Published in final edited form as:
Psychol Health. 2012 ; 27(1): 88–100. doi:10.1080/08870446.2010.551212.

Randomized Trial of Expressive Writing for Distressed Metastatic Breast Cancer Patients

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Abstract

Women with metastatic breast cancer and significant psychological distress ($N = 87$) were assigned randomly to engage in four home-based sessions of expressive writing or neutral writing. Women in the expressive writing group wrote about their deepest thoughts and feelings regarding their cancer, whereas women in the neutral writing group wrote about their daily activities in a factual manner. No statistically significant group differences in existential and psychological well-being, fatigue, and sleep quality were found at 8-weeks post-writing. However, the expressive writing group reported significantly greater use of mental health services during the study than the neutral writing group (55% vs. 26%, respectively; $p < .05$). Findings suggest that expressive writing may improve uptake of mental health services among distressed cancer patients, but is not broadly effective as a psychotherapeutic intervention.

Keywords

metastatic breast cancer; expressive writing; psychological distress; sleep; fatigue

Writing about negative emotional experiences has been found to improve physical and psychological health (see Frattaroli, 2006, for a meta-analytic review). People randomly assigned to write about their deepest thoughts and feelings regarding personal stressors have shown enhanced well-being and fewer medical visits following writing compared to those assigned to write about neutral topics (Frisina, Borod, & Lepore, 2004; Pennebaker, 1997; Smyth, 1998). Although most trials of written emotional disclosure have focused on healthy populations, this research has recently been extended to medical populations, including people with asthma, rheumatic disease, and cancer (Danoff-Burg, Agee, Romanoff, Kremer, & Strosberg, 2006; C. de Moor et al., 2002; J. S. de Moor et al., 2008; Rosenberg et al., 2002; Smyth, Stone, Hurewitz, & Kaell, 1999; Stanton et al., 2002).

Limited evidence suggests that expressive writing may enhance cancer patients' health. For example, Stanton and colleagues (2002) found that among women with early-stage breast cancer, both those who wrote about their deepest thoughts and feelings surrounding cancer and those who wrote about benefits of their cancer experience had fewer medical appointments for cancer-related morbidities in subsequent months than did control writing participants. Another study found that patients with metastatic renal cell carcinoma who

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wrote about cancer-related thoughts and feelings evidenced significantly better sleep quality and sleep duration compared to patients who wrote about health behaviors (C. de Moor et al., 2002). A third study found that prostate cancer patients who wrote about their thoughts and feelings related to their cancer or other stressful life events reported reduced pain perceptions relative to a no-writing control group (Rosenberg et al., 2002). Regarding psychological outcomes, results suggest that expressive writing benefits cancer patients who do not generally avoid their cancer-related thoughts and feelings (Stanton et al., 2002) and patients who feel constrained in discussing their cancer experience with others (Low, Stanton, Bower, & Gyllenhammer, 2010; Zakowski, Ramati, Morton, Johnson, & Flanigan, 2004).

To date, little research has extended the expressive writing paradigm to women with metastatic breast cancer or other advanced cancer populations. Metastatic breast cancer patients cope with numerous stressors, including cognitive and physical decline, a growing dependence on health care professionals and significant others, and the ultimate prospect of death. Physical and psychological problems are highly prevalent in this population and include fatigue, sleep disturbance, anxiety, depression, and demoralization (i.e., existential despair and distress) (Aranda et al., 2005; Kissane et al., 2004; Palesh et al., 2007; Vehling et al., 2010). One study found that 11 of the top 20 unmet needs for women with metastatic breast cancer were psychological in nature and included uncertainty about the future and concerns about the worries of loved ones (Aranda et al., 2005). Expressive writing may reduce patients' distress by improving self-regulation of emotions, behaviors, and physiological responses (Lepore, Greenberg, Bruno, & Smyth, 2002). Specific mechanisms underlying its beneficial effects may include decreasing autonomic arousal to cancer-related thoughts and feelings and cognitive processing of events into a coherent and meaningful narrative (King, 2002; Lepore et al., 2002; Low, Stanton, & Danoff-Burg, 2006). An alternative perspective, the social integration model, suggests that expressive writing may prompt patients to seek social support, which, in turn, improves well-being (Pennebaker & Graybeal, 2001).

This study examines the health effects of expressive writing in an advanced breast cancer patient sample and extends prior work in several respects. First, only patients with clinically elevated distress participated in this trial. In previous expressive writing studies, cancer patients were typically in the post-treatment phase and reported good baseline quality of life, which left little room for positive changes during the intervention period (e.g., Rosenberg et al., 2002; Zakowski et al., 2004). Second, this study examined indices of existential well-being (i.e., a sense of meaning and peace and demoralization), which are theoretically linked to emotional processing and expression and particularly relevant for patients with life-limiting illness (Schwartz & David, 2002). Finally, all assessments and writing tasks were administered via telephone, which enhances the potential for dissemination to advanced cancer patients.

We hypothesized that patients assigned to write about their deepest cancer-related thoughts and feelings would experience better existential and psychological well-being, reduced fatigue, and enhanced sleep quality compared to patients assigned to write about a neutral topic. We also explored whether the effectiveness of the writing conditions varied by patients' functional status, time since diagnosis, and level of education. Finally, we explored whether the writing conditions might prompt differential seeking of mental health services.

Methods

Participants and Procedures

Women with Stage IV breast cancer were recruited from a comprehensive cancer center in New York City from March 2008 to November 2009. Inclusion requirements were (1) English fluency, (2) at least 18 years of age, and (3) significant distress as indicated by scores exceeding the cutoff (≥ 4) on the Distress Thermometer (Jacobsen et al., 2005). Patients were excluded from study participation if they: (1) had severe cognitive impairment assessed with the Short Portable Mental Status Questionnaire (Pfeiffer, 1975), or (2) engaged in expressive writing on a daily basis. Adequate sample size ($n \geq 70$) for a multivariate analysis of variance (MANOVA) was determined on the basis of comparisons across writing groups of two measures (i.e., meaning/peace and demoralization). Parameters entered into the statistical power calculation included a moderate effect size (f = .30) and an overall correlation of .25 between the endpoints, power = .80, $F(1, 68) = 5.25$, $p < .025$ (Faul, Erdfelder, Lang, & Buchner, 2007). Although the estimated effect size is comparable to those observed in some expressive writing studies with cancer patients (C. de Moor et al., 2002; Stanton et al., 2002), a larger sample size would be needed to detect the small effect sizes reported in a meta-analysis (Frattaroli, 2006).

Permission to contact patients was sought from their oncologists, and letters of invitation and consent forms were mailed to women approved for contact. Patients completed a screening assessment via telephone. Those who met study eligibility criteria and provided informed consent completed a baseline telephone interview approximately one week after the screening assessment. Computerized random assignment to the expressive writing or neutral writing group then occurred using the method of random permuted block. Patients were stratified by ethnicity (Caucasian vs. African American vs. other ethnicity) and age (<55 vs. 55–65 vs. >65 years). Participants received four sets of writing instructions, lined paper, essay rating forms, and envelopes for returning materials by mail.

Following the procedures of Zakowski and colleagues (2004), patients completed four writing sessions over 4–7 weeks. For Session 1, a post-doctoral psychology research fellow called the patient and provided a brief introduction to the writing task. Patients were asked to go to a quiet area of their house where they would not be interrupted. Expressive writing participants were instructed to write their deepest thoughts and feelings about their cancer, whereas neutral writing participants described yesterday's activities in a factual manner. Instructions were based on published work (Zakowski et al., 2004) and are available from the first author. Patients were told to start writing immediately after hanging up the phone and to write continuously for 20 minutes.

At the end of the writing session, the fellow called the patient and asked whether she had experienced any interruptions while writing. If the interruption was longer than 5 minutes, the patient was asked to continue writing (to complete the 20-minute session) until the fellow called again. Then the patient was instructed to rate her essay and mail the essay and ratings to the fellow in the envelope provided. The patient was asked whether she had any questions or concerns and then the next writing session was scheduled. Procedures were identical for subsequent writing sessions, except that the initial brief introduction from Session 1 was omitted. Patients completed a follow-up phone interview approximately 8 weeks after the final writing session. Interviewers were blinded to participants' group assignment. Patients received $25 for the baseline assessment and $25 for the follow-up assessment.

Measures

Existential well-being—The Meaning/Peace subscale of the Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being scale (FACIT-Sp; Peterman, Fitchett, Brady, Hernandez, & Cella, 2002) assessed participants' degree of purpose in life and inner peace. A measure of demoralization, or existential despair and distress, was also administered (Jacobsen et al., 2006).

Psychological well-being—The Distress Thermometer (DT; Roth et al., 1998) assessed general distress and the Center for Epidemiologic Studies—Depression scale (CES-D; Radloff, 1977) assessed depressive symptoms. Patients also completed the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS-A; Zigmond & Snaith, 1983).

Sleep disturbance and fatigue—The Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) evaluated habitual sleep disturbances over a 1-month period. The total Global Sleep Quality score was used in this study. The Functional Assessment of Chronic Illness Therapy Fatigue subscale (FACIT-F; Yellen, Cella, Webster, Blendowski, & Kaplan, 1997) assessed fatigue during the past 7 days.

Socio-demographic and medical variables—Participants reported their socio-demographic data and use of mental health services (e.g., counseling, cancer support groups). Medical information was obtained from chart review. Trained interviewers administered the Australia-modified Karnofsky Performance Status Scale (AKPS; Abernethy, Shelby-James, Fazekas, Woods, & Currow, 2005) to assess baseline functional impairment.

Manipulation check and essay ratings—An independent rater unaware of writing group assignment read the transcribed essays in random order and judged the writing instructions for each essay. In addition, after each writing session, participants rated how personal their essays were and how much they revealed emotions in their essays on 7-point scales (1 = *not at all*; 7 = a *great deal/extremely*) (Stanton et al., 2002). The computerized text analysis program, Linguistic Inquiry and Word Count (LIWC; Pennebaker, Mayne, & Francis, 1997) provided the percentage of positive emotion words and negative emotion words in each essay, which served as a third manipulation check.

Statistical Analyses

Preliminary multivariate analyses of variance and χ^2 analyses were conducted to determine whether the writing groups differed at baseline. No differences were found with regard to demographic, medical, and dependent variables. Multivariate analyses of covariance (MANCOVA) were used to examine the effects of group assignment on follow-up outcomes, controlling for baseline values of the dependent variables. The following conceptually-related groups of dependent variables were analyzed in three separate MANCOVAs: (1) existential well-being (meaning/peace and demoralization); (2) psychological well-being (general distress, depressive symptoms, and anxiety); and (3) physical well-being (sleep and fatigue). Additional MANCOVAs were conducted to examine whether the effects of group assignment on the three sets of dependent variables differed according to functional status, time since diagnosis, and level of education (0 = less than a college degree, 1 = college degree or higher). Each potential moderator was independently analyzed and baseline values of the dependent variables were included as covariates. Finally, a logistic regression analysis was conducted to examine the effect of group assignment on the use of mental health services during the study, controlling for baseline use.

Results

Sample Characteristics

A total of 521 breast cancer patients were identified by medical records for this study, and permission was granted to contact 83% of the patients (see Figure 1). Of the 405 patients who were potentially eligible for this study (e.g., fluent in English), 173 (43%) completed the screening assessment. Respondents were significantly younger (58.1 ± 11.5 vs. 61.4 ± 13.0 years, respectively; $d = .27$, $p < .01$) and more proximal to diagnosis (4.0 ± 3.2 vs. 5.0 ± 5.1 years, respectively; $d = .22$, $p < .05$) than nonrespondents. Ethnicity and medical treatment variables (i.e., receipt of chemotherapy, surgery, hormonal therapy, and radiation) did not differ between respondents and nonrespondents. Fifty-eight percent of respondents were eligible, with reasons for ineligibility as follows: score less than 4 on the DT (39%) or engaging in expressive writing on a daily basis (2%).

Of the 101 patients who were eligible for this study, 98 consented to participate and 90 (89%) completed the baseline assessment. The majority of participants were Caucasian, married, and well-educated (see Table 1). The average time since diagnosis of Stage IV breast cancer was 4 years, and most participants had received chemotherapy or hormonal therapy. Writing materials were mailed to 87 women and 86 women completed all four writing sessions and the 8-week follow-up assessment (cumulative 12.2% drop-out rate).

Manipulation Checks

The independent rater correctly judged the writing assignment for 99% of the 348 essays, indicating excellent adherence to the writing instructions. Participants' ratings of essay emotionality were significantly correlated with the proportion of positive emotion words ($r = .23$, $p < .001$) and negative emotion words in the essays ($r = .48$, $p < .001$), as assessed by the LIWC program.

A MANOVA with writing group, writing day, and their interaction as independent variables was conducted on participants' ratings of the degree to which their essays were personal and revealed their emotions and the proportion of positive and negative emotion words in the essays. The effect for writing group was significant, Wilks'Λ; $F(4, 317) = .44$, $p < .001$. Follow-up univariate analyses showed that the expressive writing group rated their essays as more personal than the neutral writing group (5.7 ± 1.6 vs. 4.3 ± 2.2, respectively; $\eta_p^2 = .13$, $p < .001$) and as more revealing of their emotions (5.7 ± 1.4 vs. 3.0 ± 2.2, respectively; $\eta_p^2 = .35$, $p < .001$). In addition, the essays of the expressive writing group contained a higher percentage of positive emotion words than those of the neutral writing group (.73 ± .62 vs. . 35 ± .38, respectively; $\eta_p^2 = .13$, $p < .001$) as well as a higher percentage of negative emotion words (6.2 ± 1.9 vs. 3.0 ± 1.5, respectively; $\eta_p^2 = .46$, $p < .001$). The main effect of writing day and the interaction of writing day and group assignment were not significant.

Analyses on Study Outcomes

Three MANCOVA analyses revealed no effects of writing group on the following sets of dependent variables with baseline values as covariates: (1) existential well-being (meaning/ peace and demoralization); (2) psychological well-being (general distress, depressive symptoms, and anxiety); and (3) physical well-being (sleep and fatigue) (see Table 2). To further examine the effects of writing group, mean change scores were calculated (data not shown). These scores revealed little change in study outcomes from baseline to follow-up for both writing groups.

Subsequent MANCOVA analyses showed that writing group did not interact with functional status, time since diagnosis, or level of education to predict the three sets of dependent

variables (existential well-being, psychological well-being, and physical well-being). Thus, the same results were obtained across demographic and medical subgroups.

A logistic regression analysis showed a significant effect of writing group on use of mental health services during the study, controlling for baseline use. Expressive writing participants were more likely to access these services during the study than neutral writing participants (24/44 vs. 11/42, respectively; odds ratio = 3.40, 95% CI, 1.05 to 11.08). Among patients who accessed mental health services, the average number of sessions during the study did not differ between the expressive writing and neutral writing groups (6.5 ± 7.0 vs. 7.4 ± 7.0, respectively; $d = .13$, $p > .10$). Patients in both writing groups were more likely to receive counseling or other mental health services than attend cancer support groups (27/86 vs. 13/86). Most patients who received mental health services other than cancer support groups reported discussing their cancer experience with a professional (24/27).

Discussion

In this sample of women with metastatic breast cancer and significant distress, expressive writing did not result in better existential and psychological well-being, reduced fatigue, or enhanced sleep quality as compared to neutral writing. Although a meta-analysis found a positive main effect of expressive writing on psychological well-being in primarily healthy samples (Frattaroli, 2006), this effect has not been demonstrated in cancer patient samples (e.g., C. de Moor et al., 2002; J. S. de Moor et al., 2008; Low et al., 2010; Stanton et al., 2002; Zakowski et al., 2004). Previous null findings have been attributed to the good quality of life of cancer patients at baseline (e.g., Zakowski et al., 2004), whereas the current results require an alternative explanation. Participants in most expressive writing studies have reflected on past stressors that were not life-threatening (e.g., end of a relationship), whereas women in this study wrote about an ongoing, unpredictable, and life-limiting stressor (metastatic breast cancer). If decreasing physiological arousal to stressful memories is a key mediator of the positive health effects of expressive writing, as suggested by some findings (Low et al., 2006), disclosure regarding an evolving stressor that threatens every aspect of one's life may have a low likelihood of conferring health benefits.

Other trials of emotional disclosure interventions for advanced cancer patients have yielded mixed results. Among patients with metastatic renal cell carcinoma, expressive writing did not decrease distress, but enhanced vigor and sleep quality (C. de Moor et al., 2002). A randomized trial of partner-assisted emotional disclosure for patients with primarily advanced gastrointestinal cancer yielded relational benefits for some couples, but did not reduce distress (Porter et al., 2009). Supportive-expressive group therapy for metastatic breast cancer patients, a central component of which is emotional expression, has shown heterogeneous effects on psychological well-being (see Edwards, Hulbert-Williams, & Neal, 2008, for a review). Intervention and control participants, on average, have reported relatively stable distress over time (Classen et al., 2001; Goodwin et al., 2001). None of these trials had a distress criterion for study entry. Taken together, findings challenge the assumption that emotional expression has a ubiquitous positive impact on the adjustment of advanced cancer patients and underscore the need to elucidate for whom emotional disclosure interventions may be effective.

In this study, null effects of expressive writing were obtained regardless of time since diagnosis, functional status, and level of education. A recent study of expressive writing for metastatic breast cancer patients obtained mixed results regarding the relations between diagnosis duration and health outcomes (Low et al., 2010). Specifically, women who had been recently diagnosed appeared to benefit from the intervention with respect to somatic symptoms, whereas women with greater diagnosis duration appeared to experience adverse

effects of the intervention on sleep. Examining whether expressive writing is most beneficial for patients during acute phases of the stressor (e.g., time of diagnosis, test results indicating further metastases, changes in treatment regimens) is an important direction for future research. With respect to level of education, our results are consistent with those of a meta-analysis that did not find a moderating effect of education on expressive writing outcomes (Frattaroli, 2006). However, the extent to which literacy level impacts the outcomes of expressive writing deserves further study, as the majority of expressive writing trials have been conducted with college students.

Although both writing groups in this study showed little change in their distress over time, the expressive writing group reported more than double the rate of mental health service use during the study compared to the neutral writing group. Differential rates of referral to mental health services between writing groups cannot account for this finding because we only referred one patient to these services. A study with early-stage breast cancer patients did not find an effect of expressive writing on psychological support seeking; however, participants reported positive life quality at all time points (Stanton et al., 2002). In this study, expressive writing may have increased patients' awareness of their distress and challenging circumstances, thereby prompting them to seek mental health services. Although the duration and type of mental health services varied, the treatment often involved some discussion of their cancer experience. Further research is needed to test the social integration model that postulates change in social interactions with close others or healthcare professionals as a mediator of the relation between writing group assignment and health outcomes such as mental health service use (Pennebaker & Graybeal, 2001). Discussion of mental health concerns with a healthcare professional is a strong predictor of mental health service use among advanced cancer patients (Kadan-Lottick, Vanderwerker, Block, Zhang, & Prigerson, 2005).

Limitations of this trial should be noted. First, patients who were younger and more proximal to diagnosis were more likely to participate; however, these response biases were relatively small in magnitude. Second, the generalizability of the findings to men and patients with diverse ethnic and socioeconomic backgrounds warrants examination. In addition, although the sample size was more than double that of most expressive writing trials with cancer patients, we had limited power to detect small effect sizes. Finally, this study relied on self-reported outcome measures that were administered at one follow-up assessment. Administering objective and self-reported health assessments over time would provide a more comprehensive evaluation of expressive writing's health effects. A longer follow-up period may have revealed benefits of expressive writing when combined with mental health interventions. An intervention that involves social support and greater emotional processing of the stressor may be necessary for distressed patients with serious illness.

This study contributes to future research and clinical practice in several respects. First, the 100% retention rate across the four writing sessions supports the feasibility of home-based interventions for advanced cancer patients. Second, the findings provide a reliable estimate of health effects of expressive writing in this population due to the low attrition rate and rigorous methods (e.g., randomization, blind assessments, distress criterion for study entry). Third, results suggest that expressive writing may improve uptake of psychological support services among distressed patients without increasing symptom severity. Reducing personal barriers to psychological support seeking among those with clinically elevated distress is an important goal of health care. Next steps include documenting further social outcomes of expressive writing and testing whether it is a useful adjunct to standardized psychosocial interventions.

Acknowledgments

This study is supported by the National Cancer Institute (F32CA130600). The clinicaltrials.gov identification number for this study is NCT00624156. The authors wish to thank Francis J. Keefe, Ph.D., for contributing his expertise as well as the breast cancer team at Memorial Sloan-Kettering Cancer Center and our research participants. These results were presented at the 2010 annual meeting of the Society of Behavioral Medicine in Seattle, WA.

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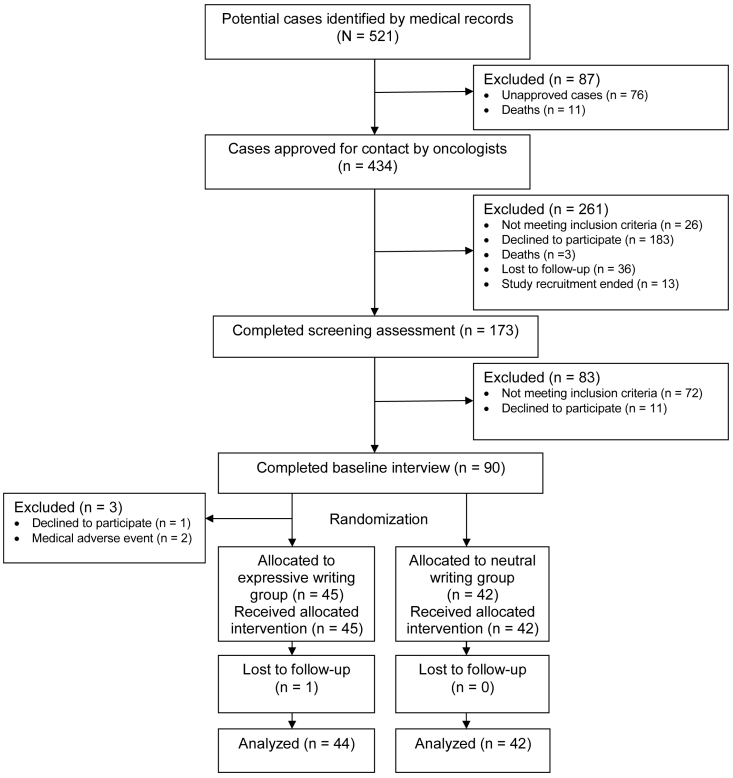

Figure 1.
Study Schema

Table 1

Sample Characteristics

	Expressive Writing Group (n = 44)		Neutral Writing Group (n = 42)	
Characteristic	**No.**	**%**	**No.**	**%**
Age, years				
Mean		57.4		58.5
Standard deviation		12.5		11.7
Race				
Caucasian	36	81.8	34	81.0
African American	2	4.5	4	9.5
Hispanic	2	4.5	3	7.1
Other	4	9.1	1	2.4
Education				
≥ 12 years	6	13.6	5	11.9
Some college	8	18.2	13	31.0
College or graduate degree	30	68.2	24	57.1
Employed	14	31.8	16	38.1
Married or marriage equivalent	31	70.5	29	69.0
Karnofsky performance status				
Mean		78.9		80.2
Standard deviation		9.2		8.4
No. of comorbid conditions				
Mean		1.3		1.4
Standard deviation		1.5		1.4
Time since diagnosis of Stage IV breast cancer, years				
Mean		4.2		4.7
Standard deviation		3.0		3.5
Breast cancer treatment history:				
Chemotherapy	43	97.7	36	85.7
Radiation	30	68.2	25	59.5
Hormonal therapy	33	75.0	38	90.5

	Expressive Writing Group (n = 44)		Neutral Writing Group (n = 42)	
Characteristic	**No.**	**%**	**No.**	**%**
Surgery	37	84.1	35	83.3
Cancer treatments during the study:				
Chemotherapy	33	75.0	31	73.8
Radiation	3	6.8	5	11.9
Hormonal therapy	15	34.1	20	47.6
Surgery	1	2.3	1	2.4
Baseline mental health service use	18	40.9	10	23.8

Table 2

Descriptive Statistics, Effect Sizes, and 95% Confidence Intervals for Study Outcomes at Follow-up

	Expressive Writing Group (n = 44)		Neutral Writing Group (n = 42)			
Outcome	**Mean**	**SE**	**Mean**	**SE**	**Partial η^2**	**95% CI**
Meaning and Peace	21.60	.59	22.58	.60	.02	−.70 to 2.66
Demoralization	21.07	1.65	19.50	1.68	.01	−6.26 to 3.11
Distress Thermometer	4.53	.36	4.37	.37	.00	−1.20 to .88
CES-D	17.99	1.35	17.87	1.38	.00	−3.98 to 3.74
HADS-Anxiety	7.15	.48	7.87	.49	.01	−.64 to 2.09
Global Sleep Quality	8.42	.39	7.83	.39	.01	−1.70 to .52
FACIT-fatigue	30.38	1.17	32.58	1.20	.02	−1.16 to 5.58

Note. SE = standard error. CI = confidence interval. CES-D = Center for Epidemiologic Studies-Depression Scale. HADS = Hospital Anxiety and Depression Scale. FACIT = Functional Assessment of Chronic Illness Therapy. Means are adjusted for baseline values of the dependent measures.