support to patients, enabling a better adjustment to the illness.

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