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A Randomized, Controlled Trial of a Patient/Caregiver Symptom Control Intervention: Effects on Depressive Symptomatology of Caregivers of Cancer Patients

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Abstract

In this study, we investigated whether a clinical nursing intervention focusing on teaching family caregivers and their cancer patients skills to better manage the patients' symptoms would reduce caregiver depressive symptomatology. Two hundred thirty-seven patient/caregiver dyads were recruited for the study. These dyads were randomized into either the 10-contact, 20-week experimental intervention group (n = 118), which focused on assisting the patient and caregiver in managing patient symptoms and reducing emotional distress, or to a conventional care control group (n = 119). A longitudinal random effects regression analysis did not indicate that the clinical nursing intervention was effective in decreasing caregiver depression over the 20-week course of the study. The relationship of the intervention to caregiver depressive symptomatology seems to be a complex one. We recommend further research to explore whether a lengthened intervention and/or delayed follow-up might reveal delayed positive effects of such interventions.

Keywords

Cancer; symptoms; intervention; caregiver; depression

Introduction

An abundant literature provides documentation of the psychosocial disruption cancer causes in the lives of patients and their families.[1-5] As cancer has developed into more of a continuous care problem because of longer survival times and shifting of treatment toward ambulatory care, increased responsibilities have been transferred to family members for both the physical and emotional care of patients.[6-8] These additional responsibilities of caring for a cancer patient in the home can be stressful and may affect the family caregiver's psychological health, which in turn could impact the patient's quality of life. Research has identified numerous risk factors for caregiver depression, including caregiver sex, decreased social functioning, poor physical health, number of care tasks, and disruption of daily schedule.[9-16] Certain aspects of the patient's illness, such as symptom severity and patient depression, have also been identified as predictors of caregiver depression.[17-19] In their recent study of family caregivers of geriatric patients, Kurtz et al. found that more severe patient symptoms, greater patient depression, greater impact on caregivers' schedule and worse caregiver social functioning were all associated with increased caregiver depression.[13]

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Mastery, the subjective appraisal of how caregivers perceive their caregiving duties and performance, has also been linked, both theoretically and empirically, to caregiver depression. Nijboer et al.[20] noted that caregivers who had a low score on mastery and who also perceived caregiving in a more negative way were identified as more depressed over time. In a similar vein, other researchers have shown that caregivers were more likely to be depressed when they felt less self-efficacy and less self-satisfaction from their roles as caregivers.[21-24]

With little or no formal training, family caregivers are called upon to assume day-to-day responsibilities for management of symptoms and side effects, medication administration, and transportation to physician and treatment appointments. Bucher[25] observed that family caregivers are often uninformed about what they should do and lack the requisite skills to carry out the caregiving role. Aneshensel et al.[26] found that when informal assistance with care tasks was provided to caregivers, depressive symptoms elevated initially, but as this informal assistance continued over time, caregiver depressive symptoms decreased. Houts et al.[27] posit that preparing caregivers to carry out caregiving duties and effectively problem solve should facilitate effective caregiving and an enhanced sense of efficacy. Effective problem-solving skills have the potential to alter not only the experience but also the caregiver's reaction to that experience.

There have been some attempts to investigate whether a clinical intervention to assist caregivers would improve caregiver depression, with one study focusing on patients with dementia, and another with cancer patients focusing on coping skills.[28,29] These attempts suggested that interventions may be beneficial, but that positive effects may be delayed. Kozachik et al.[19] have conducted a randomized clinical trial with caregivers of cancer patients in which a nursing intervention that emphasized symptom monitoring and management, education, emotional support, coordination of services, and caregiver preparation to care was delivered to an experimental group of cancer patients, with the control group receiving standard care. The results of this intervention were not conclusive, in part because caregivers with higher levels of depression withdrew from the study at higher rates than caregivers with lower levels of depression. Overall, the intervention appeared to be more effective in slowing the rate of deterioration rather than decreasing the level of depression of caregivers.

To build on this sparse research, we investigated in the present study whether a clinical nursing intervention focusing on teaching care-givers and their cancer patients skills to better manage the patients' symptoms would reduce caregiver depressive symptomatology. Specifically, we addressed the following research question:

> When compared to family caregivers whose patients received conventional care, do family caregivers whose patients received conventional care plus a 10-contact, 20-week nursing intervention focusing on assisting both care-giver and patient to better manage patient physical and psychological symptoms report lower levels of depressive symptomatology?

In order to assess the independent effects of the intervention on caregiver depressive symptomatology, our model took into consideration a number of variables that have been identified in the literature as being related to caregiver depression. Among these are patient variables such as sex, cancer site, stage of disease, chemotherapy status, symptom severity, comorbid conditions, physical functioning, and social functioning, as well as caregiver variables such as age, comorbid conditions, involvement in patient symptom management, mastery of care, and social functioning.

Methods

Sample

To be eligible for the trial, patients had to be 21 years of age or older, recently diagnosed with a solid tumor, undergoing a first course of chemotherapy, and have completed no more than the first two cycles prior to their baseline interview. Patients with previous chemotherapy were not eligible, nor were patients receiving radiation therapy at time of entry. All patients who agreed to participate in the study were required to identify a family caregiver; both patients and caregivers had to be able to speak and read English, and both had to be cognitively intact as screened by data collection recruiters. Both members of the dyad had to agree to telephone interviews at baseline, 10 weeks, and 20 weeks. In addition, dyads randomly assigned to the experimental group had to commit to participate in a 10-contact, 20-week cognitive behavioral intervention.

Nurse recruiters from two comprehensive cancer centers and four community oncology settings were trained according to study protocol and approached 609 patients who were undergoing a first course of chemotherapy. Two hundred sixty-three patients and their caregivers agreed to participate and signed consent forms. Among the 346 patients who refused participation, 155 (45%) were not interested, 59 (17%) had no caregiver, 55 (16%) were too overwhelmed by the disease and its treatment, and 48 (14%) indicated that they were too busy, or indicated other personal reasons. Of the 263 dyads who approved the consent forms, 26 did not complete the intake interview because their family caregivers could not be contacted, patients were too ill, or had discontinued their chemotherapy. Thus, 237 patients and their caregivers completed the intake interview. These dyads were first stratified by the patient's cancer site and then randomized into either the 10-contact, 20-week experimental intervention (n = 118), which focused on managing symptoms and reducing emotional distress, or to a conventional care control group (n = 119). Conventional care was the usual practice for each setting.

The baseline interview was administered to each member of the dyad by telephone within two weeks of recruitment into the study. Dyads assigned to the experimental group were contacted to begin the intervention. The 10 intervention contacts occurred in alternating fashion, with the five in-person encounters coinciding with regular visits to the oncology center, and the five intervening telephone contacts occurring approximately two weeks following each in-person contact. Dyads assigned to the control group were informed by letter that they would receive standard care. All dyads received follow-up interviews at 10 weeks (midpoint) and 20 weeks (end of trial).

Fifty-nine dyads were lost to attrition between baseline and the 10-week interview, and an additional 39 dyads were lost between the 10- and 20-week interviews, leaving 139 dyads that completed all three interviews. We analyzed the effects of attrition by comparing dyads that were retained and lost to attrition at either 10 or 20 weeks, both by group and combined, according to sex, cancer stage and site, and recruitment location, as well as for differences in baseline values of caregiver depression and other relevant caregiver and patient covariates (level of significance = 0.05) using chi-square and t-tests. Overall, there were no differences in attrition rates between the two groups, either at 10 weeks or 20 weeks. Retention rates for the experimental group at 10 and 20 weeks were 82.7% and 66.7%, respectively, while the corresponding rates for the control group were 79.1% and 71.4%. There were, however, higher rates of attrition at 10 weeks for patients with late stage disease (P = 0.020). The situation was similar for the experimental and control groups, but not to the level of statistical significance. At 20 weeks there were higher rates of attrition for patients with lung cancer (P = 0.014). For example, only 56.3% of lung cancer patients were retained to the end of the trial, whereas 76.9% of breast cancer patients and 75.0% of patients with other cancers finished the trial. Caregivers who dropped out before 20 weeks had higher baseline symptom assistance scores

($P = 0.015$). In the experimental group, patients who dropped out before 20 weeks had worse baseline physical functioning scores ($P = 0.036$).

Experimental Intervention

The 10-contact (5 in person, 5 by telephone) 20-week intervention was guided by a cognitive behavioral change model drawing heavily on Bandura's framework,[30,31] which posits that self-management strategies are learned through practice and skills mastery based on verbal persuasion that a strategy will work, for example, to reduce symptom severity. However, as D'Zurrilla and Nezu[32] have noted, solutions for specific problems require specific follow-up and evaluation. If a strategy is effective, it can be continued; if not, then modifications must be made.

The experimental intervention for the care-giver focused on two components. First, the caregiver and nurse reviewed, according to protocol, the symptoms experienced by the patient and the caregiver's involvement, and then, based on a prioritization of the need for help to assist with the patient symptoms, the nurse and caregiver drew upon a pre-defined set of strategies that followed the cognitive behavioral model. These strategies included means of supporting the patient emotionally and through instrumental assistance, coping strategies, providing information, and facilitating communication among caregiver, patient and health care provider regarding issues of concern. At each follow-up visit/telephone interview, caregivers were asked whether or not each strategy had been attempted and, if so, if it was successful in addressing the problem. Interventions that were successful were kept, while those that were unsuccessful were either altered or abandoned. Secondly, the caregiver intervention focused on dimensions of burden such as how assistance was affecting role strain, impact on their abilities to complete their daily activities, and the attendant emotional distress. Thus, the intervention was designed to make caregiving more effective for the patient, and simultaneously, to address the strains that attend caring for and responding to a life threatening chronic disease.

No significant differences were observed according to recruitment site on baseline values of any relevant patient or caregiver variables. Quality assurance was completed for all nurses on a monthly basis to ensure that they followed protocol at all sites. This included monthly audiotapes with their patients and caregivers once consent was obtained by each nurse, and a review for completeness and quality of all encounters. This process was completed by a quality assurance coordinator who ensured adherence to the protocol. In addition, monthly reviews with feedback sessions were held with all nurse interveners for all their telephone encounters.

Measures

The baseline interview elicited demographic information on the caregiver and patient such as age, gender and comorbid conditions. Information on cancer site and stage of disease was obtained through audits of patient records. Time dependent variables such as caregiver and patient depression and social functioning, patient chemotherapy status, symptoms and physical functioning, as well as caregiver mastery of care and caregiver involvement in symptom management, were measured at baseline, 10 weeks (Time 2), and 20 weeks (Time 3).

Depressive symptomatology of caregivers (and patients) was measured by the Center for Epidemiological Studies Depression Scale (CES-D).[33,34] This is a well-established instrument used in population-based studies of depression, and has been used in many studies with cancer patients. The scale consists of 20 items, each scored on a scale of 0–3 (0 = rarely/none of the time,…,3 = almost all of the time). The usual composite score was computed by summing the scores for the 20 items on the scale, with higher scores corresponding to greater depressive symptomatology. The resulting scale score has a potential range of 0–60. Respondents with a CES-D score exceeding 16 are considered at risk for clinical depression.

[35] The internal consistency for this measure at baseline was alpha = 0.906 for caregivers and alpha = 0.856 for patients.

Caregiver and patient social functioning were measured using the two-item social functioning subscale from the Medical Outcomes Study (MOS) 36-Item Short Form Health Survey (SF-36), which measures limitations in social activity (Cronbach's alpha = 0.822 for caregivers and 0.805 for patients at baseline).[36] The SF-36 was designed for use in clinical practice and research, health policy evaluations, and general population surveys. The scores for this subscale were standardized in the usual way on a scale of 0–100, with higher scores indicating fewer limitations in social activity.[37]

Caregivers and patients were asked at baseline to identify from a list of 12 comorbid conditions (high blood pressure, diabetes, other cancer, chronic bronchitis/emphysema, heart problems, stroke, emotional problems, arthritis, rheumatism, fractured hip, liver disease, other major health problem), which they currently experienced. A comorbidity index was computed as a count of the number of comorbid conditions present.

Caregiver involvement in patient symptom management was assessed with a symptom assistance index computed as the total number of times during the past two weeks that the caregiver had provided direct assistance to the patient for any of 15 specified cancer-related symptoms (alopecia, pain, fatigue, nausea and vomiting, insomnia, shortness of breath, diarrhea, coordination problems, anorexia, fever, cough, dry mouth, constipation, mouth sores, and inability to concentrate).

The degree to which caregivers felt they were mastering the tasks of caring for their patient was assessed with seven items such as “I am able to handle most problems in caring for my patient”, “I am not doing as well as I would like”, “I am mastering most of the challenges in caring for my patient”, and so forth. Items were rated on a scale of 1 (strongly disagree) to 5 (strongly agree). After reverse coding negatively worded items, *a mastery index* was computed by summing the individual item scores (Cronbach's alpha = 0.713 at baseline). The potential range of scores was thus 7–35, with higher scores indicating better mastery.

For this study, we employed the Tumor, Node, Metastasis (TNM) staging system promulgated by the American Joint Committee on Cancer (AJCC) in the United States. Determination of the stage involves consideration of a number of variables which are important for prognosis (extent of the tumor, histological type, differentiation, metastasis, etc.), and classifies tumors on a scale of 0–IV (0 = localized,…, IV = distant metastasis).[38-40] To minimize the problem of small or empty cells in the analysis, stage was dichotomized into two groups: “early” (Stages 0, I, II) and “late” (Stages III, IV).

Patient symptom severity *was* measured with a scale consisting of 15 symptoms (nausea, vomiting, trouble sleeping, difficulty breathing, diarrhea, coordination problems, poor appetite, fever, cough, dry mouth, constipation, mouth sores, inability to concentrate, pain, and fatigue). At Baseline, Time 2, and Time 3, patients were queried as to the presence of these 15 symptoms during the past two weeks, and were asked to rate their severity on a scale of 0–10 (0 = not present,…,10 = worst possible). A symptom severity index was created as a sum of the severities of the individual symptoms, with a potential range of 0–150.

Patient physical functioning was measured using a subscale from the Medical Outcomes Study (MOS) 36-Item Short Form Health Survey (SF-36).[36] The physical functioning subscale of the SF-36 consists of 10 items (Cronbach's alpha = 0.929 at baseline), including measures of the degree of limitation in activities such as lifting or carrying groceries, bending, kneeling or stooping, walking one block, bathing, dressing, and so on. The individual items capture both the presence and extent of physical limitations using a three level response format to the

question “Does your health now limit you in these activities? If yes, how much?” (1 = ‘yes, limited a lot’, 2 = ‘yes, limited a little’, 3 = ‘no, not limited at all’). Scores were standardized in the usual way on a scale of 0–100, with higher scores representing fewer limitations in physical functioning.

All patients in the study were undergoing chemotherapy treatment at baseline. Data from audits of patient records were used to determine the patients' treatment status (currently in treatment or not) at Time 2 and Time 3.

Informed consent procedures for the clinical intervention study were approved by the appropriate university committee on research involving human subjects as well as the institutional review boards of the participating recruitment sites.

Statistical Analysis

As an initial step, basic descriptive statistics were computed for the sociodemographic variables as well as means, standard deviations, and ranges for all scale variables employed in the study.

Given the panel nature of the data, the analysis needs to be able to accommodate several data characteristics. First, it must take into account all available information which, under conditions of panel attrition, means a declining number of cases with available information from baseline (n = 237) to time 2 (n = 178) to time 3 (n = 139). Secondly, to make maximum use of the available information, the analysis should include all cases that provide the relevant caregiver information for at least one wave of data collection. Thirdly, the analysis must be able to capture both within-subjects effects, that is, changes in predictors and outcomes over time, as well as between-subjects effects (e.g., variations across individual study participants). Finally, among the predictors are both time-independent variables (e.g., socio-demographic characteristics and diagnostic information) as well as time-dependent variables (e.g., depressive symptomatology, which changes over the observation period). Statistical models that can accommodate these demands are variously known as “generalized estimating equations”, pooled time series regression, or random-effects regression.[41,42] All analyses were carried out with the random effects regression procedure ‘xtreg’ of the STATA 6.0 software.[43]

Results

Table 1 shows the sociodemographic characteristics of the sample, plus additional diagnostic information on the patients. To summarize these data, 53.4% of the caregivers were female and 46.6% were male, their average age was 55.2 years, and they reported on average 1.7 comorbid conditions. Correspondingly, 73.2% of patients were female and 26.8% were male, their average age was 59.6 years, and they reported an average of 2.1 comorbid conditions. Thirty-nine percent of patients suffered from breast cancer, 35% from lung cancer, and 26% from other cancers.

Descriptive statistics for the various time-dependent scale variables as well as the patients' chemotherapy status are presented in Table 2. Caregiver depressive symptomatology decreased steadily from Baseline to Time 3 for caregivers in the experimental group; caregivers in the control group showed a decrease in depressive symptomatology at Time 2, followed by a slight increase at Time 3. Of note was a consistent decrease in the symptom severity index for patients in the experimental group from baseline to Time 3, which was not the case for patients in the control group.

The results of the random effects regression model are presented in Table 3. No significant differences were noted in caregiver depression between the experimental and control groups. With respect to the various covariates, younger caregivers exhibited more depressive

symptomatology than older caregivers, whereas those caregivers who suffered from more comorbid conditions reported more depressive symptomatology than those with fewer comorbid conditions. Caregivers' sense of mastery of their care tasks seemed to play an important role, as those caregivers who were more confident in their mastery of cancer care were less depressed than caregivers who were less confident in their mastery of cancer care. Similarly, caregivers reporting better social functioning showed less depressive symptomatology. Caregivers who provided more symptom assistance to their patient tended to be more depressed. Among the patient variables, stage of disease also proved to be a predictor of caregiver depressive symptomatology, with caregivers of patients suffering from late stage disease showing more depressive symptoms than caregivers of patients with early stage disease. Finally, the apparent modest decreases in caregiver depressive symptomatology over time did not prove to be significant.

Discussion

The findings of the analyses did not indicate that the clinical nursing intervention was effective in decreasing caregiver depression over the 20-week course of the study. Kozachik et al.[19] similarly reported that their nursing intervention for caregivers of cancer patients was also not effective in reducing caregiver depression, and suggested that this outcome might be attributable to higher attrition rates for caregivers who were more depressed. In the present study, we cannot proffer this explanation, as our attrition analyses revealed no significant differences in caregiver depression between caregivers who dropped out or were retained in the study, either at Time 2 or Time 3.

A more in-depth examination of possible effects of the intervention showed that symptom severity at Times 2 and 3 for patients in the experimental group was modestly lower than for the patients in the control group ($P = 0.064$ and $P = 0.083$, respectively), but the same was not true for caregiver depressive symptomatology. To the contrary, caregiver depressive symptomatology at Time 2 was marginally higher for caregivers in the experimental group in comparison to caregivers in the control group ($P = 0.094$). These findings seem to suggest that caregivers may not be responding as positively to the intervention as anticipated. One possible explanation could be that more severely depressed caregivers may have been further agitated by having an outsider telling them how to approach the care of their patient differently. We investigated this hypothesis by exploring changes in caregiver depressive symptomatology for the two groups from baseline to Time 2 for caregivers who at baseline were more severely depressed (CES-D score greater than 16). This post hoc analysis showed that the more severely depressed caregivers improved substantially from baseline to Time 2, and the improvements were similar for the experimental group and the control group; thus, our hypothesis was not supported.

Another possible explanation for the ineffectiveness of the intervention may be related to its duration. Other studies have suggested that the effects of such interventions on caregiver depression are complex, and their positive effects may be delayed.[19,29] A third possible explanation could be that because two-thirds of the patients were suffering from late stage disease, perhaps the poor prognosis and hopelessness of the situation may have made the caregivers less receptive to the intervention, as expectations for a more positive outcome were not met. However, a further analysis showed that this was not the case, as caregivers of patients with late stage disease in both the experimental and control groups showed comparable improvement in depressive symptomatology.

Overall, the caregivers in our study did not exhibit high levels of depressive symptomatology, as CES-D scores in healthy populations average around 8.[34] Perhaps the scores in our sample

were low enough that significant improvement was difficult to detect, or alternatively, the intervention may have simply been inadequate.

Although the experimental group did not exhibit lower levels of caregiver depressive symptomatology than the control group, there were other important effects that deserve mention. Foremost among these was the caregivers' perception of their mastery of patient care. Caregivers with higher mastery scores tended to be less depressed than those who were less confident in their mastery of the patient's care. A number of studies in the general caregiving literature dealing with caregivers of elderly patients or patients with various chronic diseases have also found caregiver mastery to be similarly related to caregiver depressive symptomatology.[44-48] For caregivers of cancer patients, Nijboer et al.[21] found that caregivers in their study with higher levels of mastery of patient care were substantially less depressed over time.

As we expected, caregivers who provided more symptom assistance and who had greater limitations in social functioning were more depressed over time. In a recent study of caregivers of geriatric cancer patients, Stommel et al.[49] observed a similar direct link between social functioning and caregiver depression. In contrast to this similarity, this earlier study showed a direct connection between greater patient symptom severity and greater caregiver depression, whereas in our current study the relationship is reversed (greater patient symptom severity was associated with less caregiver depressive symptomatology). Results in this direction have been mixed, with, for example, Kurtz et al.[16] reporting no direct effects of patient symptoms on caregiver depression. The connection between patient depressive symptomatology and caregiver depressive symptomatology reported by other authors[13,16] was not observed (P = 0.09).

Conclusions

In summary, it appears that the clinical nursing intervention did not have a beneficial effect on caregivers' depressive symptomatology when compared to standard care. The generalizability of the results may be limited by the relatively short intervention occurring early in the course of treatment. A lengthier, more intensive intervention may produce a more positive result. The relationship of the intervention to caregiver depressive symptomatology seems to be a complex one. We recommend further research to explore whether a lengthened intervention and/or delayed follow-up might reveal delayed positive effects of such interventions.

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Table 1

Caregiver Sociodemographic Characteristics, Patient Sociodemographic Characteristics, Cancer Site and Stage, by Group (n = 237)

Characteristic	Experimental Group		Control Group		Combined	
	n	%	*n*	%	*n*	%
Caregiver						
Sex						
Female	65	55.6	61	51.3	126	53.4
Male	52	44.4	58	48.7	110	46.6
Ethnicity						
Caucasian	110	94.0	107	89.9	217	91.9
African American	4	3.4	8	6.7	12	5.1
Hispanic	0	0.0	1	0.8	1	0.4
Native American	1	0.9	0	0.0	1	0.4
Asian–Pacific Islander	2	1.7	0	0.0	2	0.8
Other	0	0.0	3	2.5	3	1.3
Age, yrs						
Mean	55.2	-	55.1	-	55.2	-
SD	13.7	-	13.8	-	13.7	-
Comorbidity						
Mean	1.7	-	1.6	-	1.7	-
SD	1.4	-	1.4	-	1.4	-
Patient						
Sex						
Female	85	72.6	87	73.7	172	73.2
Male	32	27.4	31	26.3	63	26.8
Age, yrs						
Mean	60.4	-	58.7	-	59.6	-
SD	9.8	-	11.2	-	10.5	-
Comorbidity						
Mean	2.3	-	1.9	-	2.1	-
SD	1.6	-	1.7	-	1.7	-
Cancer site						
Breast	47	39.8	46	38.7	93	39.2
Lung	41	34.7	42	35.3	83	35.0
Other	30	25.4	31	26.1	61	25.7
Stage of disease						
Early	40	34.2	37	31.9	77	33.0
Late	77	65.8	79	68.1	156	67.0

J Pain Symptom Manage. Author manuscript; available in PMC 2007 February 27.

Table 2

Means and Standard Deviations for Caregiver Depressive Symptomatology, Mastery, Symptom Assistance, Social Functioning, and Patient Depressive Symptomatology, Symptom Severity, Physical Functioning, and Social Functioning, plus Patient Chemotherapy Status, by Group and by Time

	Experimental Group						Control Group					
	Baseline		Time 2		Time 3		Baseline		Time 2		Time 3	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Caregiver												
Depressive symptomatology[a]	10.8	9.2	9.7	9.7	7.7	9.1	11.3	10.2	7.4	8.4	8.1	10.1
Mastery[b]	26.8	4.8	27.0	4.8	28.4	4.1	26.6	4.0	27.6	4.5	27.9	4.5
Symptom assistance	3.4	2.7	2.7	2.4	1.3	1.7	3.6	2.5	2.4	2.5	1.5	1.8
Social functioning[c]	81.4	21.9	82.0	23.4	89.4	17.6	78.3	23.9	86.2	22.3	84.7	24.0
Patient												
Depressive symptomatology[a]	12.2	9.0	10.6	8.9	6.6	7.7	13.6	9.0	12.7	9.2	9.9	9.2
Symptom severity[d]	29.0	21.7	24.5	16.6	15.6	13.6	27.0	17.2	29.4	18.3	20.6	17.3
Physical functioning[c]	65.8	28.6	66.9	24.9	77.2	22.9	63.2	30.0	62.0	28.0	67.0	30.2
Social functioning[c]	57.0	28.3	64.9	29.8	80.0	26.8	57.2	30.0	59.5	30.9	69.8	30.4
Chemotherapy status	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Yes	118	100.0	83	70.9	57	48.7	119	100.0	92	78.0	57	48.3
No	0	0.0	34	29.1	60	51.3	0	0.0	26	22.0	61	51.7

[a] Scale 0–60.

[b] Scale 7–35.

[c] Scale 0–100.

[d] Scale 0–150.

Table 3

Random Effects Model for Caregiver Depressive Symptomatology[a] (*n* = 237)

	Coefficient	Significance	95% Confidence Interval
Caregiver age	−0.141	0.000	−0.210, −0.072
Caregiver sex	0.239	0.792	−1.536, 2.014
Caregiver comorbidity	0.695	0.037	0.041, 1.349
Patient comorbidity	−0.157	0.589	−0.727, 0.413
Intervention (1 = experimental, 2 = control)	−1.607	0.057	−3.263, 0.049
Mastery	−0.615	0.000	−0.809, −0.422
Symptom assistance	0.400	0.033	0.033, 0.768
Caregiver social functioning	−0.177	0.000	−0.215, −0.139
Stage of disease (1 = early, 2 = late)	2.315	0.021	0.343, 4.288
Cancer site			
Lung versus breast	1.352	0.250	−0.953, 3.656
Other versus breast	−0.577	0.626	−2.900, 1.746
Patient depressive symptomatology	0.097	0.090	−0.015, 0.210
Patient symptom severity	−0.081	0.008	−0.141, −0.021
Patient physical functioning	−0.015	0.449	−0.055, 0.024
Patient social functioning	0.005	0.781	−0.032, 0.043
Chemotherapy status	2.171	0.129	−0.629, 4.970
Time	0.583	0.428	−0.858, 2.023

[a] Number of person-interview observations 339; observations per case: maximum 3, minimum 1, average 1.7; R^2-within 0.4792, R^2-between 0.4312, R^2-overall 0.4506.