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Global meaning and meaning-related life attitudes: exploring their role in predicting depression, anxiety, and demoralization in cancer patients

Sigrun Vehling · Claudia Lehmann · Karin Oechsle · Carsten Bokemeyer · Andreas Krüll · Uwe Koch · Anja Mehnert

Abstract
Goal of work While significance of the concept of meaning in understanding adaptation to cancer is widely accepted, it has been little studied, especially in longitudinal data. This study aims to clarify the role of global meaning and meaning-related life attitudes (death acceptance and goal seeking) in predicting different aspects of psychological and existential distress by reference to a specified research model.
Patients and methods At baseline (T1), a sample of 270 cancer patients was recruited. Data from 178 patients could be obtained after 3 months at T2. Patients completed the Life-Attitude-Profile—Revised assessing global meaning and meaning-related life attitudes, the Hospital Anxiety and Depression Scale, and the Demoralization Scale. Hierarchical regression analyses were carried out in two steps. Sociodemographic and physical factors were controlled.

Results Global meaning emerged as a significant negative predictor of depression ($\beta=-0.27$) ($p \leq 0.001$) and demoralization ($\beta=-0.27$) ($p \leq 0.001$). Death acceptance was a predictor of anxiety only ($\beta=-0.21$) ($p \leq 0.003$), whereas goal seeking was a positive predictor of depression ($\beta=0.29$) ($p \leq 0.001$), anxiety ($\beta=0.36$) ($p \leq 0.001$), and demoralization ($\beta=0.35$) ($p \leq 0.001$).
Discussion Findings confirm a global sense of meaning as an important protecting factor regarding the development of distress symptoms. Results suggest that different dimensions of meaning contribute to different dimensions of psychological well-being, as they refer to different existential problems. The need for and relevance of meaning-focused interventions in cancer patients is strengthened.

Keywords Global meaning · Death acceptance · Goal seeking · Demoralization · Adjustment · Cancer

S. Vehling · C. Lehmann · U. Koch · A. Mehnert (✉)
Department of Medical Psychology,
University Medical Center Hamburg–Eppendorf,
Martinistrasse 52–W26,
20246 Hamburg, Germany
e-mail: mehnert@uke.uni-hamburg.de

K. Oechsle · C. Bokemeyer
Department of Oncology/Hematology/Bone Marrow
Transplantation/Pneumology,
Hubertus Wald Tumor Centrum–University Cancer Center
Hamburg, University Medical Center Hamburg–Eppendorf,
Hamburg, Germany

A. Krüll
Department of Radiotherapy,
University Medical Center Hamburg–Eppendorf,
Hamburg, Germany

Introduction

Despite ongoing advances in cancer treatment, care, and rehabilitation, the individual diagnosed with cancer is confronted with a variety of distressing problems affecting social, physical, financial, and job-related life domains. More recently in research, growing emphasis is placed on existential concerns of cancer patients, in particular on the role of meaning-making coping in psychosocial adjustment [22]. The suggested significance of existential meaning in the context of adaptation to a life-threatening illness is based on the underlying notion that, due to a cancer diagnosis and related problems, patients may find global meaning in terms of previously held assumptions and beliefs of fundamental nature being disrupted [6, 15]. Thus,

re-evaluation of life goals, attitudes toward death, and integration of a stressful event into a coherent autobiography may become significant concerns during the course of a life-threatening illness [4, 38, 40].

Global meaning is a central component of the framework model of meaning in the context of stress and coping [30]. It has been suggested that this component is appropriately assessed by the Personal Meaning Index of the Life-Attitude-Profile—Revised (LAP-R) [18, 34, 39]. According to Reker [31], the underlying personal meaning construct is defined as consisting of the two comprehensive aspects of coherence and purpose, comprising a sense of order and personal identity, of life events being linked in a logically consistent way, and of having a reason for existence as well as pursuing worthwhile goals and having a mission or a sense of direction in life. By referring to the writings of Viktor Frankl, he postulates a basic motivation in individuals to create personal meaning from the possibilities that life offers and discover meaning by integrating these basic potentials of meaning into a larger purpose [12, 33].

Two life attitudes contributing to a person's state of existential self-transcendence and hence to personal meaning were examined in this study. According to Frankl, given limited life time, every person is responsible to fulfill the possibilities of life to create or discover unique personal meaning. Thus, death gives meaning to life and an acceptance of death in these terms reflects a life attitude essential to the enhancement of self-transcendence and meaning [13]. In contrast, a lower level of self-transcendence may materialize in a goal-seeking life attitude, accompanied by a desire for new experiences and to get away from the routine of life. Hence, goal seeking relates to a missing sense of direction that a person has not yet lived up to her full potential, and personal (global) meaning is still to be created [31].

The model depicted in Fig. 1 integrates global meaning and meaning-related life attitudes assessed in this study into the broader coping and adjustment framework. Here, the term "meaning-*focused* coping" was chosen in order to subsume meaning-making coping, i.e., revision and creation of global meaning, and meaning-based coping, i.e., adaptation of situational meaning [30, 34].

The model delineates four ways in which global meaning and meaning-related life attitudes may relate to the categories of appraisal, coping, and psychological states. Global meaning and meaning-related life attitudes may, as pre-existing individual characteristics, (a) affect initial appraisal processes and (b) act upon coping responses of the individual, in particular on meaning-focused coping processes. Further on, they may (c) emerge changed due to meaning-*making* coping and hence reflect an outcome of this process. At last, they may (d) directly predict psychological states, given the assumption that the ability to maintain or restore a sense of meaning during the course of illness is related to positive

adjustment. The figure emphasizes the idea that global meaning is more directly related to positive affect in general than to the prevention of negative psychological states. According to Folkman [9, 10], the model further assumes the prominence of meaning-*based* coping in generating positive affect under stressful conditions.

Since the question of how to appropriately assess meaning has been resolved differently in literature, comparability of studies is limited. However, there is some evidence, largely of cross-sectional nature, sustaining the positive relationship between global meaning and psychological well-being in cancer patients in general [16–18, 24–26, 36, 37]. Associations between meaning-making coping and global meaning have been rarely examined [29].

The demoralization syndrome is defined as an expression of existential distress, characterized by core symptoms of hopelessness, helplessness, and loss of meaning and purpose [20]. Despite some conceptual overlap, demoralization can be clinically differentiated from depression and is hence a concept helpful to understand problems related to perceived incompetence, worthlessness, and loss of dignity in the context of medical illness such as cancer. However, demoralization has been rarely studied in cancer patients, particularly in the context of meaning. However, it was found to be negatively associated to global meaning [24] and sense of coherence [2].

With regard to the proposed model, this study specifically focuses on aspect (d). It aims

- to provide longitudinal evidence in order to underscore the hypothesized direction of relationship between global meaning and psychological and existential distress
- to clarify the significance of global meaning and meaning-related life attitudes in explaining different dimensions of psychological and existential distress

Based on previous research, it was hypothesized that global meaning would be a negative significant predictor of psychological and existential distress, with a higher effect on depression compared to anxiety. Similarly, death acceptance was assumed to be a negative predictor of psychological distress, albeit showing higher contribution to the prediction of anxiety than depression. Further, we would hypothesize that goal seeking is negatively related to psychological distress, as it is indicating a lack of life purpose.

Patients and methods

Study design and participants

The study protocol received local research ethics committee's approval. Participants of this longitudinal study with two points of assessment were recruited during in- and outpatient

Fig. 1 Role of global meaning and meaning-related life attitudes in adaptation to cancer (further development based on works of Folkman [9] and Reker [34])
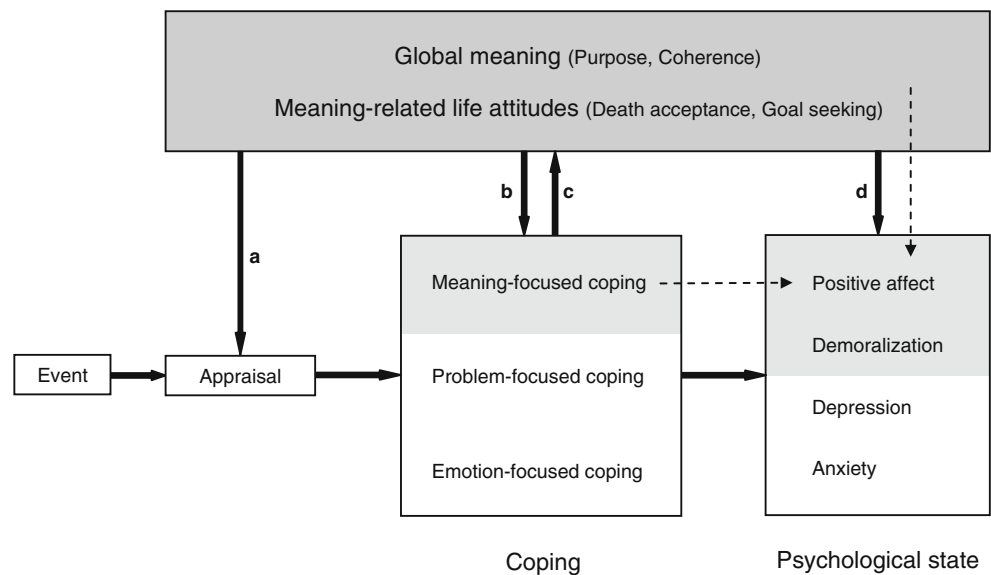
cancer treatment procedures from two settings at the University Medical Center Hamburg–Eppendorf. Inpatients from the Department of Hematology and Oncology and outpatients attending the Department of Radiotherapy older than 18 years were asked to participate. During the time of data collection, 241 patients (24%) fulfilled the exclusion criteria (poor physical status, cognitive problems, language problems, and severe psychological impairment). Of the remaining eligible 663 patients, 456 (69%) declared participation by written informed consent. However, completed self-report questionnaires were obtained from $n=270$ (41%) patients at T1. Three months after completion of the first questionnaire (T2), all participants were mailed a second questionnaire to their home address. At that time, 18 patients (7%) had died, and four (1.5%) had moved to unknown address. Of the remaining 248 eligible patients, $n=178$ (72%) patients responded at T2.

Participants were significantly younger than non-participants ($M=56.9\pm13.9$ vs. $M=60.7\pm16.4$) ($p=0.02$). In terms of tumor diagnosis, breast and urologic cancer were more frequent and hematologic diseases, and other cancer sites were less frequent among participants ($p=0.01$). Participants and non-participants did not differ in terms of gender and months since diagnosis (p values>0.15). Participants at T2 did not differ from non-participants in the variables age, gender, depression, anxiety, and demoralization (p values>0.17), but participants suffered more often from early-stage disease (UICC—stage I or II) (50% vs. 33%) ($p=0.02$).

Measures

Sociodemographic data were obtained via self-report, and information about diagnosis, disease stage, and cancer treatment was obtained from medical charts. Self-report measures were used to assess the constructs of interest with regard to research questions.

Global meaning and meaning-related life attitudes were assessed with the Life Attitude Profile-Revised (LAP-R), a multidimensional measure of discovered meaning and purpose in life and the motivation to find meaning and purpose in life [26, 31].Global meaning was assessed with the Personal Meaning Index (PMI), which is defined by a composite scale encompassing the purpose subscale and the coherence subscale. A higher PMI indicates higher global meaning. In this study, two further dimensions of the LAP-R were included to measure meaning-related life attitudes in terms of death acceptance (higher scale scores indicate more death acceptance) and goal seeking (higher scores indicate more goal seeking). Items are rated on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). Internal stability coefficients of the corresponding German scales range from $\alpha=0.82$ to $\alpha=0.87$.

Depression and anxiety were assessed with the Hospital Anxiety and Depression Scale—German Version (HADS-D), a 14-item instrument developed in order to screen for depression and anxiety in somatically ill patients [14]. Item scores range from 0 (no distress) to 3 (maximum distress). According to the German manual of the HADS, a score of 8–10 is considered to indicate a possible anxiety or depressive disorder, and a score of 11 or above is considered to indicate a probable anxiety or depressive disorder.

Demoralization was assessed with the Demoralization Scale (DS) [21]. This is a newly developed measure of existential distress according to the definition of the demoralization syndrome by Kissane and colleagues [20]. The scale comprises 24 items pertaining to the dimensions of (1) loss of meaning and purpose ($\alpha=0.83$), (2) dysphoria ($\alpha=0.77$), (3) disheartenment ($\alpha=0.82$), (4) helplessness ($\alpha=0.85$), and (5) sense of failure ($\alpha=0.68$). Items are rated

on a five-point Likert scale from 0 (never) to 4 (all the time). A total score of demoralization is obtained by summing up the single scale scores. Based on theoretical considerations, a preliminary cut-off score of ≥36 is used to indicate substantial distress in this study.

Physical problems were assessed using the problem list of the NCCN Distress Thermometer (DT) [28]. The DT is a screening instrument encompassing a single-item visual scale and a problem list. The problem list consists of 21 physical problems commonly experienced by cancer patients. Here, participants were asked to indicate if any one of the listed items has been a problem in the past week (yes or no).

Statistical analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 18.0. Group differences were calculated using univariate analysis of variance (ANOVA) and t tests in normally distributed metric data. Bivariate associations between variables were calculated using Pearson's Product–Moment correlation coefficient. Multiple hierarchical regression analyses were carried out. Cohen's standardized effect size (d, η^2) was calculated in order to provide an estimate of the magnitude of effect. Two-tailed significance tests were conducted using a significance level of $p<0.05$.

Results

Table 1 displays demographic and medical characteristics of the study sample.

Frequency of psychological and existential distress

At T1 (T2), 31% (35%) of the patients were classified as showing mild to severe depression, and 42% (28%) were showing mild to severe anxiety. Altogether, 24% (12%) showed critical distress pertaining to minimum one of both disorders. With regard to the demoralization syndrome, 17% (13%) of the patients showed symptoms of considerable amount and frequency according to the used cutoff. Correlations of the dependent variables indicating psychological and existential distress were high (T2): depression with anxiety, $r=0.64$, $p<0.001$; depression with demoralization, $r=0.80$, $p<0.001$; and anxiety with demoralization, $r=0.72$, $p<0.001$.

Descriptive data of existential variables

Table 2 displays descriptive data for global meaning and meaning-related life attitudes among younger, middle-aged, and older patients. Age group classification was based on

Table 1 Demographic and medical characteristics (N=270)

	n	%
Mean age in years (SD, range)	56.9 (13.9, 18–88)	
Gender		
Male	144	53.3
Female	126	46.7
Marital status		
Married	168	62.2
Never married	45	16.7
Divorced	32	11.9
Widowed	25	9.1
Partnership	201	74.4
Children	193	71.5
Educational level		
Elementary school	106	39.3
Junior high school	82	30.4
High school/university degree	73	27.0
Other/did not report	9	2.4
Employment status		
Employed	112	41.5
Retired	122	45.2
Housewife/-husband	19	7.0
Unemployed/other	17	6.3
Tumor diagnosis		
Hematologic diseases	76	28.1
Breast	51	18.9
Urologic	45	16.7
Digestive system	30	11.1
Soft tissue	18	6.7
Lung	17	6.3
Other	33	12.2
Disease phase		
Remission	97	35.9
Recurrence/progress	49	18.1
Metastases	51	18.9
No rating possible	73	27.0
Disease stage (UICC)		
0/I	30	11.1
II	38	14.1
III	57	21.1
IV	74	27.4
No rating possible	71	26.3
Mean months since initial diagnosis (SD, range)	18.4 (9.7, 3–384.1)	

Reker [31], whereas the older age group was defined by retirement age. The majority (50%) of patients was middle-aged, 35% were older, and 15% were younger, indicating unequal distribution among the three age groups.

Table 2 Global meaning and meaning-related life attitudes among different age groups (N=270)

Variable[a]	Total (N=270)		Age 18–41 (n=41)		Age 42–65 (n=135)		Age 66–88 (n=94)		p[b]	η^2
	M	SD	M	SD	M	SD	M	SD		
Global meaning	4.5	1.1	4.4	1.0	4.5	1.2	4.6	1.0	0.86	–
Death acceptance	4.5	1.3	4.5	1.3	4.3	1.3	4.8	1.2	0.01	0.04
Goal seeking	4.4	1.1	4.7	0.9	4.5	1.2	4.0	1.1	0.002	0.05

[a] Likert scale from 1 = "strongly disagree" to 7 "strongly agree"

[b] p [ANOVA]

There were no group differences related to other socio-demographic and medical characteristics, except for marital status ($M_{married}$=4.7, SD=1.0 vs. $M_{divorced}$=4.0, SD=1.2) (p [ANOVA]=0.002) (η^2=0.06) (p[Scheffé test]=0.02) and children ($M_{children}$=4.6, SD=1.0 vs. $M_{no\ children}$=4.2, SD= 1.1) (p[t test]=0.01) (d=0.03), with regard to global meaning.

The mean number of physical problems was M=5.7 (range=0–19, SD=4.3).

Bivariate correlations of predictors and dependent variables

In addition to the inclusion of existential predictor variables (i.e., global meaning and meaning-related life attitudes), age (continuous variable), gender, and physical problems were controlled for in order to clarify the existential variables' role in predicting psychological adaptation outcome. Table 3 presents the bivariate correlations between possible predictors and dependent variables. Predictors were assessed at T1; dependent variables were assessed after 3 months at T2.

Correlations among predictors

In order to test for possible multicollinearity, intercorrelations among the predictor variables were calculated. Among existential variables, intercorrelations ranged between r= 0.15 and r=0.33. Moreover, age was negatively related to physical problems (r=−0.23, p<0.001) and goal seeking (r=

−0.25, p<0.001). Finally, death acceptance was inversely related to physical problems (r=0.14, p=0.02). Remaining coefficients ranged close to 0 and were not significant.

Regression analyses

Multiple hierarchical regression analyses were carried out in order to determine the role of global meaning and meaning-related life attitudes in predicting depression, anxiety, and demoralization after a period of 3 months (T2). Three separate regression equations were calculated, where predictor variables were entered to the equation in two steps: first, demographic and physical variables (age, gender, and number of physical problems) were entered as a block. In a second step, global meaning and meaning-related life attitudes were entered separately in order to control for confounding variables and ascertain the unique predictive value of these variables above demographic facts and physical symptom impairment. Table 4 reports the resulting coefficients.

Analyses showed that when entered to the regression equation, existential variables made a sizeable contribution to the prediction of all dependent variables, indicated by an increase in R^2 ranging between ΔR^2=0.09 and ΔR^2=0.12. Control variables remained of significant importance in the total model: higher age and more physical problems were significant predictors of all dependent variables, whereas being female was a predictor of anxiety and demoralization only. While regarding control variables, the pattern of

Table 3 Bivariate correlations of possible predictors and dependent variables (N=178)

Predictors	Depression T2		Anxiety T2		Demoralization T2	
	r	$p\leq$	r	$p\leq$	r	$p\leq$
Age	0.02	–	0.02	–	0.11	–
Gender[a]	−0.02	–	−0.17	0.03	−0.14	–
Number of physical problems	0.31	0.001	0.30	0.001	0.35	0.001
Global meaning	−0.20	0.01	−0.06	–	−0.18	0.02
Acceptance of death	−0.12	–	−0.21	0.006	−0.11	–
Goal seeking	0.18	0.02	0.25	0.001	0.21	0.01

[a] Female=1, male=2

resulting coefficients was similar for the three dependent variables, and global meaning and meaning-related life attitudes were differently related to the criteria. Death acceptance emerged as a significant factor merely in predicting anxiety ($\beta=-0.21$, $p=0.003$). Global meaning made a significant contribution to the prediction of both depression ($\beta=-0.27$, $p\leq0.001$) and demoralization ($\beta=-0.27$, $p\leq0.001$). In predicting anxiety, the coefficient was smaller and non-significant ($\beta=-0.12$, $p=0.09$). Goal seeking significantly predicted depression, anxiety, and demoralization at T2, with somewhat higher β weights in predicting anxiety ($\beta=0.36$, $p=0.001$) and demoralization ($\beta=0.35$, 0.001) compared to depression ($\beta=0.29$, $p=0.001$).

Discussion

The findings of this longitudinal analysis support the delineated research model and hence underscore the significance of perceived life meaningfulness for the psychological well-being of cancer patients. While controlling for age, gender, and physical problems, global meaning and meaning-related life attitudes were all significant predictors of psychological well-being after 3 months, albeit with different importance to dependent variables. Thus, understanding of the multi-faceted construct of meaning is deepened confirming that different dimensions of meaning contribute to different dimensions of psychological adaptation, which was suggested elsewhere [18]. To begin with, global meaning emerged as a negative predictor of depression and demoralization. Against the background of the stressfulness of cancer-related experiences such as physical suffering, confrontation with mortality, or social and occupational role changes, results underline that maintaining or renewing a sense of meaning and purpose in life during the course of illness (which includes the ability to integrate experiences into the understanding of the self and the world) represents a protective factor for depressive mood states, hopelessness, and existential despair [6, 15]. Consistently, given that the breakdown of coping is considered to be the central step in the process of becoming demoralized, our results support the assumption that fundamental beliefs and goals may contribute to resilience by affecting the way individuals deal with potentially assumption-shattering experiences [2, 8]. Although demoralization comprises the "loss of meaning" dimension, it does not simply constitute the opposite side of the global meaning concept. Global meaning reflects a rather stable set of enduring beliefs and core assumptions, while demoralization and its loss of meaning dimension in particular refer to affective, cognitive, and conative *states*. Moreover, development of the personal meaning index avoided affective item content, and findings suggest that there is no construct overlap with psychological outcome measures [32], which is questionable for other measures of meaning. Hence, interpretation of global meaning as a protective factor for demoralization is warranted.

Death acceptance was predictive of anxiety only, while cross-sectional studies found the scale to be negatively related to depression as well [26, 27]. Thus, considering a longer period of time, a life attitude comprising the absence of fear of death and an acceptance of death as a natural

Table 4 Hierarchical regression analysis of depression, anxiety, and demoralization ($N=178$)

Predictors entered	Depression T2					Anxiety T2					Demoralization T2				
	b	S.E. b	β	$p\leq$	$R^{2,\,a}$	b	S.E. b	β	$p\leq$	$R^{2,\,a}$	b	S.E. b	β	$p\leq$	$R^{2,\,a}$
Step 1															
Age	0.02	0.02	0.12	0.12		0.02	0.02	0.12	0.12		0.26	0.08	0.24	0.001	
Gender[b]	−0.16	0.42	−0.03	0.71		−0.96	0.42	−0.16	0.02		−4.73	2.15	−0.15	0.03	
No. of physical problems	0.24	0.05	0.35	0.001		0.23	0.05	0.34	0.001		1.55	0.26	0.43	0.001	
					0.10					0.12					0.19
Step 2															
Age	0.04	0.01	0.18	0.02		0.04	0.01	0.21	0.003		0.34	0.07	0.31	0.001	
Gender[b]	−0.33	0.40	−0.06	0.41		−1.13	0.40	−0.19	0.01		−5.91	2.01	−0.19	0.004	
No. of physical problems	0.21	0.05	0.31	0.001		0.19	0.05	0.27	0.001		1.36	0.25	0.38	0.001	
Global meaning	−0.09	0.03	−0.27	0.001		−0.04	0.03	−0.12	0.09		−0.50	0.13	−0.27	0.001	
Death acceptance	−0.02	0.02	−0.07	0.32		−0.06	0.02	−0.21	0.003		−0.13	0.11	−0.08	0.25	
Goal seeking	0.11	0.03	0.29	0.001		0.13	0.03	0.36	0.001		0.69	0.14	0.35	0.001	
					0.19					0.23					0.31

[a] Adjusted R^2

[b] Female=1, male=2

aspect belonging to life essentially contributes to diminished anxiety. This suggests in turn that a considerable amount of anxiety symptoms in cancer patients might relate to existential fears due to confrontation with death. A study of Adelbratt and Strang [1] investigated facets of death anxiety in brain tumor patients. They found it to be expressed by an overwhelming anxiety for the unknown and uncontrollable, fear of loss of autonomy, and concerns about leaving family members and close friends. Little has been studied in this field, but there is some evidence indicating that death anxiety is negatively related to psychological well-being [7, 35].

Furthermore, results show in line with our hypotheses that a goal-seeking life attitude significantly contributes to the prediction of all assessed aspects of psychological distress. Taking into account that goal seeking is characterized by a need for essential changes in life and a desire for new experiences that can give meaning to life, it may, especially in cancer patients, relate to existential guilt. A sense of existential guilt involves regrets about not having fulfilled one's potential and about missed possibilities to create personal meaning in life. Being diagnosed with a life-threatening illness may raise sensitivity of individuals to review their lives under these aspects [11]. If existential guilt persists and meaning fails to be created by the desired changes during the illness trajectory, distress may occur. This implicates taking expressions of such concerns seriously in order to prevent psychological and existential distress.

To summarize, our results strengthen the assumption that a sense of meaning and purpose, an accepting attitude toward death, and having found valued goals in life represent a unique factor in explaining overall well-being of cancer patients.

This should be reflected by more emphasis being placed on meaning-focused interventions within the field of psycho-oncology. Building on Frankl's basic idea of life as continually containing possibilities to find meaning, even under extremely stressful conditions, different therapeutic programs targeted at patients with cancer have been developed [5, 19, 23]. Interventions can support patients in sustaining or enhancing a sense of meaning and purpose in life by focusing on themes such as the personal life story, the finiteness of life, and value-based sources of meaning [3].

Future research directions can be drawn from the research model [9, 34] presented above. First, studies may focus on the relationship of global meaning and positive psychological states, which was not investigated in this study. Further, as suggested by Park et al. [29], meaning-focused coping processes should be separated from the outcomes of these processes. This would enable researchers to better understand the processes that lead cancer patients to perceive

personal growth and positive changes or even to change basic assumptions due to their illness. Moreover, understanding of meaning-focused coping may be enhanced by investigating and operationalizing the distinction between meaning-making and meaning-*based* coping processes and their respective outcomes (even though these processes may interrelate and occur at the same time). While Folkman [10] emphasized the role of the latter, it is not clearly understood so far which of both is of more importance in which phase of illness adaptation.

A limitation to our findings arises from a comparatively low participation rate regarding the first point of assessment. Due to advanced illness and poor physical state of most inpatients at the oncology and hematology department, a number of patients declared feeling unable to fill out the questionnaire after chemotherapy or other treatment had started. Thus a sample bias toward lower levels of distress has to be considered. However, lower participation rates in recruiting of advanced cancer patients from inpatient treatment settings might be common and hardly avoided. Despite these limitations, results of this study may give valuable information on relevance of global meaning and meaning-related life attitudes in cancer patients.

References

1. Adelbratt S, Strang P (2000) Death anxiety in brain tumour patients and their spouses. Palliat Med 14(6):499–507
2. Boscaglia N, Clarke DM (2007) Sense of coherence as a protective factor for demoralisation in women with a recent diagnosis of gynaecological cancer. Psychooncology 16(3):189–195
3. Breitbart W (2002) Spirituality and meaning in supportive care: spirituality- and meaning-centered group psychotherapy interventions in advanced cancer. Support Care Cancer 10(4):272–280
4. Breitbart W, Gibson C, Poppito SR, Berg A (2004) Psychotherapeutic interventions at the end of life: a focus on meaning and spirituality. Can J Psychiatry 49(6):366–372
5. Breitbart W, Rosenfeld B, Gibson C, Pessin H, Poppito S, Nelson C, Tomarken A, Timm AK, Berg A, Jacobson C, Sorger B, Abbey J, Olden M (2009) Meaning-centered group psychotherapy for patients with advanced cancer: a pilot randomized controlled trial. Psychooncology 19:21–28. doi:10.1002/pon.1556
6. Brennan J (2001) Adjustment to cancer—coping or personal transition? Psychooncology 10(1):1–18
7. Cella DF, Tross S (1987) Death anxiety in cancer survival: a preliminary cross-validation study. J Pers Assess 51(3):451–461
8. Clarke DM, Kissane DW (2002) Demoralization: its phenomenology and importance. Aust N Z J Psychiatry 36(6):733–742
9. Folkman S (1997) Positive psychological states and coping with severe stress. Soc Sci Med 45(8):1207–1221
10. Folkman S, Moskowitz JT (2000) Positive affect and the other side of coping. Am Psychol 55(6):647–654
11. Frankl VE (1984) Der leidende Mensch: Anthropologische Grundlagen der Psychotherapie, 2nd edn. Huber, Bern
12. Frankl VE (1991) Der Wille zum Sinn - Ausgewählte Vorträge über Logotherapie, 2nd edn. Piper, München

13. Frankl VE (2005) Ärztliche Seelsorge. Grundlagen der Logotherapie und Existenzanalyse. Zehn Thesen über die Person, 11th edn. Deuticke, Wien
14. Hermann C, Buss U, Snaith RP (1995) Hospital anxiety and depression scale – Deutsche version. Ein Fragebogen zur Erfassung von Angst und Depressivität in der somatischen Medizin. Huber, Bern
15. Holland JC, Reznik I (2005) Pathways for psychosocial care of cancer survivors. Cancer 104(11):2624–2637
16. Jim HS, Andersen BL (2007) Meaning in life mediates the relationship between social and physical functioning and distress in cancer survivors. Br J Health Psychol 12(3):363–381
17. Jim HS, Richardson SA, Golden-Kreutz DM, Andersen BL (2006) Strategies used in coping with a cancer diagnosis predict meaning in life for survivors. Health Psychol 25(6):753–761
18. Johnson-Vickberg SM, Duhamel KN, Smith MY, Manne SL, Winkel G, Papadopoulos EB, Redd WH (2001) Global meaning and psychological adjustment among survivors of bone marrow transplant. Psychooncology 10(1):29–39
19. Kissane DW, Bloch S, Smith GC, Miach P, Clarke DM, Ikin J, Love A, Ranieri N, McKenzie D (2003) Cognitive-existential group psychotherapy for women with primary breast cancer: a randomised controlled trial. Psychooncology 12(6):532–546
20. Kissane DW, Clarke DM, Street AF (2001) Demoralization syndrome—a relevant psychiatric diagnosis for palliative care. J Palliat Care 17(1):12–21
21. Kissane DW, Wein S, Love A, Lee XQ, Kee PL, Clarke DM (2004) The Demoralization Scale: a report of its development and preliminary validation. J Palliat Care 20(4):269–276
22. Lee V (2008) The existential plight of cancer: meaning making as a concrete approach to the intangible search for meaning. Support Care Cancer 16(7):779–785
23. Lee V, Cohen RS, Edgar L, Laizner AM, Gagnon AJ (2006) Meaning-making intervention during breast or colorectal cancer treatment improves self-esteem, optimism, and self-efficacy. Soc Sci Med 62(12):3133–3145
24. Lethborg C, Aranda S, Cox S, Kissane DW (2007) To what extent does meaning mediate adaptation to cancer? The relationship between physical suffering, meaning in life, and connection to others in adjustment to cancer. Palliat Support Care 5(4):377–388
25. Mehnert A (2008) Der Einfluss von religioeser und sinnbasierter Krankheitsverarbeitung auf Angst und Depressivitaet bei Brustkrebspatientinnen im Krankheitsverlauf. PiÖ 28(1):72–77
26. Mehnert A, Koch U (2008) Psychometric evaluation of the German version of the Life Attitude Profile—Revised (LAP-R) in prostate cancer patients. Palliat Support Care 6(2):119–124
27. Mehnert A, Mueller D, Koch U (2007) Die Erfassung von sinnbasierten Bewaeltigungsstrategien und Lebenseinstellungen. Die deutsche Adaptation des Life Attitude Profile-Revised (LAP-R) an einer repraesentativen Stichprobe von Brustkrebspatientinnen. Z Klin Psychol Psychother 36(3):176–188
28. Mehnert A, Mueller D, Lehmann C, Koch U (2006) Die deutsche Version des NCCN Distress-Thermometers. Empirische Pruefung eines Screening-Instruments zur Erfassung psychosozialer Belastung bei Krebspatienten. ZPPP 54(3):213–223
29. Park CL, Edmondson D, Fenster JR, Blank TO (2008) Meaning making and psychological adjustment following cancer: the mediating roles of growth, life meaning, and restored just-world beliefs. J Consult Clin Psychol 76(5):863–875
30. Park CL, Folkman S (1997) Meaning in the context of stress and coping. Rev Gen Psychol 1(2):115–144
31. Reker GT (1992) Manual of the life attitude profile-revised (LAP-R). Student Psychologists Press, Trent University, Peterborough
32. Reker GT (1997) Personal meaning, optimism, and choice: existential predictors of depression in community and institutional elderly. Gerontologist 37(6):709–716
33. Reker GT (2000) Theoretical perspective, dimensions, and measurement of existential meaning. In: Reker GT, Chamberlain K (eds) Exploring existential meaning. Optimizing human development across the life span. Sage, Thousand Oaks, pp 39–55
34. Reker GT (2007) The search for meaning in life following traumatic brain injury: conceptual, measurement, and application issues. Paper presented at the State of the Science Conference for the RRTC on Community Integration of Persons with Traumatic Brain Injury, Arlington, Virginia
35. Sigal JJ, Ouimet MC, Margolese R, Panarello L, Stibernik V, Bescec S (2008) How patients with less-advanced and more-advanced cancer deal with three death-related fears: an exploratory study. J Psychosoc Oncol 26(1):53–68
36. Simonelli LE, Fowler J, Maxwell GL, Andersen BL (2008) Physical sequelae and depressive symptoms in gynecologic cancer survivors: meaning in life as a mediator. Ann Behav Med 35(3):275–284
37. Vickberg SM, Bovbjerg DH, Duhamel KN, Currie V, Redd WH (2000) Intrusive thoughts and psychological distress among breast cancer survivors: global meaning as a possible protective factor. Behav Med 25(4):152–160
38. Westman B, Bergenmar M, Andersson L (2006) Life, illness and death—existential reflections of a Swedish sample of patients who have undergone curative treatment for breast or prostatic cancer. Eur J Oncol Nurs 10(3):169–176
39. White CA (2004) Meaning and its measurement in psychosocial oncology. Psychooncology 13(7):468–481
40. Xuereb MC, Dunlop R (2003) The experience of leukaemia and bone marrow transplant: searching for meaning and agency. Psychooncology 12(5):397–409