



Emotional distress and subjective impact of the disease in young women with breast cancer and their spouses

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Abstract

Aim. Evaluate the influence of emotional distress of young women with breast cancer and their spouses on their daily subjective experience of the disease, through application of the Actor-Partner Interdependence Model.

Patients & Methods. 112 women aged under 45 years when diagnosed with non-metastatic breast cancer and their spouses answered self-reported measures of anxiety, depression and subjective experience of the disease and its treatment.

Results. The patient's emotional distress influenced more the subjective experience of her spouse than the spouse's emotional distress influenced the patient. The spouse's difficulties depended as much on his own distress level as on the patient's distress level.

Conclusion. These data confirm the importance of implementing couple-focused interventions.

Keywords. Breast cancer, young women, couples, anxiety, depression, subjective experience, interdependence

INTRODUCTION

With an estimated 1.7 million cases worldwide and 54 062 new cases in France in 2015, breast cancer is the most common cancer in women. It is estimated that one woman in eight will be affected by this cancer during her lifetime [1, 2]. Although novel treatments have significantly improved the survival rate of patients, more than one third of patients experience significant levels of distress [3, 4]. Most of them also exhibit a poorer quality of life, as emotional distress and quality of life are closely associated and evolve over the care pathway and types of treatment (e.g., type of surgery, receipt of adjuvant chemotherapy) [5-7]. Among the women with breast cancer, women diagnosed with non-metastatic breast cancer at a young age (< 45 years at diagnosis) have to face problems specific to or accentuated by their young age: a desire for pregnancy sometimes inconsistent with the received treatment, causing fertility related concerns, family roles, difficulties in educating child(ren) who are often very young, marital relationship, changes in body image and its impact on sexuality, or concerns about professional life [8-11]. These stressors contribute to a greater distress and a poorer quality of life, particularly in emotional and social areas, in young women facing breast cancer than in women diagnosed at older ages [12-15]. Concerning their medical treatment, the majority of women under the age of 45 years receive loco-regional treatment (surgery and radiotherapy) and general treatment with chemotherapy, hormone therapy in patients with hormone-sensitive tumor (tamoxifen and / or LH-RH), and immunotherapy with trastuzumab (also called herceptin) for patients with a tumor overexpressing HER2 protein.

Often the main caregiver, the spouse is also greatly impacted by the disease and its treatment in his/her daily life. Their distress levels are also very close to, if not higher than, those of the patients [16, 17]. Affected by the occurrence of the disease and the effects on their daily life, spouses of women with cancer may feel helpless, not knowing how to support

their partner [18]. Yet, the spouse's distress and the adjustment strategies he uses to deal with it in turn influence the way the patient adjusts to her disease [19-22]. In recent years, a growing number of studies have highlighted the mutual influential processes between the cancer patient and their spouse in the way each is affected by the disease and deals with its multiple consequences [23-29]. In the context of breast cancer, it has been shown that the patient's distress interacts with her partner's distress [30, 31], and that the emotional distress of one impacts the quality of life of the other [17]. Dorros et al. [32] also demonstrated an interaction effect between stress and depression levels within the dyad: patients' strong depressive affects, associated with a high level of stress whether for herself or her partner, have a deleterious effect on the partner's physical health. Other authors showed that the degree of similarity in the psychological distress in patients and partners influences their respective quality of life [17]. Although it is now well-established that patients and their spouses influence each other in their subjective experience of the disease and in the way they deal with it, to our knowledge no study has focused on the interdependence within the couple regarding the experience of the daily impact of the disease and treatment in young women and their partners.

The present study aims to assess the links between emotional distress (symptoms of anxiety and depression) and the repercussions of the disease and its treatment experienced in daily life in young women diagnosed with non-metastatic breast cancer and their spouses, taking into account the mutual influence within the couple and testing whether dissimilarity in emotional distress affects their respective subjective experience of the disease and treatment.

PATIENTS AND METHODS

Participants and procedure

The study was conducted from January 2010 to June 2012 in 27 French centers for cancer treatment. It was proposed to non-metastatic women with breast cancer who had received or were receiving chemotherapy and were aged 18-45 years at the time of their initial diagnosis and to their spouses. The age criterion of 45 or younger was taken from the literature as it applies to young women with breast cancer [33].

Only patients and spouses living as a couple for at least six months at the time of the study, not suffering from psychiatric disorders and fluently French speaking were included in the study. The study was conducted in accordance with regulatory and ethical approvals (*Committee of Protection of Persons; Consultative Committee for Data Processing in Research in the Field of Health; National Committee of Data Processing for Data Protection*).

The objectives and procedure of the study were explained to the patients during an outpatient appointment. They were told that they and their spouses would each have to answer a questionnaire individually. Conditions of anonymity and confidentiality were guaranteed: the patient's identity did not appear on the study documents (only an anonymous inclusion code made it possible to link the various forms), and the access of the data was restricted to the investigators of the project. Once the woman had signed the consent form, she was given two files (one for herself and one for her partner) containing the questionnaire to complete and a socio-demographic data form, as well as an information letter and a consent form for her spouse. It was the patient's responsibility to suggest that her spouse participate in the study, and no partner could participate without the explicit agreement of the patient. Participants completed the documents at home and then returned the information letter and the consent form to the medical center and the questionnaire to the research unit using the pre-stamped

envelopes provided for this purpose. At the same time, the patient's medical data were collected by each investigator in the participating centers.

Questionnaires

Anxiety inventory. The participants were asked to complete the STAI-Y state form [State-Trait Anxiety Inventory [34], French validation by Bruchon-Schweitzer and Paulhan [35], a 20-item questionnaire about how they felt “just now, just at the moment” using 4 response alternatives (*no / rather not / rather yes / yes*). The participants' anxiety level corresponds to the sum of their responses, with possible scores ranging from 20 to 80. A score higher than 65 indicates a very high level of anxiety, a score ranging from 56 to 65 a high level of anxiety, from 46 to 55 a medium level of anxiety, from 36 to 45 a low level of anxiety, and a score under 35 a very low level of anxiety. Cronbach's alphas in our sample were satisfactory (α patients = 0.95, α partners = 0.96).

Depression inventory. Patients and spouses were asked to answer the CESD (Center for Epidemiologic Studies Depression Scale [36], French validation by Fuhrer & Rouillon [37]), consisting of 20 items about the frequency (*never, rarely / occasionally / quite often / often, all the time*) at which they had experienced symptoms or behaviors associated with depression during the past week. The total score ranges from 0 to 60. The higher the score is, the more severe the depressive symptoms are. A score above 17 for men and 23 for women indicates the presence of significant depressive symptoms. The internal consistency of the scale in our sample was good (α patients = 0.82, α spouses = 0.84).

Subjective experience of the disease and its treatment. Patients were asked to complete the YW-BCI36 (Young Women with Breast Cancer Inventory [38] and partners its corresponding version (Partner YW-BCI36 [39])). This questionnaire was specifically developed and

validated to identify the problems of young women and their partners and addresses the daily impact of the disease and its treatment. The YW-BCI36 and the Partner YW-BCI36 each contains 36 items and highlights 8 factors: 1) *feeling of couple cohesion*, 2) *negative affectivity and apprehension about the future*, 3) *management of child(ren) and of everyday life*, 4) *sharing with close relatives*, 5) *body image and sexuality*, 6) *financial difficulties*, 7) *deterioration of relationships with close relatives*, and 8) *career management*. For each assertion, the participants were instructed to indicate to what extent it corresponded to what they were currently experiencing, from 1 (*strongly disagree*) to 5 (*strongly agree*). An average score is calculated for each dimension: the higher the score is, the more the patient/partner has difficulties in the evaluated dimension. The internal consistency of the different dimensions was satisfactory in patients (Cronbach's alphas ranging from 0.73 to 0.86) and spouses (alphas from 0.71 to 0.88), except for *body image* and *career management* for which internal consistency was a bit low for spouses ($\alpha = 0.68$).

Statistical analyses

The levels of emotional distress and the difficulties in the different dimensions of the subjective experience of the disease and treatment were first compared between patients and spouses using *paired t-tests*. The interdependence between the two members of the dyad on the different variables was also assessed using correlations (*Pearson two-tailed zero order correlations*).

The main question of this study (i.e., investigating the mutual influence within the couple in terms of the impact of anxiety symptoms and depression symptoms on the subjective experience of the disease and treatment) was tested using the *Actor-Partner Interdependence Model* (APIM [40]). This model differentiates two types of effect within a dyad: an *actor effect* (i.e., the extent to which a person's score on a predictor variable affects his/her own

score on an outcome variable; e.g., how does the patient's symptoms of anxiety affect her difficulties in managing her child(ren) and everyday life?), and a *partner effect* (i.e., the extent to which a person's score on a predictor variable affects the score of *the other member* of the dyad on an outcome variable, e.g., how does the patient's symptoms of anxiety affect her partner's difficulties in managing his child(ren) and everyday life?). These analyses were conducted using Structural Equation Modeling (SEM) with AMOSTM version 21 (IBM, NY, USA) software.

According to Kenny et al [40], the purpose of using SEM to test the APIM is to estimate two regression equations with correlated error terms and it is not problematic that the base model is saturated and that no measures of fit can be obtained. Therefore, in this study, the objective is not a model-fit analysis and only parameter estimates are reported. The beta-coefficients from the SEM analyses estimate actor and partner effects: a statistically significant coefficient represents a significant actor or partner effect. Using the APIM, we examined whether the actor effects were equal to the partner effects, comparing the *chi-square goodness-of-fit* value of the model in which the parameters were forced to be equal to the *chi-square goodness-of-fit* value of the original model without constraints. A significant difference indicates that the two effects are not equal [40, 41].

The degree to which the patient and her spouse differed in their levels of anxiety and depression was approached by creating "dissimilarity" variables for anxiety level (spouse STAI score – patient STAI score, in absolute value) and depressive **mood** (spouse CESD score – patient CESD patient score, in absolute value). These variables were entered as predictors in the different models tested. Analyses were carried out separately for anxiety and depression **symptoms** (predictor variables) and for each of the eight dimensions of the (Partner)YW-BCI36 (outcome variables). The disease duration at the time of the study and

the patient's current age were controlled in these analyses (Figure 1). To facilitate their reading, the results were reported as figures when two actor effects and at least one partner effect appeared significant.

Insert Figure 1 here

RESULTS

Participants

The sample consisted of 112 heterosexual couples living as a couple for 12.70 years on average ($SD = 8.52$, length of the relationship ranging from 1 year to 35), and having at least one child for most of them (86.61%). At the time of the study, 35.71% of the patients were being in the follow-up period (after the end of all treatments) 32.14% were undergoing hormone therapy, 22.32% chemotherapy and 9.82% Trastuzumab (Herceptin). The socio-demographic and medical characteristics of the sample are shown in Table 1.

Descriptive analyses

The majority of patients and spouses showed very low to medium levels of anxiety (77.67% of patients, 79.46% of spouses), but a significant proportion of the sample (22.31% of patients, 20.53% of spouses) reported high to very high anxiety levels, as detailed in Table 1. Similarly, nearly 28% of patients and 47% of spouses had significant depressive symptoms.

Insert Table 1 here

Patients were more anxious, had more depressive mood, and overall reported more difficulties in their subjective experience of the disease and treatment than spouses (Table 2). On the other hand, the latter reported more difficulties than patients in *sharing with close relatives*.

Patients and spouses exhibited similar difficulties regarding the *management of child(ren) and of everyday life*, the *feeling of couple cohesion*, and the *deterioration of relationships with close relatives*. Except for the *sharing with close relatives*, *negative affectivity* and *apprehension about the future* and *career management* dimensions, all variables were positively correlated between patients and spouses.

Insert Table 2 here

Anxiety level and subjective experience of the disease and its treatment within the couple

The SEM results showed both actor and partner effects (Table 3). Specifically, except for the *sharing with close relatives* and *career management* dimensions, actor effects were found for both patients and partners on every dimension of the subjective experience of the disease and its treatment, always in the sense that the more the patient/spouse felt anxious, the more (s)he experienced difficulties in everyday life (Table 3). Both actor effects could be considered equal, except for the *feeling of couple cohesion* dimension, for which the actor effect in the patient was stronger than that in the spouse ($n = 112$, $ddl = 1$, Chi^2 difference = 3.96, $p < .05$).

Regarding the partner effects, the patient's **symptoms of** anxiety was related to fewer difficulties in *sharing with close relatives* and to more *deterioration of relationships with close relatives* in her spouse (Figure 2). The spouse's anxiety **symptoms** and the patient's anxiety **symptoms** impacted the spouse's *deterioration of relationships with close relatives* to the same extent (Chi^2 difference = 0.87, $p > .05$). However, the impact of the patient's anxiety **symptoms** on her own difficulties in *sharing with close relatives* (actor effect) appeared stronger than its effect on her spouse's difficulties (partner effect, Chi^2 difference = 15.11, $p < .001$). A partner effect of the spouse on the patient was also revealed: the more anxious the

man was, the more the woman had difficulties in her *career management*, the actor effect being equal to the partner effect ($n = 90$ dyads, Chi^2 difference = 2.37, $p > .05$), (Table 3).

Insert Table 3 and Figure 2 here

The impact of dissimilarity in anxiety levels on subjective experience revealed no significance.

Depression levels and subjective experience of the disease and treatment within the couple

As expected, actor effects were demonstrated both for the patient and her spouse in every (Partner)YW-BCI36 dimension, except for the *sharing with close relatives* dimension, for which the spouse's depressive symptoms did not influence his difficulties (Table 3). Both actor effects could be considered equal on most dimensions of subjective experience of the disease and treatment, with the exception of the *feeling of couple cohesion* (Chi^2 difference = 5.72, $p < .05$), and *deterioration of relationships with close relatives* (Chi^2 difference = 7.96, $p < .01$), for which the actor effect was stronger for patients than spouses.

Interdependence within the couple appeared through the impact of the patient's depressive **mood** on her spouse's subjective experience (partner effects): the more depressed the patient felt, the more her spouse had difficulties regarding *feeling of couple cohesion*, *finances*, and *relationships with close relatives* (Table 2, Figure 3). For all these dimensions, the influence of the spouse's depression on his own difficulties was comparable to the effect exerted by the patient's depressive **mood** (difficulties in *feeling of couple cohesion*: Chi^2 difference = 0.04, $p > .05$; *deterioration of relationships with close relatives*: Chi^2 difference = 0.99, $p > .05$; *financial difficulties*: Chi^2 difference = 0.25, $p > .05$).

Insert Figure 3 here

As shown in Figure 3, dissimilarity in depression levels had a significant impact on *deterioration of relationships with close relatives* in the spouse (the more (dis) similarity, the less the spouse had difficulties in this dimension) and on the *sharing with close relatives* in the patient (the more (dis) similarity, the more the patient reported difficulties in this dimension).

DISCUSSION

This study aimed to identify the links between emotional distress and the everyday impact of disease and treatment in young women with breast cancer and their partners, while assessing mutual influence within the couple. While some studies already investigated the mutual influence between patients and their supportive partners whoever they are (spouses, members of the family, friends [32], it seemed crucial to focus on the marital relationship due to the fact the spouse is often the main caregiver - in a dyadic design.

First, our result provide new insights into the difficulties of young couples facing disease. Young couples facing breast cancer have to deal with concerns either specific or accentuated by their age. For example, some young women may feel less confident in their marital relationships if their relationship is recent due to their young age, and they may still be completing their education or developing their professional career when diagnosed [11]. As a consequence, these life domains may be challenging to manage efficiently while managing the disease (its emotional impact, the medical appointments, the side effects of the treatments). In line with data from the literature, our results showed that young women with breast cancer have high difficulties in body image and sexuality, career management,

finances, and management of child(ren) and of everyday life. Besides these difficulties in life domains highly invested by young women, the other types of difficulties assessed by the YW-BCI, like negative emotions about the future or interpersonal difficulties (difficulties in talking about the disease with close relatives, deterioration of the relationships) may be less specific to young patients and might also appear high in older women with breast cancer, because whatever the age, disease remains a demanding experience.

In agreement with previous findings [3, 4, 42], a significant proportion of patients and partners in our sample also reported significant levels of distress, whether regarding anxiety or depression symptoms. This confirms the vulnerability of this population who is confronted with specific age-related problems. In this study we focused on young couple facing breast cancer, but it is likely that young couples facing other type of cancer would also be vulnerable. The fact that patients and spouses exhibited similar difficulties regarding the *management of child(ren) and of everyday life* highlights this specific concern faced by young couples and the importance of addressing this difficulty during the care pathway. Furthermore, the spouses reported as many difficulties as the patients concerning the *management of child(ren) and of everyday life* (i.e., managing the child(ren)'s education, housework), the *feeling of couple cohesion* (i.e., feeling supported, confiding in one's partner) and the *deterioration of relationships with close relatives* (i.e., feeling neglected by some close relatives, thinking that the disease created tensions and had a negative impact on relatives). Spouses even reported more difficulties than patients in *sharing with relatives*. These results not only confirm that the disease has a significant impact on caregivers [42-44], but also suggest that, like the patients [45-48], spouses may have to face *social constraints* from their relatives. Thinking, rightly or wrongly, that he cannot confide his difficulties in coping with the disease and find support is likely to strengthen further the spouse's distress [49, 50].

Our data especially show that in couples facing cancer, the way each person perceives the daily repercussions of the disease not only depends on his/her own anxiety and depressive symptoms (actor effect) but also on the other person's symptoms (partner effect). While remaining in line with the literature on the mutual influence within the couple [28], our results are innovative to the extent that they relate to young couples and fully identify their specific problems, using two tools specifically created and validated for this purpose [38, 39]. They also show that - with the exception of the partner's anxiety impacting the *career management* difficulties of the patient (perhaps because of an overprotective attitude that hinders their return to work [51] - it is always the patient's emotional state that influences the daily difficulties of her spouse. Thus, the more anxious the patient is, the less her partner has difficulty in *sharing with his relatives* (even though his own anxiety has no impact on this type of concern), but the more his *relationships with relatives* deteriorate. While this may seem counterintuitive at first glance, this result could be related to the emotional charge of the situation, well-known to affect the need to confide in relatives, among others to seek support [52, 53]. Spouses of highly anxious patients could feel the need to talk to their relatives but may not receive effective support or helpful reactions, because of *social constraints* or confinement in their caregiver role, which means they are not expected to seek support for themselves. We found a consistent pattern of results regarding depressive **mood**: the more the patient reports being depressed, the more her spouse sees his *relationships with relatives* deteriorate, as does his *feeling of couple cohesion*. Interestingly, it also appears that, for most of the evaluated dimensions, the spouse's subjective experience is affected as much by his own emotional distress as by the patient's distress. Although the association between emotional distress and quality of life was already well-established in patients [5, 6], highlighting the impact of emotional distress on different dimensions of the subjective experience of young women with breast cancer and their partners supports the need to assess

systematically the patient's distress throughout the care pathway [54-57], and to screen the caregiver's distress when possible, which is not yet routine [42, 57].

This need to assess jointly the emotional distress of both members of the couple also appears through the evidence that a "lag" between the patient and her spouse's levels of depression increases the patient's difficulties in *talking about the disease* with her relatives while *limiting the deterioration of relations with close relatives* in the spouse. Our data show a different effect of emotional distress on the subjective experience, depending on whether anxiety or depression is considered. In fact, only dissimilarity in depression within couples predicts difficulties, and in a different manner for patients and their spouses. This pattern of results is consistent with the study of Kim et al [17], demonstrating a negative effect of the discrepancy in emotional distress on the mental quality of life of the spouses of patients with prostate cancer. Investigating the specific age-related problems in young couples facing disease and examining the couple's "profile" in terms of dissimilarity between the patient's and the spouse's level of distress could help identify the most vulnerable couples in order to offer them tailored supportive care based on their particular difficulties. One possible way to decrease the difficulties of the patients and the partners would be to implement couple-focused interventions focusing on dyadic coping. Especially, in line with the approach developed by Bodenman [58] or Kayser and Scott [59] it would be worth to focus on dyadic coping and communication within these couples facing disease. Interventions would help the patient and her spouse to adopt a « *we-ness* » approach of the disease and develop mutual coping strategies. Promoting the way to face cancer as a « *we-disease* », helping the patient and the partner to see the disease as a shared problem that can be faced by joint efforts would promote a better couple adjustment and satisfaction [58-60]. Also, even if we did not assess attachment style in our study, due to the fact at adult age the partner is often the main attachment figure, Emotionally Focused Therapy could also be implemented: this type of

therapy would aim to create a secure attachment bond within the couple, helping the patient and her spouse to face disease as well as other life challenges in a more efficient way. This type of therapy has already been assessed with success in chronic disease [61, 62].

To our knowledge, this study is the first to investigate the interdependence in the daily impact of the disease and treatment in young women with breast cancer and their partners. Several limitations should be noted, however, which future studies will alleviate. First, although same-sex couples could be included in the study, only heterosexual couples participated (whether the patients felt, wrongly, it was not appropriate to participate or the investigators did not approach them is not known). It would therefore be interesting to fill this gap by increasing the participation of lesbian couples in future studies, as support and mutual influence processes are potentially different in diseases that may also affect the partner [63, 64]. In addition, although the influence the patient exerts on her partner seems to be stronger than the spouse's influence on the patient, we cannot determine here with certainty whether this effect is related only to the patient/caregiver "roles" or to gender effects [17, 26, 65].

Investigating heterosexual young couples in which the patient is male could also help clarify the interaction between gender roles and the patient/caregiver role. Most importantly, our data were cross-sectional and future studies will benefit from adopting a longitudinal design. For sample size reasons we could not evaluate the impact of the time since diagnosis and type of treatments in the present study. As emotional distress and quality of life evolve over the treatment and care pathway, and even during the survivorship period [7, 66-69], it appears crucial to replicate this study in a longitudinal design investigating the effect of the two factors and the way they can modulate emotional wellbeing and partners and actor effects.

Moreover, as emotional distress and quality of life can be affected by marital satisfaction as well as by the quality of communication and perceived support in the couple [20, 47, 70-73], it seems essential to consider these variables in future studies. It would also be interesting to

investigate further by what processes emotional distress impacts the experience of the disease and treatment, including taking into account emotional regulation/coping strategies implemented by each member of the couple and how they interact, whether individual (e.g., situation appraisal, dedramatization) or dyadic coping strategies (*facing cancer as a “we” disease* [27, 74-76]). Knowing how the emotional state and quality of life of young patients with breast cancer and their spouses influence each other and evolve over time will help to identify the most difficult moments in the care pathway and then implement the necessary and appropriate interventions.

Conclusions

To our knowledge, this study is the first to investigate the interdependence in the daily impact of the disease and treatment in young women with breast cancer and their partners, and the data provide clinical applications to explore. First, all these results suggest that *couple-focused interventions*, taking into account the relationship and the way the spouse is affected by the patient’s experience, are particularly appropriate in this population. Considering the couple as a unit rather than the patient or the partner alone may enable the determinants of the daily impact of the disease and treatment to be better targeted, and thus more tailored interventions to be set up in the future [21, 22, 28, 29, 77, 78]. Alleviating the patient’s distress would, in turn, reduce the spouse’s distress and consequently improve their quality of life. Interventions focused on communication, dyadic coping strategies, or empathy seem particularly relevant [79], as were implemented by Fergus et al [80] as part of an online intervention with young couples facing breast cancer.

SUMMARY POINTS

- Young women with non-metastatic breast cancer have to face specific age-related difficulties in their daily life (e.g., parenthood, professional career).
- Their spousal caregivers are also confronted with such difficulties and show high emotional distress.
- Our data show that the patient's emotional distress not only impact the way she faces the daily impact of the disease and its treatments, but also the daily impact of the disease and its treatments in her partner.
- The spouse's distress also influences the daily difficulties encountered by the patient, demonstrating mutual influence within the couple.
- These results highlight the need to take into account the patients and the spouses distress and respective difficulties due to the disease and its treatment in daily life. Couple-based interventions could promote a better dyadic adjustment to the disease in young couple facing breast cancer.

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The authors declare no conflict of interest.

accepted for publication

Ethical conduct of research

The study was conducted in accordance with French ethics approvals (Comité de Protection des Personnes) and current French regulations (CCTIRS, CNIL). Consent form was obtained from each participant (patients and spouses) and anonymity and confidentiality were guaranteed for every patient and spouse.

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TABLES AND FIGURES

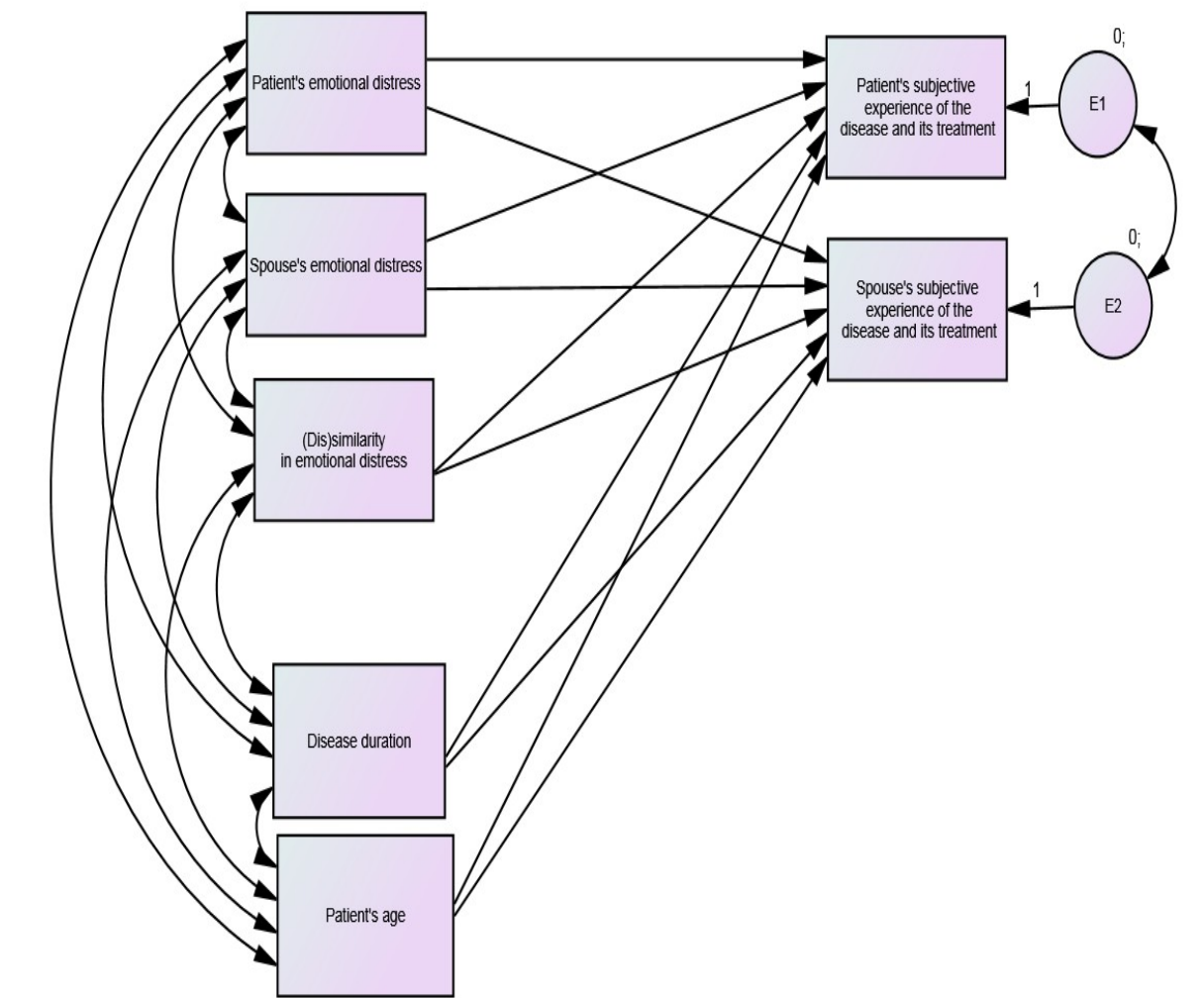


Figure 1. The Actor-Partner Interdependence tested in our study

Table 1. Characteristics of the respondents

	Patients	Spouses
Age (<i>M, SD, range</i>)	40.46 (6.41) [26-56]	42.66 (7.59) [26-62]
Length of the relationship (<i>in years: M, SD, range</i>)		12.70 (8.52) [1-35]
Marital status (<i>n, %</i>)		
Married	82 (73.21%)	
Living as a couple	30 (26.78%)	
Presence of child(ren) (<i>n, %</i>)		97 couples (86.61%)
Education (<i>n, %</i>)		
No certificate	5 (4.46%)	4 (3.60%)
Secondary education diploma – below	25 (22.32%)	34 (30.63%)
Baccalaureate or equivalent diploma	22 (19.64%)	20 (18.02%)
Undergraduate degree	32 (28.57%)	23 (20.72%)
Post graduate degree	28 (25%)	30 (27.03%)
Occupation (<i>n, %</i>)		
Farmers	0	2 (1.79%)
Craftspeople, shopkeepers, company managers	5 (4.50%)	9 (8.04%)
Executives and intellectual professions	16 (14.41%)	27 (24.11%)
Intermediate professions	19 (17.12%)	24 (21.43%)
Employees	59 (53.15%)	26 (23.21%)
Workers	5 (4.50%)	21 (18.75%)
Retired	0	1 (0.89%)

	Unemployed	7 (6.31%)	2 (1.79%)
Years since diagnosis (<i>M, SD, range</i>)		2.96 (2.96) [0.11-11.97]	-
First cancer (no recurrence) (<i>n, %</i>)		107 (95.53%)	-
Age at diagnosis (<i>M, SD</i>)		37.95 (5.28)	-
Medical status at the time of the study (<i>n, %</i>)			
<i>Chemotherapy with or without Trastuzumab</i>		25 (22.32%)	-
<i>Trastuzumab with or without hormone therapy</i>		11 (9.82%)	-
<i>Hormone therapy only</i>		36 (32.14%)	-
<i>Follow-up</i>		40 (35.71%)	-
Anxiety level (<i>n, %</i>)			
<i>Very high</i>		9 (8.03%)	7 (6.25%)
<i>High</i>		16 (14.28%)	16 (14.28%)
<i>Medium</i>		37 (33.03%)	27 (24.11%)
<i>Low</i>		26 (23.21%)	25 (22.32%)
<i>Very low</i>		24 (21.43%)	37 (33.03%)
Depression (<i>n, %</i>)		31 (27.68%)	52 (46.43%)
Psychotherapy at the time of the study		10 (8.93%)	2 (1.79%)
Anxiolytic/antidepressant treatment at the time of the study		21 (18.75%)	10 (8.93%)

Table 2. Descriptive statistics (*paired t-test and Pearson correlations*)

	Patients		Spouses		<i>t</i>	<i>r</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Anxiety (STAI score)	45.65	13.59	42.09	13.70	2.34*	0.30**
Depression (CESD score)	18.49	8.09	16.73	8.16	2.02*	0.36***
Difficulties in the subjective experience of the disease and its treatment ((Partner)YW-BCI36 scores)						
<i>Management of child(ren) and of everyday life</i>	2.19	0.93	2.13	0.88	0.66	0.38***
<i>Feeling of couple cohesion</i>	1.85	0.76	1.78	0.63	0.92	0.34***
<i>Deterioration of relationships with close relatives</i>	2.21	0.82	2.24	0.78	-0.40	0.37***
<i>Sharing with close relatives</i>	2.08	0.86	2.55	0.83	-4.39***	0.09
<i>Negative affectivity and apprehension about the future</i>	3.46	0.97	3.01	0.90	3.72***	0.08
<i>Body image and sexuality</i>	3.12	1.07	2.10	0.84	9.93***	0.37***
<i>Financial difficulties</i>	2.75	1.06	2.48	1.006	3.06**	0.57***
<i>Career management</i>	2.73	1.07	2.28	0.89	3.38**	0.15

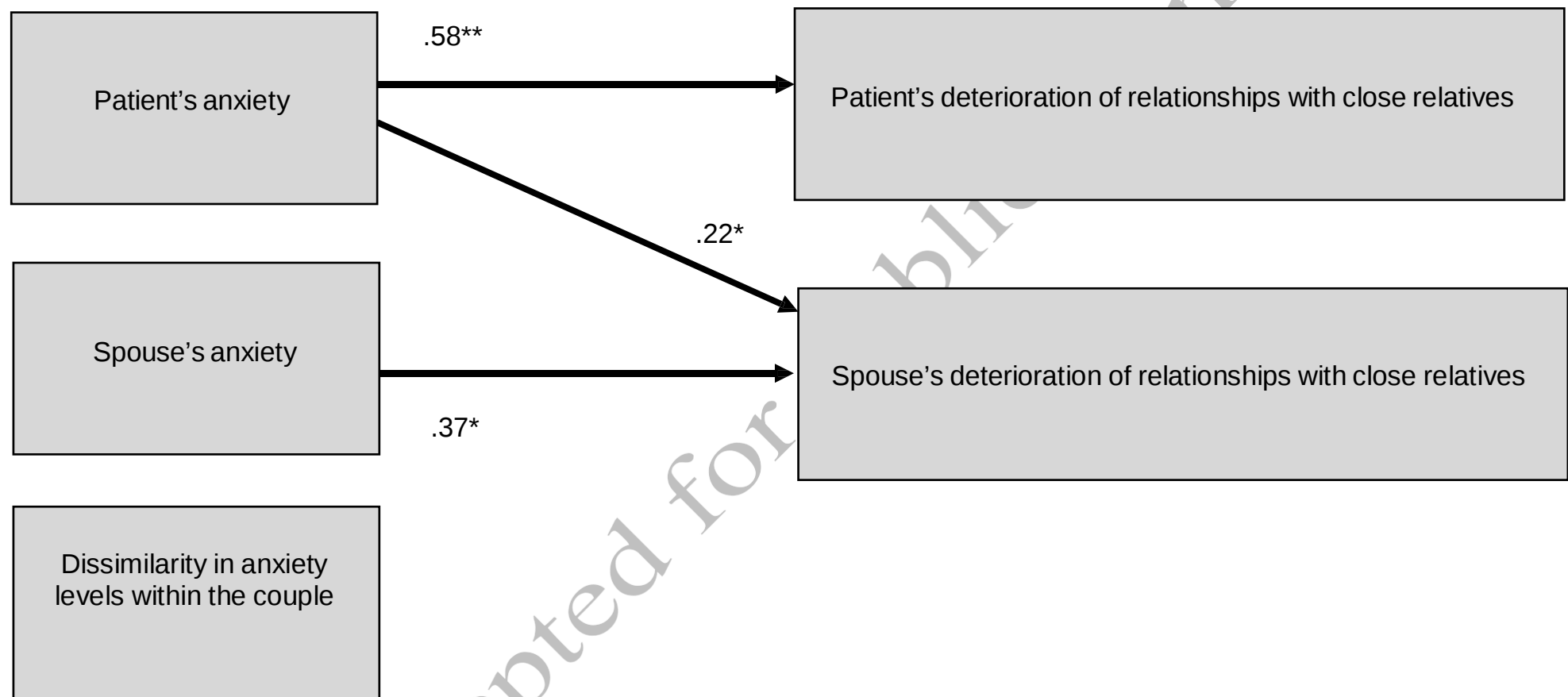
Note. * $p < .05$, ** $p < .01$, *** $p < .001$

N = 112 couples, except for the *career management* dimension, for which only 90 dyads were in employment at the time of the study

Table 3. Standardized coefficients from the SEM analysis testing for actor and partner effects

	Management of child(ren) and of everyday life		Feeling of couple cohesion		Deterioration of relationships with close relatives		Sharing with close relatives		Negative affectivity and apprehension about the future		Body image and sexuality		Financial difficulties		Career management	
	Patients	Spouses	Patients	Spouses	Patients	Spouses	Patients	Spouses	Patients	Spouses	Patients	Spouses	Patients	Spouses	Patients	Spouses
Anxiety																
Patient	.37***	.13	.48***	.16	.58***	.22*	.31**	-.20*	.75***	-.12	.47***	.06	.33***	.17	.13	-.06
Spouse	.09	.45***	-.04	.27**	.04	.37***	-.10	.12	-.04	.74***	-.04	.47***	.13	.25**	.23*	.53***
Dissimilarity	.06	-.12	-.04	-.09	-.03	.01	-.12	-.17	-.05	.08	.14	-.02	-.01	.03	.12	.07
Depression																
Patient	.47***	.13	.48***	.24*	.59***	.39***	.38***	-.02	.57***	-.13	.33**	.06	.44***	.29**	.35***	-.12
Spouse	-.01	.44***	-.12	.21*	.01	.25**	-.18	.01	.05	.62***	-.02	.34***	.02	.22*	.10	.62***
Dissimilarity	.04	-.10	.09	-.14	-.02	-.17*	.19*	-.18	-.08	.11	.17	.03	-.04	-.13	-.01	-.09

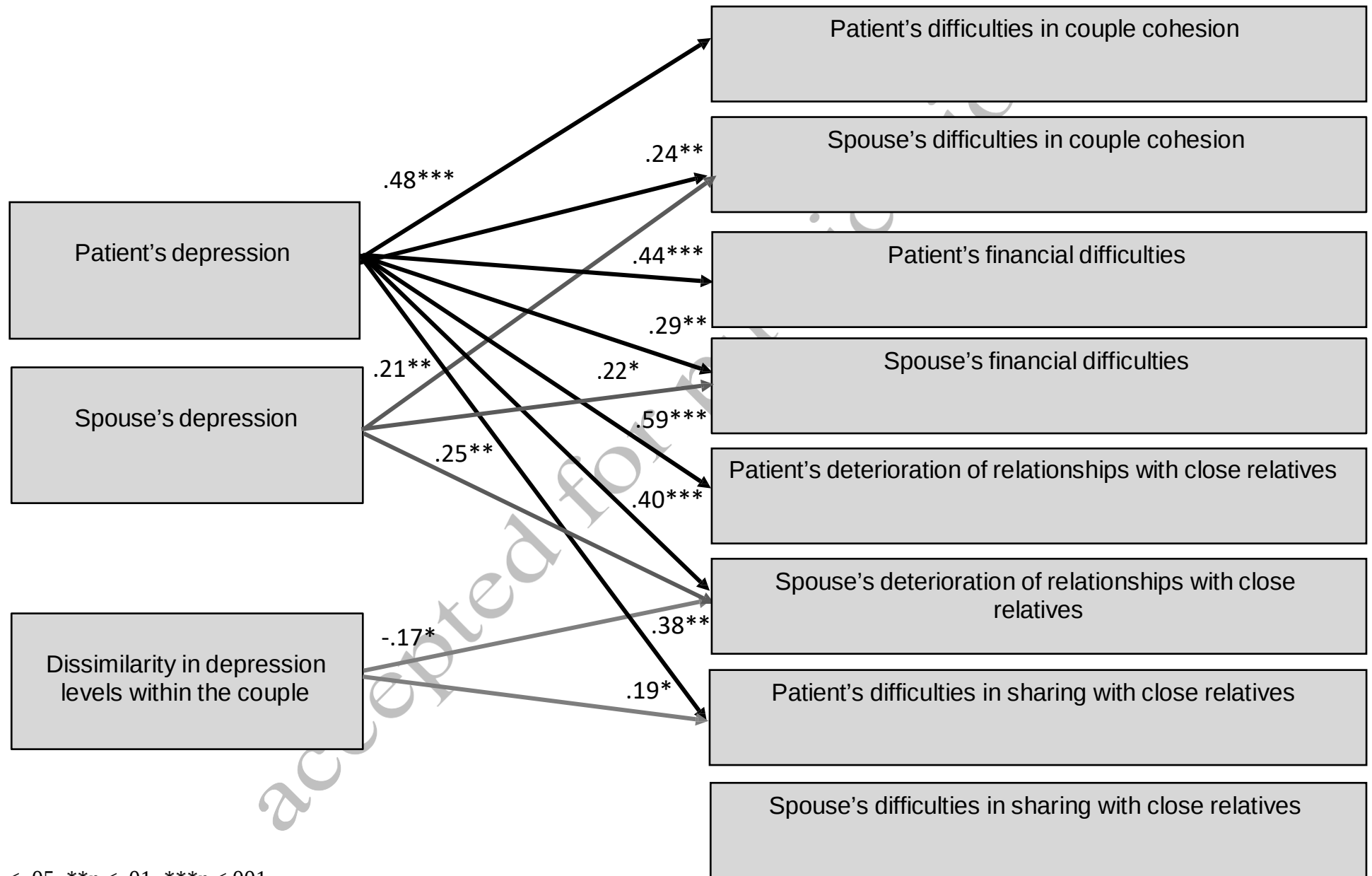
Note. * $p < .05$, ** $p < .01$, *** $p < .001$; disease duration and patient's age were controlled in analyses.



Note. * $p < .01$, ** $p < .001$

Standardized coefficients are indicated. To facilitate reading, only significant coefficients are shown.

Figure 2. Actor and partner effects of anxiety on deterioration of relationships with close relatives



Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Standardized coefficients are indicated. To facilitate reading, only significant coefficients are shown.

Figure 3. Actor and partner effects of depression on subjective experience of the disease and its treatments