

MARITAL QUALITY AMONG WOMEN WITH BREAST CANCER: THE ROLE OF MARITAL INTIMACY AND QUALITY OF LIFE

CALIDAD CONYUGAL EN MUJERES CON CÁNCER DE MAMA: EL PAPEL DE LA INTIMIDAD CONYUGAL Y DE LA CALIDAD DE VIDA

Helena Moreira, Carla Crespo, Marco Pereira and Maria Cristina Canavarro

Faculdade de Psicologia e de Ciências da Educação, Universidade de Coimbra, Portugal

Abstract

Objective: this study aimed to analyze changes in woman's perceived marital quality and intimacy (communication and engagement dimensions) throughout the breast cancer trajectory. We also sought to explore differences between patients and controls on these variables, as well as to investigate the predictive role of initial intimacy and quality of life (QoL) on marital quality 6 months after the treatment's ending.

Methods: the sample comprises of 47 breast cancer patients and 90 community controls. Data from the patients' group were collected at two time points: following breast surgery (T1) and 6 months after treatments had ended (T2). The perceived marital quality before the disease was also retrospectively assessed. The following measures were used: WHOQOL-BREF (psychological and social QoL); PAIR (communication and engagement) and a single-item to assess perceived marital quality.

Results: There was an increase in perceived marital quality from the retrospective assessment to T1, and no differences were found throughout the disease. With respect to intimacy, only communication decreased over time. When compared with controls, patients presented higher scores on communication and engagement dimensions (T1). A higher marital quality at T2 was predicted by a higher initial psychological QoL and higher initial levels of communication.

Conclusions: the diagnosis of breast cancer does not appear to be associated with a decline in marital quality. Moreover, our findings highlighted

Resumen

Objetivo: este estudio buscó analizar los cambios en la calidad e intimidad conyugal percibida (comunicación y compromiso) de la mujer, a lo largo de su trayectoria de cáncer de mama. Buscamos también explorar las diferencias entre pacientes y controles en estas variables, e investigar el papel predictivo de la intimidad y calidad de vida (CdV) iniciales en la calidad conyugal seis meses después de finalizado el tratamiento.

Métodos: la muestra está formada por 47 pacientes con cáncer de mama 90 mujeres de la comunidad. Los datos del grupo de pacientes se recogieron en dos momentos: post-cirugía de mama (T1) y 6 meses tras la finalización del tratamiento (T2). La calidad conyugal percibida antes de la enfermedad fue también evaluada retrospectivamente. Fueron utilizados los instrumentos: WHOQOL-BREF (CdV psicológica y social); PAIR (comunicación y compromiso) y en un solo ítem para evaluar la calidad conyugal percibida.

Resultados: se observó un aumento de la calidad conyugal percibida en la evaluación retrospectiva respecto a T1, no habiendo sido encontradas diferencias a lo largo de la enfermedad. Respecto a la intimidad, tan solo la comunicación disminuyó a lo largo del tiempo. Al comparar con el grupo control, las pacientes presentaron puntuaciones superiores en las dimensiones de comunicación y compromiso (T1). Una superior calidad conyugal en T2 fue predicha por una mejor CdV psicológica inicial y por niveles iniciales más elevados de comunicación.

Correspondencia:

*Helena Cruz Moreira,
Instituto de Psicologia Cognitiva e Desenvolvimento Vocacional e Social (IPCDVS), Faculdade de Psicologia e Ciências da Educação, Universidade de Coimbra, Rua do Colégio Novo, Apartado 6153, 3001-802 Coimbra, Portugal.
E-mail: helena.tcmoreira@gmail.com*

the importance of sharing with a partner the cancer-related information, as well as the importance of maintaining a good psychological QoL at the beginning of the disease.

Key-words: Breast cancer, marital quality, marital intimacy, communication; engagement, quality of life.

Conclusiones: el diagnóstico de cáncer de mama parece no estar asociado a una disminución de la calidad conyugal. Además, nuestros resultados destacaran la importancia de compartir con la pareja la información relacionada con el cáncer, así como la importancia de mantener una buena CdV psicológica en el inicio de la enfermedad.

Palabras clave: Cáncer de mama, calidad conyugal, intimidad conyugal, comunicación, compromiso, calidad de vida.

Introduction

According to the family systems theory, a disease in one family member can influence the family as a whole^(1,2). In fact, the diagnosis of a life-threatening disease such as breast cancer can have a significant impact upon all family members, particularly, on the partner, affecting the couple's relationship⁽³⁻⁶⁾. In general, literature suggests that the impact of breast cancer can be best understood if it is viewed as a disease that affects the couple as a unit, rather than as separated individuals^(7,8).

For many women, the process of adapting to the disease develops within the context of a marital relationship^(7,9). The conceptualization of the couple as an interdependent system^(8,10-13), assumes that distress levels in one partner are likely to affect distress levels in the other^(5,8,10). Thus, within this framework, it becomes extremely important to understand how and to what extent the marital relationship is affected by the experience of the woman's cancer, and specifically, how the responses of both the patient and her partner affect each other's adjustment in the process of coping with the disease⁽⁷⁾. Although the marital relationship is indeed challenged after the diagnosis of cancer, most couples seem to adjust well and to have appropriate resources to deal with it^(6,14).

Several studies indicate that the majority of breast cancer patients do not report a decline in the quality of their marital relationship^(5,15) and that only a small proportion of patients experience relationship difficulties or even marital breakdown after the diagnosis of cancer^(14,16). In fact, research has shown that many couples, after the disease has been diagnosed, perceive an improvement in their relationship over several areas^(6,16-19), reporting positive changes and relationship growth after this experience^(15,20,21). In addition, the results of many studies suggest that marital satisfaction after the diagnosis of cancer does not differ significantly from the general population, and sometimes it even proves higher^(17,18,22,23). Some research indicates that, for many women, this experience represents an opportunity to strengthen the relationship and feel closer to their partner^(4,5,9). For example, Dorval et al.⁽⁶⁾ found that 42% of couples reported that breast cancer brought them closer together a year after the diagnosis. The same result pattern was found by Walsh et al.⁽¹⁹⁾, as 75% of woman who participated in their study reported that the marital relationship had become closer after the cancer experience.

Evidence suggests that a higher marital quality can facilitate a better psychosocial adjustment to the disease^(7,24,25). It is, therefore, particularly relevant to know

more about the factors that can promote higher marital quality or satisfaction after the highly stressful provoking experience of breast cancer. In their literature review regarding the impact of cancer on marital relationships, O'Mahoney and Carroll⁽⁷⁾, identified several predictors of better marital adjustment that included demographic variables (e.g. older couples, longer relationships), illness factors (e.g. a less severe and demanding disease) and relationship factors (e.g. better premorbid relationship functioning, more open communication between partners). One of the most important factors that account for individual differences in marital quality is the degree of marital intimacy⁽²⁶⁻²⁸⁾.

Intimacy is often considered a primary psychological need^(4,29) and a key characteristic of most marital relationships⁽³⁰⁾. This construct has been extensively investigated in psychology, and many definitions and conceptualizations have been proposed (e.g.^(28,31-37); for a review see⁽³⁵⁾). According to Laurenceau et al.⁽³⁸⁾, these conceptualizations differ in several dimensions, such as the level of analysis (e.g. individual or interactional level), temporal aspects (e.g. static vs., process) and principal components (e.g. disclosure, responsiveness, self-validation). Nevertheless, the majority of perspectives emphasize the role of reciprocal understanding, affection, self-validation, trust and commitment^(30,39), and almost all the role of self-disclosure^(4,38). For example, the interpersonal process model of intimacy of Reiss and Shaver^(36,40), which provides a comprehensive conceptualization of this construct, defines intimacy as an interpersonal and transactional process whereby an individual communicates personally relevant and revealing information, thoughts and feelings to another person and, as a result of the other person's responsiveness, feels validated, understood and cared for.

Based on the aforementioned model, Manne and Badr⁽⁴⁾ developed the relationship intimacy model of couple psychosocial adaptation to cancer, whereby intimacy is defined as "the experience of feeling close to and cared for by a partner with regard to the cancer experience" (p. 2548). This model underlines the role of self-disclosure, partner responsiveness and relationship engagement, stating that higher levels of intimacy lead to a better relationship and psychological adjustment. A few studies attested the important role of intimacy dimensions on cancer patients' adjustment^(41,42). For example, Moreira et al.⁽⁴³⁾ found that higher levels of engagement were associated with better psychological quality of life in a sample of breast cancer survivors.

One of the main components of intimacy –disclosure or communication– although not sufficiently investigated in the field of psycho-oncology, has been receiving increasing empirical attention in the last years (e.g.⁽⁴⁴⁻⁴⁶⁾). In this context, self-disclosure or communication encompasses the possibility of openly discussing thoughts and feelings related to cancer⁽⁴⁴⁾. This often applies to a marital relationship, given that for a cancer patient in a relationship, the most important confidant will often be their partner⁽⁴⁵⁻⁴⁷⁾. The degree to which patients communicate relevant cancer-related information not only has a significant impact on their psychosocial adjustment^(48,49) but also on the quality of their marital relationship. For example, Porter et al.⁽⁴⁴⁾ found that, for patients with gastrointestinal cancer and their spouses, lower levels of disclosure were associated with poorer relationship functioning, in terms of more avoidant and critical behavior and less intimacy. Similarly, Manne et al.⁽⁵⁰⁾ found that, for both partners, higher levels of constructive cancer-related communication was associated with lower psychological distress and higher relationship satisfaction.

Despite the important role of communication in cancer adjustment and marital quality, little is known about the course of a couple's communication over time. Manne et al.⁽⁵⁰⁾ analyzed its evolution in a sample of woman with breast cancer and found no differences over the course of the 9 months following initial breast cancer diagnosis. Contrarily, Porter et al.⁽⁴⁴⁾ observed, among gastrointestinal cancer patients, a negative association between disclosure and the length of time since diagnosis, which suggests that the probability of disclosing cancer-related concerns diminishes over time. A cross-sectional study of Moreira et al.⁽⁴³⁾, which compared newly-diagnosed breast cancer patients, breast cancer survivors and healthy controls, showed that newly-diagnosed women presented the highest levels of communication with their partners, which also suggests an increased need of communication at the initial phase of this disease. Further research is needed to clarify these results as it is likely that given the expected changes that occur along the trajectory of breast cancer, communication patterns may also change over time. At the initial phases of diagnosis and treatment, an increased need of cancer-related communication is to be expected but, as patients enter into the reentry phase⁽⁵¹⁾, they wish to reestablish their normal life patterns⁽⁵²⁾ and may feel the need to lower the levels of cancer-related disclosure.

In general, although a growing literature examining the impact of marital quality and intimacy dimensions on psychosocial adjustment among breast cancer patients has developed, less is known about the evolution of intimacy dimensions, and about the role of previous adjustment on marital quality after the disease. While the literature systematically suggests that higher levels of marital quality lead to better psychosocial adjustment (a better quality of life and lower levels of emotional distress),

the opposite can also be true, making associations between these variables bidirectional in nature. However, although it is also likely that better adjustment leads to higher levels of marital quality, to our knowledge this hypothesis has not yet been addressed in the literature. In addition, as Hinnen et al.⁽¹⁷⁾ pointed out, a limitation of the most previous investigation concerning marital quality after a cancer diagnosis is the absence of a control group which would allow a better understanding of the normal fluctuations in relationship satisfaction over time.

The Present Study

This study aimed to address the aforementioned gaps in the literature, among a sample of Portuguese woman with breast cancer. The research design is longitudinal, covering the period from the time of surgery (Time 1, T1) to 6-months after the end of treatment (Time 2, T2). The perceived marital quality before the disease was also retrospectively measured. The criterion used for selecting these time points was the phase of the disease (to more accurately evaluate the impact of idiosyncratic events of the initial and reentry phases) and not the regular time intervals that are usually chosen for longitudinal studies, regardless of the phase of the disease⁽⁵³⁾. Relationship dimensions included the women's marital intimacy (communication and engagement) and perception of marital quality. Following the terminology of Burman and Margolin⁽³⁾, the term *marital quality* was used as a synonym of *marital adjustment*, *marital satisfaction* or *marital happiness*, and describes the "spouses' subjective appraisal of their marital relationship" (p. 39). Our conceptualization of intimacy followed the interpersonal process model of intimacy^(36,40) and the relationship intimacy model of couple psychosocial adaptation to cancer⁽⁴⁾, and thus focused

on the self-disclosure/communication and the relationship engagement dimensions of intimacy.

The first goal of this study was to examine changes in a woman's perceived marital quality and intimacy throughout the disease's trajectory, from the initial phase to the reentry phase of the disease. We also sought to examine differences in these relationship variables, at both time points, between a sample of breast cancer patients and a control group of women from the general population.

We expected that marital quality would increase from the time prior to the disease (retrospective assessment) to T1 and would remain stable over the course of the disease (Hypothesis 1), as suggested in previous studies (e.g.^{6,19}). We also predicted that marital quality in the clinical sample, at Time points 1 and 2, would not significantly differ from the general population (Hypothesis 2) (e.g.^{17,23}). Additionally, we expected that most patients would report positive changes in their marital relationships after the cancer's trajectory (Hypothesis 3).

Based on past research^(43,44) we also predicted that a patient's communication levels would decrease over time (Hypothesis 4). In addition, we predicted that, at Time 1, breast cancer patients' communication would be higher than the general population and that, at time 2, we would find no differences between groups (Hypothesis 5). At the initial phase of breast cancer, due to higher levels of distress and the many challenges women are confronted with⁽⁵⁴⁾, it seems legitimate to expect an increased need of cancer-related communication with their partner. This would explain why the communication dimension can be higher for this group, compared to the general population. Nevertheless, as women enter the reentry phase (T2), a lower need of cancer-related communication could be expected, as patients gradually seek to

return to a "normal" level of functioning, without the focus on the cancer and its treatment⁽⁵²⁾. At this point we expect levels of communication to be similar to the general population. Concerning the engagement dimension of intimacy and given the scarce investigation about its evolution during the course of breast cancer, no specific hypothesis was formulated.

Our second goal was to investigate the links between intimacy and QoL, and marital quality over time. Specifically, we tested the hypothesis that, above and beyond baseline levels of perceived marital quality, higher initial levels of intimacy (communication and engagement) and a better social and psychological QoL, would predict higher levels of perceived marital quality at T2 (Hypothesis 6).

While some evidence exists concerning the predictive role of intimacy on marital quality (e.g.⁵⁰), less is known about the role of adjustment, and more specifically about the quality of life, in this variable. There exists some evidence for the predictive role of initial psychosocial adjustment on later marital quality, with studies showing that living with a depressed partner increases the likelihood of disturbed marital interactions (e.g.⁵⁵), marital distress, and lower levels of marital satisfaction (e.g.^{56,57}). Additional evidence for the hypothesized relationship also comes from studies reporting that patient's distress has a detrimental effect on the level of support provided by the partner. For example, Brady & Helgeson's study⁽⁵⁸⁾ suggested that psychosocial distress in breast cancer patients predicted a decrease in the emotional support from the partner over time. Also, Bolger et al.⁽⁵⁹⁾, found that spouses decreased support when facing women's increased psychological and emotional distress, i.e., the partners' support was "eroded" in response to patients' distress. Also, a study conducted by Fang et al.⁽⁶⁰⁾, with cancer patients and their spouses, found that

higher levels of a patient's psychological disturbance were related to a lower marital quality when assessed by the partner, at all time points. Based on these studies, we hypothesized that it is likely that being happier and more satisfied with one's life and social relationships (i.e., presenting a better social and psychological quality of life), contributes positively to the couple's relationship, which, can lead, in turn to an increase of perceived marital quality over time.

Method

Participants and Procedure

The participants were 47 women diagnosed with breast cancer (clinical group) and 90 healthy women, with no previous cancer history, from the general population (control group). The clinical group was collected in the Gynaecologic department of Coimbra University Hospitals (CUH), a main public hospital in the centre region of Portugal. Ethical approval for conducting this study was obtained from the CUH Research Ethics Committee. Criteria for inclusion in the study were that the patient was (1) aged 18 years or older; (2) was married or had been living in a committed relationship for at least a year; (3) was able to read and understand Portuguese; and (3) had been diagnosed with a primary diagnosis of breast cancer. Further, women were excluded if they have done neo-adjuvant treatment prior to surgery, developed metastasis or some local recurrence of breast cancer during the study time or had a current psychiatric disabling disorder.

Data from the clinical group were collected at two time points: following primary surgery but prior to adjuvant treatment, on average 1.32 months ($SD = 0.63$) after diagnosis, (T1), and 6 months after adjuvant treatments (chemotherapy,

radiotherapy or chemotherapy combined with radiotherapy) had ended (T2). For patients who did not receive any adjuvant treatment ($n = 9$), T2 was defined as 6 months after the primary breast surgery. Patients were invited to participate in the study during their hospitalization for primary breast surgery (mastectomy or breast-conserving surgery). Those who agreed to participate completed the questionnaires during the hospitalization period (T1). A detailed explanation of research objectives was given to all participants and informed consent was obtained. Participants were contacted again 6 months after completing their adjuvant treatments (T2). About two weeks prior a phone call was made to remind them of this last assessment. The questionnaires were then sent by mail with a postage-paid, pre-addressed envelope that had to be posted back to the researchers within the next 15 days. If after this period the patients had not yet returned the questionnaires, a phone call was made requesting their return.

A total of 87 breast cancer patients were initially contacted. Of these, 60 participated in both assessment points (participation rate of 68.97%) and 27 (31.03%) withdrew from the study. Among the major reasons for discontinuing the study, was the lack of time to complete the questionnaires and loss of interest, but most women provided no reason. No patient presented a disease recurrence and/or died within the study time. Of the 60 patients who completed the entire study, 13 were excluded: 10 because they were single, separated, divorced or widowed and 3 due to their incomplete questionnaire forms. The final sample comprises of 47 breast cancer patients.

The control group was selected from a random community sample matched for age and for their main demographic characteristics. Only married women with comparable age, education status,

urbanicity and length of marriage were included in the study. Women with a previous history of cancer were excluded. An envelope with the questionnaire package, the consent form, a letter informing about the study and a stamped self-addressed envelope for return of materials was given to the participants who returned them later by mail or personally to the researchers.

Measures

Perceived marital quality

Marital quality at T1 and T2 was measured with a single-item scale developed specifically for this study (*How do you rate the quality of your relationship?*). Patients were also asked, at T1, to provide retrospective ratings of the quality of their relationship prior to the breast cancer diagnosis (*How do you rate the quality of your relationship before the disease?*). We used a 10-point Likert scale ranging from 1 (*extremely bad*) to 10 (*extremely good*). The total score ranges from 1 to 10.

Marital Intimacy

Marital intimacy was measured with the *Personal Assessment of Intimacy in Relationships* – PAIR⁽²⁸⁾. This self-report questionnaire uses a 5-point Likert scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*) and measures the degree of intimacy in a dyadic relationship. The original version comprises 36 items, assessing five types of intimacy: emotional, social, recreational, sexual and intellectual.

The Portuguese version⁽⁶¹⁾ is comprised of 35 items and 3 factors: (1) *Engagement* (14 items) – assesses the sense of validation of feelings and personal opinions and the sense of acceptance and understanding in several areas; (2) *Communication* (10 items)

– assesses the possibility and capacity of disclosing opinions, feelings and desires in the context of the relationship; (3) *Shared friendships* (5 items) – assesses the openness of the marital dyad to others and the experience of having common friendships (this subscale was not analyzed in the present study). The scale's total score can range from 0 to 4. The psychometric properties of the Portuguese version proved to be adequate, with Cronbach's alphas ranging from .71 (shared friendships subscale) to .88 (engagement subscale). In this sample Cronbach's alpha were .89 and .87 for engagement and communication dimensions, respectively (control group) and .86 and .93 for the same dimensions in the clinical group.

Psychological and Social Quality of Life

To measure an individual's subjective perception of psychological and social QoL, we used the psychological and social subscales of the World Health Organization Quality of Life-bref (WHOQOL-BREF)⁽⁶²⁾. This instrument was validated for the Portuguese population according to the guidelines of the Whoqol-Group and presented good reliability and validity⁽⁶³⁾. The psychological subscale comprises 6 items assessing, for example, positive feelings (*How much do you enjoy life?*), self-esteem (*How satisfied are you with yourself?*) or spirituality/religion/personal beliefs (*To what extent do you feel your life to be meaningful?*). The social subscale encompasses 3 items assessing, for example, the satisfaction with personal relationships (*How satisfied are you with your personal relationships?*) or with social support (*How satisfied are you with the support you get from your friends?*). Each subscale uses a 5-point scale, with higher scores indicating better QoL. In this sample Cronbach's alpha were .66 and .77 for social and psychological domains,

respectively (control group) and .62 and .73 for the same domains in the clinical group.

Sociodemographic and Clinical Variables

Clinical participants completed self-report questionnaires at each time point to assess relevant sociodemographic and medical information, including current age, education, marital status, length of marriage, type of cancer, surgery and adjuvant treatment, occurrence of metastasis or local recurrence, among others. Patients' medical information was obtained by reviewing the medical chart of each participant. The questionnaire used at T2 also asked women to indicate the occurrence of any relationship change during the course of the disease (*Do you think that any change has occurred in your marital relationship as a result of the disease?*) and to rate them as positive or negative. The self-report questionnaire for control group assessed the same sociodemographic information.

Results

Sample's Characteristics

Differences between participants and non-participants were analyzed by chi-square tests (to compare the categorical variables of level of education, urbanicity, surgery, treatment and axillary node dissection), univariate analysis of variance (ANOVA; to compare the age, length of marriage and initial perceived marital quality) and multivariate analysis of variance (MANOVA; to compare the initial intimacy and QoL domains). There were no significant differences between patients that completed the T2 assessment ($n = 60$) and those that dropped out of the study ($n = 27$) on sociodemographic or disease characteristics, initial perceived

marital quality, intimacy, and QoL. The only exception was the level of education, $\chi^2(1, N = 87) = 11.88, p = .001$, as those who had participated in the entire study had achieved a higher educational status (58.3% had completed high school or more) than women that discontinued the study (18.5% had completed high school or more). Additionally, no differences were found between married women that provided complete questionnaire forms ($n = 47$) and those who did not have a partner ($n = 10$), except for age, $F(1, 55) = 6.74, p = .012$, as married patients were younger ($M = 50.96$ years; $SD = 7.84$) than the others ($M = 58.0$ years; $SD = 8.06$).

Descriptive statistics were computed for all sociodemographic and clinical variables (see Table 1). The mean time from T1 to T2 was 10.53 months ($SD = 3.04$; range = 6-15). Although the time criterion was specified at 6-months after the conclusion of treatment, the length of time of adjuvant treatment varied somewhat according to each case, depending on the length of treatments.

Comparisons between breast cancer patients and healthy controls showed that there were no differences in age, $F(1, 135) = 0.02, p = .89$, length of marriage, $F(1, 117) = 0.07, p = .79$, education, $\chi^2(1, N = 137) = 3.18, p = .10$, and urbanicity, $\chi^2(1, N = 132) = 0.19, p = .71$.

Perceived Marital Quality and Intimacy: Patterns of Change over Time

Table 2 presents mean scores and standard deviations on women's perceived marital quality and intimacy at Times 1 and 2.

With respect to perceived marital quality, the repeated-measures ANOVA, with the Greenhouse-Geisser correction, revealed significant differences between the different time points (retrospective assessment, T1 and T2), $F(1.54, 66.33) = 5.06, p = .015$,

Table 1. **Participant's Sociodemographic and Clinical Characteristics.**

	Participants N = 47	Controls N = 90
	n (%)	n (%)
<i>Age</i>		
Mean (SD); range (years)	50.96 (7.84); 30-67	51.14 (7.22); 30-69
<i>Length of marriage</i>		
Mean (SD); range (years)	26.29 (12.03); 1-46	26.81 (8.53); 4-47
<i>Education</i>		
Lower than high school	16 (34.0)	45 (50.0)
High school or higher	31 (66.0)	45 (50.0)
<i>Urbanicity</i>		
Urban	20 (43.5)	34 (39.5)
Rural	26 (56.5)	52 (60.5)
<i>Type of cancer</i>		
Invasive ductal carcinoma	35 (74.5)	
Ductal carcinoma <i>in situ</i>	6 (12.8)	
Invasive lobular carcinoma	3 (6.4)	
Other	3 (6.4)	
<i>Surgery</i>		
Conservative	26 (55.3)	
Mastectomy	21 (44.7)	
<i>Treatment status from T1 until T2</i>		
No adjuvant treatment	9 (19.1)	
Chemotherapy only	5 (10.6)	
Radiotherapy only	13 (27.7)	
Chemotherapy and radiotherapy	20 (42.6)	
<i>Treatment status at T2</i>		
No treatment	17 (36.2)	
Hormone therapy	30 (63.8)	
<i>Axillary node dissection</i>		
Yes	14 (29.8)	
No	33 (70.2)	
<i>Time since surgery until 6-months follow-up</i>		
Mean (SD); range	10.53 (3.04); 6-15	

Table 2. **Descriptive Statistics of Marital Intimacy and Marital Quality for Controls and Breast Cancer Patients at Both Time Points.**

	Controls N = 90		Breast Cancer Patients N = 47			
			T1		T2	
	M	SD	M	SD	M	SD
<i>Marital Quality</i>	7.83	1.85	8.54 _a	1.84	7.95 _a	2.11
<i>Marital Intimacy</i>						
Engagement	2.57	0.71	2.87 _a	0.62	2.80 _a	0.84
Communication	2.61	0.69	3.00 _a	0.76	2.77 _b	0.79

Note. Means sharing a common subscript are not statistically different at $\alpha = .05$, according to the repeated-measures ANOVAs.
T1 = baseline assessment; T2 = follow-up assessment

$\eta_p^2 = .11$. Bonferroni pairwise comparison tests tested differences between time points and indicated that at T1, women had more positive perceptions of their current marital quality ($M = 8.54$, $SD = 1.84$), compared to their retrospective assessment of marital quality prior to the disease ($M = 8.02$, $SD = 2.02$). No significant differences were found between assessments at T1 and T2 ($M = 7.95$, $SD = 2.11$) (see Table 2). Post-hoc power analyses (G*Power; 64) showed that we were able to detect medium to large effects ($f = .19$, $p < .05$, power = .80, $N = 47$).

To investigate whether scores of intimacy changed over time, a repeated-measures MANOVA was performed, using Pillai's criterion⁽⁶⁵⁾. This test yielded a significant multivariate effect, Pillai's Trace = .12, $F(2, 45) = 3.06$, $p = .05$, $\eta_p^2 = .12$, and thus we proceeded to the univariate analyses. To control for alpha inflation, we performed a Bonferroni adjustment to our alpha level and evaluated the F tests against the corrected alpha (.025). The univariate F tests showed that only communication significantly decreased over time, $F(1,46) = 5.72$, $p = .021$, $\eta_p^2 = .11$. Differences between T1 and T2 were not significant

for engagement, $F(1,46) = 0.48$, $p = .494$, $\eta_p^2 = .01$. Post-hoc power analyses showed that we were able to detect medium to large effects ($f = .30$, $p < .05$, power = .80, $N = 47$).

Positive and Negative Changes in Marital Relationship after Breast Cancer

At T2 women were asked to identify any change in their marital relationship. Twenty six women (57.8%) mentioned no change, and 19 (42.2%) identified at least one change in their relationship. Of these, 61.1% revealed that those changes were negative and 38.9% rated them as positive. The negative changes were mainly related with deterioration in their sexual functioning and the positive ones with more help around the house, a higher understanding, better care and a closer relationship with their partner.

Do Intimacy and Perceived Marital Quality in Breast Cancer Patients differ from Controls?

The MANOVA comparing breast cancer patients and matched controls

at T1 on marital intimacy revealed a significant multivariate effect, Pillai's Trace = .07, $F(2, 134) = 4.85, p = .009, \eta_p^2 = .07$. The subsequent univariate analyses, with an alpha level set at .025 (Bonferroni adjustment), showed that patients presented higher scores on engagement, $F(1,135) = 6.21, p = .014, \eta_p^2 = .04$, and on communication, $F(1,135) = 6.20, p = .003, \eta_p^2 = .06$, than controls. At T2 the multivariate effect was not significant, Pillai's Trace = .02, $F(2, 134) = 1.50, p = .23, \eta_p^2 = .02$. Post-hoc power analyses showed that we were able to detect medium to large effects in each MANOVA ($f^2 = .08, p < .05, power = .80, N = 137$).

Regarding perceived marital quality, different ANOVAs were performed at each time point. Differences between groups were not significant when considering the retrospective assessment of perceived marital quality, $F(1,125) = 0.22, p = .64$, were marginally significant at T1, $F(1,122) = 2.97, p = .08$, and did not reach statistical significance at T2, $F(1,127) = 0.08, p = .78$. At T1, breast cancer patients tended to report a higher marital quality than healthy woman ($M = 7.83, SD = 1.85$) (see Table

2). Post-hoc power analyses showed that we were able to detect medium to large effects in each ANOVA ($f = .25, p < .05, power = .80, N = 137$).

Predictors of Perceived Marital Quality Change Over Time

Before conducting regression analyses to investigate Hypothesis 6, bivariate associations between study variables were analyzed (see Table 3). Additionally, Pearson's and point-biserial correlations between sociodemographic and clinical variables (age, education, length of marriage, urbanicity, surgery, adjuvant treatment, axillary node dissection, time since surgery until T2) and marital quality at T2 were analyzed to identify possible covariates, but no significant correlations were found.

To investigate whether initial intimacy dimensions as well as social and psychological QoL were associated with changes in perceived marital quality over time, we conducted a hierarchical regression analysis with perceived marital satisfaction at T2 as the dependent variable

Table 3. Correlations Between the Study Variables at T1 and Marital Quality at T2.

Measure	1	2	3	4	5
<i>Marital Quality</i>					
1. Marital quality T1	---				
2. Marital quality T2	.65*	---			
<i>Marital Intimacy</i>					
3. Engagement T1	.41**	.34**	---		
4. Communication T1	.72**	.61**	.61**	---	
<i>Quality of Life</i>					
5. Psychological QoL T1	.48**	.56**	.40**	.36*	---
6. Social QoL T1	.28†	.34*	.29†	.43**	.32*

Note. T1 = baseline assessment; T2 = follow-up assessment; † $p < .10, *p < .05, **p < .01$

and perceived marital quality at T1, intimacy and QoL domains as predictors. The regression model was built in three steps. In the first step the baseline level of marital quality was introduced; in the second step the initial intimacy dimensions were entered and then, in the final step, the initial QoL domains were introduced into the model.

The regression model was significant, $F(5, 38) = 4.63, p < .001$, accounting for 56% of variance (adjusted $R^2 = .50$) (see Table 4). The baseline level of marital quality explained the greater amount of variance (42%). The individual beta weights revealed that initial communication levels ($\beta = .41, p < .05$) and initial psychological QoL ($\beta = .36, p < .01$) were significantly and positively related to perceived marital quality at the reentry phase (T2).

Table 4. Hierarchical Multiple Regression Analysis Predicting Perceived Marital Quality at T2 From Marital Intimacy and Psychosocial Adjustment at T1.

Predictors T1	Perceived Marital Quality T2	
	ΔR^2	Final β
<i>Step 1</i>	.42***	
Baseline score		.26
<i>Step 2</i>	.05	
Engagement		-.21
Communication		.41*
<i>Step 3</i>	.09*	
Psychological QoL		.36**
Social QoL		.04
Total R^2	.56***	
Adjusted R^2	.50***	
$F(df)$	$F(5, 38) = 4.63***$	

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

DISCUSSION

In the present study we analyzed the course of marital intimacy and perceived marital quality over time, simultaneously examining, at each time point, differences between patients and controls in these variables. We also tested the predictive role of initial intimacy and psychological and social quality of life on later marital quality. Overall, our initial hypotheses were confirmed.

The Course of Perceived Marital Quality over Time

In regard to changes in women's perceived marital quality, we found, as expected, an increase from the retrospective assessment to the initial phase of breast cancer, and no differences during the course of the disease. Previous studies found similar results, showing that the diagnosis of cancer does not appear to be associated with a decline in marital quality over time nor with higher rates of marital breakdown^(6,14,16). In fact, many couples report that the experience of breast cancer and its adverse treatments strengthened their relationship and increased their feelings of closeness and intimacy^(6,7,9,19).

Moreover, our hypothesis regarding the comparison between cancer patients and healthy controls in the perceived marital quality was also corroborated. No differences were found between groups, although a marginally significant difference was reported at T1. This trend for a higher marital quality among cancer patients at this phase of breast cancer is in line with our longitudinal findings. In general, these results are consistent with results from studies that used a control group from the general population and found no significant differences between patients and controls regarding marital satisfaction^(17,18,23), which supports the perspective that breast cancer is not associated with a higher likelihood

of marital distress and decline in marital quality.

Although the diagnosis of a life-threatening disease, such as breast cancer, may result in increased levels of distress for both the patient and their partner, research has evidenced that many couples also describe positive consequences to their relationship after the experience of cancer⁽¹⁵⁾. This result can be understood if taken into account the theory of *posttraumatic growth*⁽⁶⁶⁾, a phenomenon that refers to the "individual's experience of significant positive change arising from the struggle with a major life crisis"⁽⁶⁷⁾ (p. 521). One important area of growth is the improvement observed in close relationships and a deeper sense of closeness to family and friends^(20,21,68), which is consistent with our findings of an improved marital quality shortly after the diagnosis of breast cancer. Although some authors consider that growth can only happen sometime after the diagnosis of cancer⁽²⁰⁾, Manne et al.⁽²¹⁾ showed that positive changes can, in fact, occur shortly after the diagnosis. We can thus speculate that the initial improvement of marital quality, as shown by the present study, can be a consequence of growth. Nevertheless, we should note that this possible relationship growth may only have occurred at the beginning of the disease, since no improvements were observed subsequently and the majority of patients (57.8%), contrarily to the expected, reported no changes in their marital relationship after breast cancer. The investigation of the association between marital quality and posttraumatic growth was beyond the scope of this study, but future studies on this topic should be developed, allowing a more comprehensive understanding of these questions.

The Course of Marital Intimacy over Time

Concerning our fourth hypothesis, we found that while engagement dimension

did not change over time, communication levels, as expected, had decreased six months after the end of treatments. This latter finding suggests that at the initial phase of breast cancer there is an increased need of disclosing concerns, feelings, fears and thoughts related to the challenging experience that patients are beginning to face. This is also supported by the result showing higher levels of patients' communication in comparison with controls, as predicted. At this initial phase, it is likely that women are highly distressed due to the recent diagnosis, hospitalization for breast surgery, and the many fears and concerns related to the cancer prognosis and future treatments, among many other factors^(54,69-72). Therefore, disclosing relevant cancer-related information with their partner is expected and it is likely to be adaptive and even beneficial for the relationship^(48,73). Although not explored in the present study, research has suggested that sharing thoughts, feelings and concerns with one's partner can provide an opportunity for validating and finding meaning in the disease experience⁽⁷⁴⁾. Moreover, according to social-cognitive theories of trauma^(e.g. 75), this disclosure can facilitate the cognitive and emotional processing, helping the patient to integrate the experience of cancer.

At the reentry phase, we observed a significant decrease in communication levels, which is consistent with Porter et al.'s⁽⁴⁴⁾ results, (a study conducted with gastrointestinal cancer patients), but contrary to the findings of Manne et al.⁽⁵⁰⁾, which found no differences in this variable over the course of breast cancer. In addition, as we predicted, no differences in communication levels were observed between the clinical group and the control group. These findings suggest that, at this phase, women may feel a decreased need of sharing cancer-related information, as they attempt to reestablish their normal

life patterns and attain a pre-disease level of functioning.

However, these results should be carefully analyzed and interpreted, because it is also possible that this reduction results from a perceived lower opportunity for disclosing self-relevant information. Several authors^(e.g. 51,52,76,77) have suggested that the loss of support from family, friends and the partner is common at this transitional phase, mainly because of their unrealistic expectations about the women's recovery after the completion of treatment. In particular, the partner may expect that, at this phase, the patient is able to move quickly beyond cancer and return to the pre-disease level of functioning, failing to recognize that the patient may continue to struggle with cancer-related effects and still need support⁽⁷⁷⁾. In fact, although most breast cancer patients present a positive global adjustment at this phase^(53,70,77), they are likely to be confronted with several specific adaptive tasks⁽⁵¹⁾ and with many challenges that are often unanticipated, such as dealing with the enduring side effects of adjuvant treatments, increased fear of cancer recurrence or withdrawal of and changes in social support^(76,77). These data suggest that although women may need to share their fears, feelings and worries related to these particular challenges and difficulties, they may often find this support unavailable, which could also explain the decrease in communication levels observed in the present study.

Another reason for the observed decline in communication levels could be an intentional avoidance of cancer-related conversations in order to protect the partner from worries and fears after a long and difficult trajectory throughout the disease, particularly if the patient perceives that the partner holds high expectations about their physical and psychosocial recovery. This behavior can be viewed as a relationship-focused coping strategy, which

is referred to as "protective buffering" and was described by Coyne and Smith⁽⁷⁸⁾ as a means of "hiding concerns, denying worries, and yielding to the partner to avoid disagreements" (p. 405). We could only speculate about its usage and further studies should clarify the use of this strategy at this phase and its role in communication decrease over time.

Predictors of Perceived Marital Quality

With regard to the second goal of the present study, we partially confirmed the predictive role of intimacy dimensions and quality of life on marital quality. We found that higher initial levels of communication and a better psychological quality of life were significant predictors of a better marital quality 6 months after the completion of treatments. These findings suggest that communication is an intimacy dimension of particular importance for the couple's relationship quality, more so than, for instance, engagement dimension, which didn't yield a significant link with marital quality over time. This finding is in line with past research showing that the disclosure of worries and feelings concerning the disease may be beneficial for the relationship^(50, 73). This can allow the development or the maintenance of relationship intimacy, as it provides an opportunity for the partner to be responsive^(36,38,40) and to provide the support that is likely to be needed⁽⁷³⁾. A relationship where communication is strong can, therefore, conduct to a higher level of perceived marital quality, as was observed. Increasingly attention has been given to the positive effects of communication in the field of psycho-oncology, and it has been proved to be an essential factor for a better relationship and a more positive adjustment^(e.g. 45).

In addition, we also confirmed our hypothesis that a better QoL would lead to an increase of perceived marital quality

over time. However, only the psychological domain, and not the social domain of QoL, proved to be predictive of later marital quality. This result suggests that aspects related to psychological functioning of the patient are more relevant to the couple's relationship than aspects linked to their broader social context.

In fact, it is reasonable to expect that having more positive feelings, a higher self-esteem or a higher perception of life as meaningful, will contribute to the woman's overall well-being and psychological adjustment, which, in turn, is likely to contribute to a better marital relationship and, therefore, to a higher perception of marital quality. As Fang et al.⁽⁶⁰⁾ pointed out, a distressed patient may be more self-centered and less available to fulfill the partner's needs of emotional support and intimacy, which in turn, leads to a decrease in marital quality in the partner's perspective. However, this study focused on the partner's view point and sought to explore the role of patient distress on the spouses' perception of marital quality and the impact of this variable on their level of distress. To our knowledge, no study to date has explored the impact of the subjective perception of the quality of life on marital quality among breast cancer patients. Traditionally, this relation has been analyzed in the opposite direction, but there are reasonable arguments and some empirical findings^(e.g.55,56) besides our study that point out the importance of examining the influence of adjustment in marital relationship.

Lastly, it is important to underline that the best predictor of marital quality at the reentry phase was the baseline level of this variable, explaining 42% of variance. As such, a higher marital quality at the initial phase of breast cancer predicts a higher marital quality later on. This result is consistent with previous studies^(e.g. 16) showing that a poorer marital adjustment

at the beginning of the disease tends to predict further marital difficulties later on.

In addition, it should be noticed that the proportion of variance explained by intimacy and QoL was modest and, as such, it is important not to forget that results obtained account only for a small part of the marital quality phenomena. Besides the initial level of marital quality, other factors that were not assessed in this study could have a determinant role in this process (e.g. the partner's support).

Limitations and Strengths

Several caveats should be discussed. Firstly, the small sample size may have limited our ability to detect significant differences and relationships between variables. Post-hoc power calculations⁽⁶⁴⁾ showed that we were only able to detect medium to large effects in our analyses. Although typical for psychological studies, this means that smaller effects may have been ignored. Furthermore, it is possible that non-significant differences may prove to be significant in a larger sample. Additional studies, with larger samples are warranted to test these relationships and confirm our findings. Secondly, considering the interdependence that characterizes the couple's system and the recognized importance of viewing the cancer in the context of the couple and, therefore, the need to consider the couple as a unit, the absence of the partners' perspective in this study limited our understanding of the impact of breast cancer on marital adjustment and of the across-partner effects that are likely to exist over time. Thirdly, although the retrospective assessment of marital quality provided important information, a more reliable baseline would have been provided if this variable had been assessed before the cancer diagnosis. Fourthly, the internal consistency of the social domain of QoL (probably because it is comprised

of only three items) was below the values considered adequate, determining some caution in the interpretation of the results obtained with this subscale.

Despite its limitations, this study addressed some important gaps in the literature by examining, among a sample of women with breast cancer, the pattern of changes of intimacy dimensions over time, exploring the role of initial quality of life on perceived marital quality, and by including a control group of healthy women. Moreover, the focus on the reentry phase is also a strength of this study, since knowledge about this transitional period is still insufficient^(53,76,77). Our results provide additional insights into the research on marital adjustment in the context of breast cancer, suggesting that initial adjustment, in terms of psychological quality of life, can impact on later marital quality, a relation that has been analyzed in literature in the opposite direction. In addition to its novel aspects, this study supports prior work by highlighting the importance of communication on marital quality and showing the absence of a decline in marital quality over the course of breast cancer.

Conclusions and Clinical Implications

Our findings evidenced the importance of women with breast cancer sharing worries, fears, thoughts and feelings with their (perceived responsive) partners. Because cancer-related communication affects marital quality, it seems particularly relevant to implement strategies aimed at encouraging open communication between the patient and partner and the free expression of feelings and thoughts. Our results also contributed to strengthen the evidence^(6,14) that the marital relationship is not necessarily negatively affected by this disease. This can be a valuable piece of information for couples, particularly at the initial phase of diagnosis and surgery,

when they begin to deal with the multiple challenges this disease confronts them with. As such, this knowledge can be used to minimize the frequently anticipated perceptions of negative effects of cancer on the marital relationship; newly diagnosed patients and their partners can be reassured that most couples cope well and develop appropriate resources to deal with this disease. It is also extremely important that clinicians and other professionals tailor their interventions to promote patients' good psychological quality of life, particularly at the onset of cancer, as our results show that patients' psychological quality of life can be linked to better quality in the marital relationship over time. This positive outcome, at the reentry phase -where other challenges are likely to emerge - can be a source of strength for patients, and their families. Finally, this study suggests that it may be important for clinicians or other health professionals to assess the initial quality of the patient's marital relationship, as it appears to be one of the most important predictors of later marital quality. Patients who report initial marital difficulties could be referred to specialists, such as couple's therapists, who could help the patient, and preferably the couple, to overcome their initial difficulties. Overall, our findings provide promising directions that might serve as a basis for conducting research studies or couple-based interventions for breast cancer couples.

REFERENCES

1. Rolland J. Families, illness, and disability: An integrative treatment model. New York: Basic, 1994.
2. Broderick C. Understanding family processes: Basics of family systems therapy. Newbury Park, CA: Sage, 1993.
3. Burman B, Margolin G. Analysis of the association between marital relationships and health problems: An interactional

- perspective. *Psychol Bull* 1992; 112(1): 39-63.
4. Manne S, Badr H. Intimacy and relationship processes in couples' psychosocial adaptation to cancer. *Cancer* 2008; 112(11 suppl): 2541-55.
 5. Manne S. Cancer in the marital context: A review of the literature. *Cancer Invest* 1998; 16(3): 188-202.
 6. Dorval M, Guay S, Mondor M, Mâsse B, Falardeau M, Robidoux A, et al. Couples who get closer after breast cancer: Frequency and predictors in a prospective investigation. *J Clin Oncol* 2005; 23(15): 3588-96.
 7. O'Mahoney J, Carroll R. The impact of breast cancer and its treatment on marital functioning. *J Clin Psychol Med S* 1997; 4(4): 397-414.
 8. Hagedoorn M, Sanderman R, Coyne J, Bolks H, Tuinstra J. Distress in couples coping with cancer: A meta-analysis and critical review of role and gender effects. *Psychol Bull* 2008; 134(1): 1-30.
 9. Carter R, Carter C. Individual and marital adjustment in spouse pairs subsequent to mastectomy. *Am J Fam Ther* 1993; 21: 291-300.
 10. Dorros S, Card N, Segrin C, Badger T. Interdependence in women with breast cancer and their partners: An interindividual model of distress. *J Cons Clin Psychol* 2010; 78(1): 121-5.
 11. Northouse L, Dorris G, Charron-Moore C. Factors affecting couples' adjustment to recurrent breast cancer. *Soc Sci Med* 1995; 41(1): 69-76.
 12. Kayser K, Scott J. Helping couples cope with women's cancers: An evidence-based approach for practitioners. New York: Springer; 2008.
 13. Kayser K, Watson L, Andrade J. Cancer as a "We-Disease": Examining the process of coping from a relational perspective. *Fam Syst Health* 2007; 25(4): 404-18.
 14. Taylor-Brown J, Kilpatrick M, Maunsell E, Dorval M. Partner abandonment of women with breast cancer: Myth or reality? *Cancer Pract* 2000; 8(4): 160-4.
 15. Thornton AA. Perceiving benefits in the cancer experience. *J Clin Psychol Med S* 2002; 9(2): 153-65.
 16. Dorval M, Maunsell E, Taylor-Brown J, Kilpatrick M. Marital stability after breast cancer. *J Natl Cancer I* 1999; 91: 54-9.
 17. Hinnen C, Hagedoorn M, Ranchor A, Sanderman R. Relationship satisfaction in women: A longitudinal case-control study about the role of breast cancer, personal assertiveness, and partners' relationship-focused coping. *Brit J Health Psychol* 2008; 13: 737-54.
 18. Lichtman R, Taylor S, Wood J. Social support and marital adjustment after breast cancer. *J Psychosoc Oncol* 1987; 5(3): 47-74.
 19. Walsh S, Manuel J, Avis N. The impact of breast cancer on younger women's relationships with their partner and children. *Fam Syst Health* 2005; 23(1): 80-93.
 20. Cordova M, Cunningham L, Carlson C, Andrykowski M. Posttraumatic growth following breast cancer: A controlled comparison study. *Health Psychol* 2001; 20: 176-85.
 21. Manne S, Ostroff J, Winkel G, Goldstein L, Fox K, Grana G. Posttraumatic growth after breast cancer: Patient, partner, and couple perspectives. *Psychosom Med* 2004; 66: 442-54.
 22. Fuller S, Swensen C. Marital quality and quality of life among cancer patients and their spouses. *J Psychosoc Oncol* 1992; 10: 41-56.
 23. Hannum J, Giese-Davis J, Harding J, Hatfield E. Effects of individual and marital variables on coping with cancer. *J Psychosoc Oncol* 1991; 9(2): 1-20.
 24. Giese-Davis J, Hermanson K, Koopman C, Weibel D, Spiegel D. Quality of couples' relationship and adjustment to metastatic breast cancer. *J Fam Psychol* 2000; 14: 251-66.

25. Weighs K, Enright T, Howe G, Siemens S. Marital satisfaction and emotional adjustment after breast cancer. *J Psychosoc Oncol* 1999; 17(1): 33-49.
26. Greeff A, Malherbe H. Intimacy and marital satisfaction in spouses. *J Sex Marital Ther* 2001; 27: 247-57.
27. Dandeneau M, Johnson, S. Facilitating intimacy: Interventions and effects. *J Marital Fam Ther* 1994; 20(1): 17-33.
28. Schaefer M, Olson L. Assessing Intimacy: The PAIR Inventory. *J Marital Fam Ther* 1981; 7(1): 47-60.
29. Manne S, Ostroff J, Rini C, Fox K, Goldstein L, Grana G. The interpersonal process model of intimacy: The role of self-disclosure, partner disclosure, and partner responsiveness in interactions between breast cancer patients and their partners. *J Fam Psychol* 2004; 18(4): 589-99.
30. Van den Broucke S, Vandereycken W, Vertommen H. Marital intimacy: Conceptualization and assessment. *Clin Psychol Rev* 1995; 15(3): 217-33.
31. Argyle M, Dean J. Eye-contact, distance and affiliation. *Sociometry* 1965; 28: 289-304.
32. Chelune GJ, Rosenfeld LB, Waring EM. Spouse disclosure patterns in distressed and nondistressed couples. *Am J Fam Ther* 1985; 13: 24-32.
33. Fisher M, Stricker G. *Intimacy*. New York: Plenum; 1982.
34. Laurenceau J-P, Barrett L, Rovine M. The interpersonal process model of intimacy in marriage: A daily-diary and multilevel modeling approach. *J Fam Psychol* 2005; 19(2): 314-23.
35. Prager KJ, *The Psychology of Intimacy*. New York: The Guilford Press; 1995.
36. Reis HT, Shaver P. Intimacy as an interpersonal process. In: Duck S, editor. *Handbook of personal relationships*. Wiley: Chichester; 1988. p. 367-89.
37. Waring EM. Facilitating marital intimacy through self-disclosure. *The Am J Fam Ther* 1981; 9: 33-42.
38. Laurenceau J-P, Barrett L, Pietromonaco P. Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. In: Reis HT, Rusbult CE, editors. *Close relationships*. New York: Taylor & Francis Books, Inc.; 2004. p. 199-211.
39. Hook M, Gerstein L, Detterich L, Gridley B. How close are we? Measuring intimacy and examining gender differences. *J Couns Dev* 2003; 81(4): 462-72.
40. Reis HT, Patrick B. Attachment and intimacy: Component processes. In: Higgins T, Kruglanski A, editors. *Social Psychology: Handbook of basic principles*. New York: The Guilford Press; 1996. p. 523-63.
41. Manne S, Badr H, Zaider T, Nelson C, Kissane D. Cancer-related communication, relationship intimacy, and psychological distress among couples coping with localized prostate cancer. *J Cancer Surviv* 2010; 4(1): 74-85.
42. Manne S, Badr H. Intimacy processes and psychological distress among couples coping with head and neck or lung cancers. *Psychooncology*, 2009. (advance online publication; doi: 10.1002/pon.1645).
43. Moreira H, Silva S, Canavaro MC. O papel da intimidade conjugal na qualidade de vida da mulher com cancro da mama. (The role of marital intimacy in the quality of life of women with breast cancer). *Psicologia, Saúde & Doenças* 2009; 10(1): 127-47.
44. Porter L, Keefe F, Hurwitz H, Faber M. Disclosure between patients with gastrointestinal cancer and their spouses. *Psychooncology* 2005; 14: 1030-42.
45. Figueiredo M, Fries E, Ingram K. The role of disclosure patterns and unsupportive social interactions in the well-being of breast cancer patients. *Psychooncology* 2004; 13(2): 96-105.
46. Pistrang N, Barker C. Disclosure of concerns in breast cancer. *Psychooncology* 1992; 1: 183-92.

47. Harrison J, Maguire G, Pitceathly C. Confiding in crisis: Gender differences in pattern of confiding among cancer patients. *Soc Sci Med* 1995; 41: 1255-60.
48. Pistrang N, Barker C. The partner relationship in psychological response to breast cancer. *Soc Sci Med* 1995; 40(6): 789-97.
49. Cordova M, Cunningham L, Carlson C, Andrykowski M. Social constraints, cognitive processing, and adjustment to breast cancer. *J Consult Clin Psychol* 2001; 69: 706-11.
50. Manne S, Ostroff J, Norton T, Fox K, Goldstein L, Grana G. Cancer-related relationship communication in couples coping with early stage breast cancer. *Psychooncology* 2006; 15: 234-47.
51. Stanton A, Ganz P, Rowland J, Meyerowitz B, Krupnick J, Sears A. Promoting adjustment after treatment for cancer. *Cancer* 2005; 104(11 Suppl): 2608-13.
52. Veach T, Nicholas D, Barton M. *Cancer and the family life cycle: A practitioner's guide*. New York: Brunner-Routledge, 2002.
53. Deshields T, Tibbs T, Fan MY, Bayer L, Taylor M, Fisher E. Ending treatment: The course of emotional adjustment and quality of life among breast cancer survivors immediately following radiation therapy. *Support Care Cancer* 2005; 13: 1018-26.
54. Moyer A, Salovey S. Psychosocial sequelae of breast cancer and its treatment. *Ann Behav Med* 1996; 18(2): 110-25.
55. Johnson S, Jacobs T. Marital interactions of depressed men and women. *J Consult Clin Psych* 1997; 65(1): 15-23.
56. Coyne J, Thompson R, Palmer S. Marital quality, coping with conflict, marital complaints, and affection in couples with a depressed wife. *J Fam Psychol* 2002; 16(1): 26-37.
57. Levkovitz Y, Lamy D, Ternochiano P, Treves I, Fennig, S. Perception of dyadic relationship and emotional states in patients with affective disorder. *J Affect Disorders* 2003; 75: 19-28.
58. Brady S, Helgeson V. Social support and adjustment to recurrence of breast cancer. *J Psychosoc Oncol* 1991; 17(2): 37-55.
59. Bolger N, Foster M, Vinokur A, Ng R. Close relationships and adjustment to a life crisis: The case of breast cancer. *J Pers Soc Psychol* 1996; 70(2): 283-94.
60. Fang C, Manne S, Pape S. Functional impairment, marital quality, and patient psychological distress as predictors of psychological distress among cancer patients' spouses. *Health Psychol* 2001; 20(6): 452-7.
61. Moreira H, Amaral A, Canavarro MC. Adaptação do Personal Assessment of Intimacy in Relationships Scale (PAIR) para a população Portuguesa: Estudo das suas características psicométricas. (Adaptation of the Personal Assessment of Intimacy in Relationships Scale (PAIR) for the Portuguese population: Study of its psychometric properties). *Psychologica* 2009; 50: 353-73.
62. Whoqol-Group. The World Health Organization Quality of Life Assessment (WHOQOL): Development and general psychometric properties. *Soc Sci Med* 1998; 46(12): 1569-85.
63. Vaz Serra A, Canavarro MC, Simões M, Pereira M, Gameiro S, Quartilho M, et al. Estudos psicométricos do instrumento de Avaliação da Qualidade de Vida da Organização Mundial de Saúde (WHOQOL-bref) para Português de Portugal. (Psychometric studies of the World Health Organization Quality of Life Assessment (WHOQOL-Bref) for Portuguese from Portugal) *Psiquiatria Clínica* 2006; 27(1): 41-9.
64. Faul F, Erdfelder E, Lang AG, Buchner A. G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav Resh Methods* 2007; 39: 175-91.
65. Tabachnick B, Fidell L. *Using multivariate statistics*. Boston: Allyn and Bacon; 2007.

66. Tedeschi R, Calhoun L. Trauma and transformation: Growing in the aftermath of suffering. Thousand Oaks, CA.: Sage Publications; 1995.
67. Calhoun L, Cann A, Tedeschi R, McMillan J. A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *J Trauma Stress* 2000; 13(3): 521-7.
68. Ford J, Tennen H, Albert D. A contrarian view of growth following adversity In: Joseph S, Linley P, Editors. Trauma, recovery and growth: Positive psychological perspectives on posttraumatic stress. New Jersey: John Wiley & Sons, Inc.; 2008. p. 297-324.
69. Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: Five year observational cohort study. *BMJ* 2005; 330: 702-5.
70. Moreira H, Canavarro MC. Um estudo longitudinal sobre a qualidade de vida e perturbação emocional durante o percurso do cancro da mama. (A longitudinal study about the quality of life and emotional distress during the course of breast cancer). *Saúde Mental* 2010; XI(6).
71. Schou I, Ekeberg O, Sandvik L, Hjermsstad M, Ruland C. Multiple predictors of health-related quality of life in early stage breast cancer. Data from a year follow-up study compared with the general population. *Qual Life Res* 2005; 14: 1813-23.
72. Schwarz R, Krauss O, Hockel M, Meyer A, Zenger M. The course of anxiety and depression in patients with breast cancer and gynecological cancer. *Breast Care* 2008; 3: 417-22.
73. Manne S, Norton T, Ostroff J, Winkel G, Fox K, Grana G. Protective buffering and psychological distress among couples coping with breast cancer: The moderating role of relationship satisfaction. *J Fam Psychol* 2007; 21(3): 380-8.
74. Lepore SJ, Silver, RC, Wortmen, CB, Wayment, HA. Social constraints, intrusive thoughts, and depressive symptoms among bereaved mothers. *J Pers Soc Psychol* 1996; 70: 271-82.
75. Janoff-Bulman R. Shattered assumptions: Towards a new psychology of trauma. New York: Free Press; 1992.
76. Ganz P, Kwan L, Stanton A, Krupnick J, Rowland J, Meyerowitz B, et al. Quality of life at the end of primary treatment of breast cancer: first results from the moving beyond cancer randomized trial. *J Natl Cancer Inst* 2004; 96(5): 376-87.
77. Constanzo ES, Lutgendorf SK, Mattes ML, Trehan S, Robinson CB, Tewfik F, et al. Adjusting to life after treatment: Distress and quality of life following treatment for breast cancer. *Brit J Cancer* 2007; 97: 1625-31.
78. Coyne J, Smith D. Couples coping with a myocardial infarction. *J Pers Soc Psychol* 1991; 61: 404-12.