Targeting those with decreased meaning and peace: A supportive care opportunity

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Abstract

Purpose—To evaluate if an individual's level of Meaning/Peace (M/P) predicts various quality of life (QOL) and mental well-being measures. To identify targets that might enhance the overall spiritual well-being and QOL of ovarian cancer patients.

Methods—Multi-site analysis of women with newly diagnosed stages II-IV ovarian, primary peritoneal or fallopian tube cancer. Patients completed the following surveys: Functional Assessment of Chronic Illness Therapy-Ovarian (FACT-O), Functional Assessment of Chronic Illness Therapy – Spiritual (FACIT-Sp), Edmonton Symptom Assessment score (ESAS), Hospital Anxiety Depression Scale (HADS), Templer's Death Anxiety Scale (DAS), Herth Hope Index (HHI), and Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS).

Linear regression models were created to examine the effect of M/P (FACIT-Sp) upon QOL, symptoms, and other measures of mental well-being. These models adjusted for the effect of site, race, age, stage, anaphylaxis to chemotherapy, and partner status as potential confounders.

Results—This study enrolled 104 patients from three separate sites. After adjusting for potential confounders, it was found that higher M/P predicted better QOL (FACT-O) (p< 0.0001). Higher M/P also predicted decreased death anxiety, depression and anxiety (p 0.005). Finally, higher M/P predicted increased hope and coping scores (p 0.0005).

Conclusions—Level of M/P is associated with several important mental and physical health states. This information may allow providers to identify patients at increased risk for mental/physical distress and may facilitate early referral to targeted psychotherapy interventions focused on improving patient QOL and decreasing anxiety and depression.

Keywords

Meaning; peace; quality of life; ovarian cancer

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Introduction

Patients diagnosed with cancer face sudden disruption to their daily lives and must develop coping strategies that allow them to deal with their disease, treatment, and the uncertainty surrounding their prognosis (1). Coping strategies vary from patient to patient and include redefining hope in the context of illness, connecting with religion or spirituality, finding meaning in sickness, stifling anxiety, re-examining how they perceive control, and relying on friends, family and even their physicians (1–5). Regardless of the coping mechanism utilized, patients attempt to find meaning, peace, and hope during the uncertainty inherent in the fight against cancer. The best supportive care should include efforts to assist them in this search for meaning, peace, and hope.

The ability to cope well with a likely terminal illness not only improves psychosocial outcomes, but also has a profound impact on other aspects of a patient's life during and after treatment for cancer (6, 7). Faring well depends upon many factors including the patients' performance status and psychological reserve. One's mental armamentarium includes maintaining a sense of well-being, social support, and the absence of anxiety or depression. Patients utilizing active coping skills to directly acknowledge and address their sickness demonstrate improved physical functioning, mental functioning and quality of life (QOL) (6, 7). Additionally, developed coping skills may positively impact overall cancer survival by decreasing chronic stress and its associated psychological decline (8, 9).

Because active coping improves the mental and physical health of patients with cancer, the ability to equip patients with effective coping skills may play an important role in future supportive care regimens. Recent psycho-oncology research utilizing targeted behavioral interventions to improve patient coping skills suggests that future supportive care therapies may include behavioral focused interventions acting symbiotically with medical regimens (10–12). By maximizing the positive components of psychological well-being (such as hope and spiritual factors including a sense of meaning, peace and faith) while minimizing the negative components of psychological well-being (such as anxiety and depression) providers may be able to improve overall patient QOL (10–12).

Despite medical advances, ovarian cancer remains the deadliest gynecologic cancer in the United States (13). The subversive nature of ovarian cancer results in late stage diagnoses and high recurrence rates even following aggressive surgical and chemotherapeutic treatments. The five-year survival after initial diagnosis for ovarian cancer patients is a dismal 40–50% (14, 15). Thus, for many, an ovarian cancer diagnosis immerses a woman into the world of cancer from the time of diagnosis until the end of her life. Consequently, ovarian cancer patients must constantly focus on mentally and physically living with, not dying of, cancer. Standard supportive care therapies are typically limited to the usage of salvage surgery, palliative chemotherapy, focused radiation, and pharmaceutical interventions that decrease the symptoms experienced by patients with cancer.

In this study, we evaluate the impact and associative relationships of one's sense of meaning and peace (M/P) among women with newly diagnosed ovarian cancer. M/P, along with faith, are the primary components of spirituality and spiritual well-being (16). Prior research

indicates that M/P has a greater association with a patient's QOL than her faith (17, 18). Studies assessing M/P as separate factors have found that Meaning positively correlates with both physical and mental health whereas Peace positively correlates with mental health alone (16, 18). Because of these associations between M/P and QOL, our objective was to evaluate how an individual's level of M/P predicts various QOL and mental well-being measures in women with newly diagnosed ovarian cancer. By doing this, we hoped to identify predictors and targets that might be used to develop programs that enhance the overall spiritual well-being and meaningful aspects of both physical and mental QOL in women diagnosed with ovarian cancer.

Methods

Study Design

This study was an Institutional Review Board (IRB) approved, multi-site analysis of a cohort of women recently diagnosed with stages II-IV ovarian, primary peritoneal or fallopian tube cancer. Written informed consent was obtained from all study participants.

All newly diagnosed women with stages II-IV ovarian, primary peritoneal or fallopian tube cancers were approached for the study prior to initiating the second cycle of adjuvant or neoadjuvant chemotherapy. Patients were recruited in one of three clinical settings: a university-based tertiary care cancer center, a community hospital, and a public county hospital supporting primarily underinsured and uninsured women. Exclusion criteria included inability to speak or read English or Spanish, Stage I cancer, tumors of low malignant potential, and a prior cancer diagnosis requiring chemotherapeutic treatment.

Enrolled patients signed informed consent forms and were asked to complete surveys relating to aspects of QOL and psychosocial issues. Research assistants administered surveys during patients' regularly scheduled visits.

Measures

Demographic Information Form—This self-administered questionnaire collected basic information including age, race, religious preference, and marital status. Research staff collected the date of diagnosis and stage of disease from the medical record.

Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale (FACIT-Sp)—The FACIT-Sp is a 12-item, validated, self-administered questionnaire that evaluates spiritual well-being. The survey uses a five-point Likert scale (0 meaning "not at all" to 4 meaning "very much") (19). The FACIT-Sp was originally validated as having two subscales, or factors: M/P and Faith (19). M/P evaluates the meaning, peace, and purpose in the individual's life (19). Faith assesses the interaction between illness and the individual's personal faith or spiritual beliefs (19). Each subscale score ranges from 0–16, with a higher score indicating a higher level of either M/P or Faith (16). Adding the two subscales together provides a total score for spiritual well-being (SWB), with a higher total score indicating a higher level of SWB (16). Although the FACIT-Sp was validated with M/P being grouped together as one factor, recent research suggests that a three factor structuring

of the FACIT-Sp that separates Meaning and Peace into individual factors may provide a more comprehensive understanding of spirituality on patient QOL (17, 18, 20).

Functional Assessment of Chronic Illness Therapy-Ovarian (FACT-O)—The FACT-O is a 39-item, validated, self-administered questionnaire that assesses five domains of QOL of ovarian cancer patients: physical well-being, functional well-being, social/family well-being, emotional well-being, and additional concerns related to ovarian cancer (21). The FACT-O uses a Likert-scale (0 to 4). The sum of the subscale scores indicates the total QOL score; higher scores indicate higher QOL (21).

Herth Hope Index (HHI)—The HHI is a 12-item, validated, self-administered questionnaire that measures the cognitive, affective, behavioral, temporal, and contextual dimensions of hope (22). Participants respond to items on a 4-point Likert scale. The scale has three subscales: Inner Sense of Temporality and Future, Inner Positive Readiness and Innerconnectedness with Self and Others. These scales are added together to obtain the total HHI. A higher score indicates a higher level of hope (22).

Edmonton Symptom Assessment System (ESAS)—The ESAS is a ten-item, validated scale for assessing the symptoms of pain, fatigue, nausea, depression, anxiety, drowsiness, appetite, sense of well-being, sleep and shortness of breath on a scale from 0 to 10 (23). Each end of the scale has opposing symptom descriptors. For the symptoms of appetite and sense of well-being, zero represents the best appetite or sense of well-being (23). The sum of the individual symptom subscale scores gives the total symptom distress score, with a higher score indicating increased distress (23).

Templer's Death Anxiety Scale (DAS)—The Death Anxiety Scale is validated scale composed of 15 true/false questions that assess an individual's level of death anxiety. A higher score indicates increased death anxiety (24).

Hospital Anxiety and Depression Scale (HADS)—The HADS is a fourteen-item, validated, self-administered scale that detects states of depression and anxiety in an outpatient setting (25). The scale is composed of two subscales: Depression and Anxiety. Respondents answer questions using a scale of 0 to 3 with the range from "not at all" to "very often" (25). A higher score on each subscale indicates increased anxiety or depression, respectively (25).

Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS)—The BMMRS is a validated, 38-item self-administered questionnaire that evaluates 12 Dimensions of Religiousness/Spirituality: Daily Spiritual Experiences, Meaning, Values, Beliefs, Forgiveness, Private Religious Practices, Religious/Spiritual Coping, Religious Support, Religious/Spiritual History, Commitment, Organizational Religiousness, and Religious Preferences (26). For the purposes of our study, we only used the Religious/Spiritual (R/S) Coping dimension that includes 7 items scaled on a 4-point Likert scale. A higher score indicates increased R/S coping (26).

Analysis Plan

Linear regression models were created to examine the effect of M/P, as measured by the FACIT-Sp, upon QOL (FACT-O), symptoms (ESAS), and other measures of mental well-being. M/P was examined using both the 2 factor scale and the 3 factor scale of the FACIT-Sp. Other independent variables included in the model were site, race, age, stage of disease, occurrence of an anaphylaxis event during chemotherapy, and partner status.

With 100 participants, we would have 80% power to detect a slope of 1.12 using a 2-sided test with 5% statistical significance. Specifically, for each unit increase in meaning/peace, the FACT-O will have a corresponding increase of 1.12.

Results

Descriptive Statistics

A total of 104 patients were enrolled in this study. The specific rates of participation were not collected for this study, but few patients declined to participate. See Table 1 for demographics.

M/P as a Predictor for QOL (FACT-O) and Symptoms (ESAS)

When examined using the 2 factor FACIT-Sp scale, higher M/P predicted higher quality of life for all components of the FACT-O (all p 0.01; Table 2). Additionally, as M/P increased, feeling of well-being increased, and patients were less likely to report problems with sleeping ($p = 0.02$), anxiety ($p=0.0002$) and depression ($p=0.0001$) (Table 3). M/P was not found to be associated with symptoms that were more physical in nature (pain, fatigue, nausea, drowsiness, dyspnea and appetite).

When examined using the 3 factor FACIT-Sp scale, higher Meaning predicted higher quality of life in the following components of the FACT-O: Social, Emotional, and Functional well-being (p 0.005 for all; Table 2). As Meaning increased, patients were less likely to report issues with anxiety ($p=0.04$) and depression ($p= 0.01$). Meaning was not found to be associated with symptoms that were more physical in nature (pain, fatigue, nausea, drowsiness, dyspnea, and appetite).

Higher Peace predicted higher quality of life for all components of the FACT-O (all p 0.005; Table 2). Additionally, as Peace increased, feeling of well-being increased, and patients were less likely to report problems with sleeping ($p = 0.001$), anxiety ($p=0.0001$), depression ($p=0.0001$), and pain ($p=0.046$) (Table 3). Peace was not found to be associated with symptoms that were more physical in nature (fatigue, nausea, drowsiness, dyspnea and appetite).

M/P as a Predictor for Death Anxiety (DA) and Depression (HADS)

Using the 2 factor FACIT-Sp scale, higher M/P predicted lower death anxiety scores ($p=0.002$). Additionally, higher M/P predicted less depression and anxiety, as scored by the HADS ($p=0.0001$ for both). Table 4 shows these scores.

Using the 3 factor FACIT-Sp scale, higher Meaning predicted less depression and anxiety, as scored by the HADS (p 0.005 for both). Meaning was not associated with death anxiety. Higher Peace predicted lower death anxiety scores (p=0.0005). Additionally, higher Peace predicted less depression and anxiety, as scored by the HADS (p 0.0001 for both). Table 4 shows these scores.

M/P as a Predictor for Hope (HHI) and Coping (BMMRS)

Using the 2 factor FACIT-Sp scale, higher M/P predicted higher levels of hope as measured by the HHI (p=<0.0001). Additionally, higher M/P scores predicted better BMMRS coping scores (p=0.0002). Table 4 shows the detailed scores.

Using the 3 factor FACIT-Sp scale, higher Meaning predicted higher levels of hope as measured by the HHI (p=0.0001). Meaning was not associated with BMMRS coping scores. Higher Peace predicted higher levels of hope as measured by the HHI (p 0.0001). Additionally, higher Peace scores predicted better BMMRS coping scores (p 0.0001). Table 4 shows the detailed scores.

Discussion

Ovarian cancer is notable for late stage presentation and a poor long-term prognosis (14, 15). When diagnosed with a chronic, often terminal, disease such as ovarian cancer, the most meaningful outcome often becomes an overall sense of well-being in the face of illness, rather than the achievement of a short lived clinical remission. This sense of overall well-being is a complex concept comprised of both the cognitive and physical components of QOL (27). In this context, the cognitive components of QOL include factors that contribute to psychological well-being such as hope, meaning and peace, faith, and a lack of anxiety or depression while the physical components of QOL include physical and functional well-being. Many studies have demonstrated a link between increased mental well-being, QOL, and survival, suggesting that interventions targeting patients with decreased well-being may result in improved outcomes (12, 28–32). Prior to developing targeted interventions for these patients, it is necessary to explore the complex relationship between the cognitive and physical components of QOL and an overall sense of well-being.

In the present study, we focus on a sense of M/P as the predictor for overall well-being among ovarian cancer patients at the start of chemotherapy. M/P is often described in the context of spirituality where spirituality is defined as the "meaning patients find in their lives, especially during times of stress, illness, and dying" (33). Prior studies suggest it is the M/P component, not the faith component of spirituality, that is most related to physical and mental well-being in other cancer types (17, 18). Studies assessing M/P as separate factors have found that Meaning positively correlates with both physical and mental health whereas Peace positively correlates with mental health alone (16, 18). This suggests that Meaning scores measure the cognitive component of spirituality whereas Peace scores assess the affective dimension of spirituality (18). The findings of our study demonstrate that the results from the combined factors (2 factor FACIT-Sp scale) generally matched those when examining meaning and peace separately (3 factor FACIT-Sp scale).

The role that M/P plays in the psychological well-being of women with ovarian cancer has not yet been established. However, it is clear that cancer patients may find themselves in the midst of an existential crisis as they question the meaning of their life, illness and possible death (34). An inability to answer these existential questions may result in psychological distress that often demonstrates itself through high levels of anxiety, depression, and death anxiety (34, 35). These negative mental states may ultimately result in decreased survival and increased desire for death (12, 28–30). Due to the negative impact that psychological distress has on the life of the patient, current National Comprehensive Cancer Network (NCCN) guidelines recommend assessing all cancer patients for distress in an effort to identify, provide support for, and treat patients having difficulty coping with their illness (36).

Although our study does not fully define the role that M/P plays in the psychological well-being of women with ovarian cancer, it does suggest important associations between higher levels of M/P and several important mental health states such as hope, depression, and anxiety among women with ovarian cancer. Within our study population, higher M/P scores predicted decreased levels of depression and anxiety along with increased levels of hope. While it is unclear if decreased M/P results in a poor mental health state or if a poor initial mental health state results in decreased M/P, these findings demonstrate an important association between an increased sense of M/P and decreased psychological distress.

Prior research demonstrates that psychological distress is often a manifestation of poor coping skills and is associated with decreased overall QOL, increased rates of psychological illnesses such as depression and anxiety, and decreased survival (9, 12, 37). The associations between increased M/P score and lower levels of depression, anxiety, and death anxiety in our study population suggest that increased levels of M/P may allow patients to better cope with the psychological distress resulting from their illness. This is further supported by the fact that the women in our study with increased M/P had increased coping skills (demonstrated by elevated BMMRS coping scores) and increased emotional and social well-being (demonstrated by increased FACT-O scores in these subscales). These results suggest a positive relationship between M/P and coping skills/emotional functioning.

Perhaps those with high levels of M/P at baseline already had an armamentarium of developed coping skills, improved emotional well-being, and social networks derived from their increased spirituality. These characteristics may have worked together to protect these individuals from psychological distress. Thus, instead of defining themselves as sentenced to a life of social isolation and decreased functioning, women with high levels of M/P may instead find peace in viewing their illness as fulfilling a unique role or purpose (11). Theoretically, by thinking this way, these women might be able to experience increased QOL when compared to those with decreased levels of M/P. Limited research supports this hypothesis by demonstrating decreased depression and anxiety among patients undergoing meaning centered psychotherapy meant to increase the level of meaning and purpose in their lives (10, 38).

Unfortunately, due to the lack of longitudinal data, temporality cannot be established from our results. It is unclear whether high levels of M/P enable improved coping skills,

emotional well-being, social well-being, and overall psychological well-being or vice versa. Further research should evaluate the type of coping skills associated with an increased M/P score and how these skills impact a patient's ability to maintain high M/P levels and psychological well-being throughout illness.

Aside from increasing coping skills, increased M/P may decrease psychological distress by instilling confidence and hope as the patient addresses existential questions regarding the purpose and significance of her life (11, 39). The relationship between higher M/P score and higher hope score in our study sample demonstrates the positive association between M/P and hope. Further analysis of additional time points may allow us to explore the potential protective effect of hope on QOL and the benefits of instilling a sense of meaning during a patient's disease trajectory.

Much like the relationship between M/P and mental well-being, the relationship between M/P and the physical components of well-being among women with ovarian cancer have not yet been established. High levels of M/P predicted increased scores on the physical and functional components of the FACT-O. Among these components, the functional subscale was the most statistically significant. When M/P was examined using the 3 factor FACIT-Sp scale, Peace alone was statistically associated with increased physical well-being. This suggests that it is the Peace component of M/P that is driving the association between M/P and physical well-being. Additionally, women with increased levels of M/P were noted to have decreased sleep disturbances as measured by the ESAS. Similar to the relationship noted between M/P and physical well-being, when M/P was examined using the 3 factor FACIT-Sp scale, Peace alone was statistically associated with decreased sleep disturbances. This suggests that women with higher levels of Peace may have improved sleep when initially diagnosed with cancer.

These findings are not only important in terms of the QOL experienced by the patient with cancer, but lay the foundation for additional research related to the role of M/P in cancer survival. A retrospective analysis of the aspects of QOL suggests that physical well-being is the main QOL contributor toward survival (40, 41). Additional research suggests that improved social relationships may improve overall survival through the altercation of the tumor microenvironment (31, 32). The present study demonstrates that increased M/P is positively associated with physical and social well-being. Accordingly, we intend to follow the women in our study for two additional time points (completion of primary treatment and one year later) to examine if increased M/P is associated with improved survival as is seen with increased physical and social functioning (31, 40).

Our study is unique compared to many other studies examining M/P. The participants were all recently diagnosed with ovarian cancer and had all just begun receiving chemotherapy. Prior studies have included multiple cancer types at various stages in treatment.

Our study has several limitations. Because this study examined the role of spirituality among women with ovarian cancer, we likely had a sample selection bias within our study population where women considering themselves more spiritual may have been more likely to participate in the study compared to women considering themselves not spiritual. This

may have resulted in our findings exaggerating the relationship between M/P and QOL. Additionally, our sample population may limit generalizability. The majority of the patients in our study were white and Protestant Christian. Accordingly, the findings may not be generalizable across a wide variety of ethnicities or religious traditions.

We are in the midst of a new era of personalized supportive care in which providers are expanding the tools that may be used to minimize the symptoms associated with disease (10, 11). Instead of relying on treatments that control symptoms once they have already developed, providers are exploring ways to implement interventions that prevent symptoms before they occur. Both the early identification of and targeted interventions designed for patients at risk of impaired well-being may improve the success and efficient use of these types of supportive therapies. The challenge in the development of these interventions is identifying the most important aspect of well-being to target for intervention (e.g. is it QOL, Hope, Meaning and Peace, Faith or lack of anxiety/depression). Furthermore, while clinical response rates are tangible endpoints for drug intervention trials, endpoints for psychosocial interventions may be harder to measure; should the endpoint be comprehensive "QOL" or should it be improvement in the levels of hope, meaning, or some other measurement of an ultimate feeling of well-being like "serenity?" Without a well-established and universally acceptable endpoint, researchers must evaluate several different outcomes until studies with patient reported outcomes clarify which endpoints are the most important.

Our data suggests that assessing a patient's level of M/P, as estimated from the FACIT-Sp, may enable providers to identify patients at increased risk for mental and physical distress during the management of their cancer. This early identification may improve patient outcomes by facilitating early referral to interventions, such as existential, meaning, or spiritual based psychotherapy that demonstrate promising improvements in QOL (10, 11). Further research must examine the way that interventions targeting M/P may increase the efficacy and potential of supportive care therapies in order to provide the best possible life for patients living with cancer.

Acknowledgments

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Table 1

Demographics (N=104)

Age		
	Mean (SD)	55.28 (10.57)
	Median	55
	Min – Max	33 – 83
Religious Preference		
	Catholic/Episcopal	34 (35.1%)
	Baptist	23 (23.7%)
	Other Protestant	25 (25.8%)
	Christian/Non-Denominational	11 (11.3%)
	Other	2 (2.1%)
	None	2 (2.1%)
	Not Specified	7
Race		
	White	65 (63.1%)
	Black	14 (13.6%)
	Hispanic	20 (19.4%)
	Other	4 (3.9%)
	Unknown/Missing	1
Marital Status		
	Married	66 (64.1%)
	Live-In Partner	1 (1.0%)
	Separated	4 (3.9%)
	Divorced	5 (4.9%)
	Single	14 (13.6%)
	Widowed	13 (12.6%)
	Unknown/Missing	1
Partnered/Not Partnered		
	No Partner	36 (35.0%)
	Partner	67 (65.0%)
	Unknown/Missing	1
Stage		
	Stage II	12 (11.5%)
	Stage III	79 (76.0%)
	Stage IV	13 (12.5%)

Table 2

Meaning/Peace as a Potential Predictor for FACT-O Score[*]

Model	Meaning Predicts[**]			Peace Predicts[**]			Meaning/Peace Predicts[***]		
	Estimate	95% CI	p	Estimate	95% CI	p	Estimate	95% CI	p
FACT-O: Total	3.60	1.78 – 5.42	**0.0002**	3.22	2.09 – 4.34	**<0.0001**	2.41	1.63 – 3.18	**< 0.0001**
FACT-O: Physical well-being	0.31	−0.25 – 0.87	0.2713	0.56	0.20 – 0.92	**0.0024**	0.35	0.09 – 0.60	**0.0085**
FACT-O: Social well-being	1.06	0.76 – 1.36	**< 0.0001**	0.50	0.28 – 0.73	**<0.0001**	0.48	0.34 – 0.62	**< 0.0001**
FACT-O: Emotional well-being	0.99	0.61 – 1.38	**< 0.0001**	0.81	0.57 – 1.05	**<0.0001**	0.62	0.46 – 0.78	**< 0.0001**
FACT-O: Functional well-being	0.78	0.25 – 1.32	**0.0047**	0.80	0.47 – 1.13	**<0.0001**	0.57	0.34 – 0.81	**< 0.0001**
FACT-O: Ovarian-Cancer Specific Questions	0.54	−0.05 – 1.13	0.0737	0.59	0.21 – 0.97	**0.0025**	0.42	0.15 – 0.69	**0.0027**

[*]
Full model included Meaning, Peace, study site, race, age, stage, anaphylaxis during chemotherapy, and partner status as potential predictors

[**]
3 factor FACIT-Sp Scale

[***]
2 factor FACIT-Sp Scale

Table 3

Meaning/Peace as a Potential Predictor for ESAS Score[*]

Model	Meaning Predicts[**]			Peace Predicts[**]			Meaning/Peace Predicts[***]		
	Estimate	95% CI	p	Estimate	95% CI	p	Estimate	95% CI	p
ESAS: Sleep	−0.03	−0.29 – 0.23	0.8136	−0.28	−0.44 – −0.11	0.0013	−0.14	−0.26 – −0.02	0.0201
ESAS: Feeling of Well-Being	−0.12	−0.38 – 0.13	0.3443	−0.23	−0.40 – −0.06	0.0071	−0.14	−0.26 – −0.02	0.0206
ESAS: Anxiety	−0.25	−0.50 – −0.01	0.0421	−0.28	−0.42 – −0.14	0.0001	−0.20	−0.30 – −0.10	0.0002
ESAS: Depression	−0.27	−0.48 – −0.05	0.0146	−0.27	−0.41 – −0.14	0.0001	−0.19	−0.29 – −0.10	0.0001
ESAS: Pain	0.01	−0.27 – 0.29	0.9360	−0.19	−0.37 – 0.00	0.046	−0.09	−0.22 – 0.04	0.1758
ESAS: Fatigue	0.05	−0.22 – 0.31	0.7298	−0.14	−0.31 – 0.03	0.1120	−0.06	−0.18 – 0.06	0.3314
ESAS: Nausea	−0.01	−0.27 – 0.26	0.9486	−0.04	−0.22 – 0.13	0.6215	−0.02	−0.15 – 0.10	0.7117
ESAS: Drowsiness	−0.07	−0.31 – 0.17	0.5633	−0.08	−0.23 – 0.07	0.3093	−0.06	−0.17 – 0.05	0.3138
ESAS: Dyspnea	−0.09	−0.33 – 0.15	0.4643	−0.14	−0.30 – 0.02	0.0810	−0.09	−0.20 – 0.02	0.1164
ESAS: Appetite	0.07	−0.22 – 0.35	0.6348	−0.12	−0.31 – 0.06	0.1913	−0.05	−0.18 – 0.09	0.4906

[*] Full model included Meaning, Peace, study site, race, age, stage, anaphylaxis during chemotherapy, and partner status as potential predictors

[**] 3 factor FACIT-Sp Scale

[***] 2 factor FACIT-Sp Scale

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Table 4

Meaning/Peace as a Potential Predictor for Death Anxiety, Depression, Anxiety, Hope, and Coping scores[*]

Model	Meaning Predicts[**]			Peace Predicts[**]			Meaning/Peace Predicts[***]		
	Estimate	95% CI	p	Estimate	95% CI	p	Estimate	95% CI	p
Templer Death Anxiety Scale	−0.23	−0.54 – 0.07	0.1319	−0.35	−0.54 – −0.16	0.0005	−0.23	−0.36 – −0.09	0.0015
HADS: Depression	−0.73	−1.07 – −0.40	<0.0001	−0.56	−0.77 – −0.35	<0.0001	−0.44	−0.58 – −0.29	<0.0001
HADS: Anxiety	−0.56	−0.91 – −0.21	0.0018	−0.61	−0.82 – −0.41	<0.0001	−0.43	−0.57 – −0.28	<0.0001
Herth Hope Score	0.84	0.44 – 1.25	0.0001	0.76	0.51 – 1.00	<0.0001	0.57	0.40 – 0.73	<0.0001
BMMRS: Coping	0.02	−0.02 – 0.07	0.2923	0.07	0.04 – 0.09	<0.0001	0.04	0.02 – 0.06	0.0002

[*]
Full model included Meaning, Peace, study site, race, age, stage, anaphylaxis during chemotherapy, and partner status as potential predictors

[**]
3 factor FACIT-Sp Scale

[***]
2 factor FACIT-Sp Scale