



Pathways to distress: The multiple determinants of depression, hopelessness, and the desire for hastened death in metastatic cancer patients

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ABSTRACT

We tested a model in which psychosocial and disease-related variables act as multiple protective and risk factors for psychological distress in patients with metastatic cancer. We hypothesized that depression and hopelessness constitute common pathways of distress, which mediate the effects of psychosocial and disease-related factors on the desire for hastened death. This model was tested on a cross-sectional sample of 406 patients with metastatic gastrointestinal or lung cancer recruited at outpatient clinics of a Toronto cancer hospital, using structural equation modeling. The results supported the model. High disease burden, insecure attachment, low self-esteem, and younger age were risk factors for depression. Low spiritual well-being was a risk factor for hopelessness. Depression and hopelessness were found to be mutually reinforcing, but distinct constructs. Both depression and hopelessness independently predicted the desire for hastened death, and mediated the effects of psychosocial and disease-related variables on this outcome. The identified risk factors support a holistic approach to palliative care in patients with metastatic cancer, which attends to physical, psychological, and spiritual factors to prevent and treat distress in patients with advanced disease.

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Introduction

The diagnosis and progression of cancer can be a traumatic event in the lives of those affected and may trigger fears of suffering, disability, helplessness, and isolation (Gurevich, Devins, & Rodin, 2002). Distress may arise in a substantial minority of those with advanced disease in the form of depression and hopelessness (Breitbart et al., 2000; Jones, Huggins, Rydall, & Rodin, 2003), and, in a smaller number, with the loss of the will to live or a desire for hastened death (Breitbart et al., 2000; Ganzini et al., 2002; Lavery, Boyle, Dickens, Maclean, & Singer, 2001). The latter may occur in those with inadequate relief of pain or other physical symptoms, depression, hopelessness, social isolation, or a reluctance to depend on others (Breitbart et al., 2000; Ganzini et al., 2002; Lavery et al., 2001).

Converging evidence has identified multiple factors that affect adaptation to trauma and burden, including that associated with advanced cancer. These include social support and self-esteem (Schroevers, Ranchor, & Sanderman, 2003), internal “working models” of self in relation to others (see Mikulincer & Shaver, 2007, for an extensive review), the capacity to find meaning (i.e., spiritual well-being) (Balboni et al., 2007), socioeconomic status (Lorant et al., 2007), and disease-related factors, including stage of disease and physical distress (Jones et al., 2003). These domains are all relevant to modern approaches to health care, including palliative care (WHO, 2007), that address the totality of a patient’s relational existence (Sulmasy, 2002).

We have applied a biopsychosocial model (Sulmasy, 2002) to understand the multiple determinants of psychological distress in patients with metastatic cancer. This model is based on the assumption that constructs such as depression, hopelessness, and the desire for hastened death, represent final common pathways of distress in patients with cancer and in other medically ill populations (Jones et al., 2003; Peveler, Carson, & Rodin, 2002). From this perspective, multiple, interacting physical, psychological, and social variables contribute to the likelihood of these outcomes over

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the course of progressive disease (Borrell-Carrió, Suchman, & Epstein, 2004; Suls & Rothman, 2004). We have previously demonstrated the relationship of some of these antecedents to depression, hopelessness, and the desire for hastened death (Jones et al., 2003). Other studies based on attachment theory (Bowlby, 1982/1969, 1980) have also shown the role of individual characteristics, such as self-esteem and attachment security, in protecting from the traumatic effects of loss and mortality salience (e.g., Taubman Ben-Ari, Florian, & Mikulincer, 1999).

We present here findings about the unique contribution of specific psychosocial and disease-related variables to the prediction of depression, hopelessness, and the desire for hastened death among terminally ill cancer patients. Using cross-sectional data from patients with metastatic gastrointestinal and lung cancer, we have tested a theoretical model (see Fig. 1) in which depression and hopelessness are the most proximal determinants of the desire for hastened death, mediating the effects of physical distress and multiple risk and protective factors on this outcome. The components of the model are discussed briefly below.

Depression, hopelessness, and the desire for hastened death

Depression refers to an emotional disturbance marked by the cardinal symptoms of persistent and pervasive low mood and the loss of interest or pleasure in normal activities (Peveler et al., 2002). Individuals with cancer and other serious medical conditions are at increased risk for persistent depressive symptoms (Nordin, Berglund, Glimelius, & Sjoden, 2001; van't Spijker, Trijsburg, & Duijvenvoorden, 1997). In that regard, major depression has been reported in 14% of cancer patients (Berard, Boormeester, & Viljoen, 1998), 16% of palliative care patients (Breitbart et al., 2000), and up to 29% of patients attending a Pain Therapy and Palliative Care Clinic (Ciaramella & Poli, 2001). These elevated rates, 2–4 times that found in the general population (Rodin & Voshart, 1986), are likely due to the multiple stressors and losses to which individuals with advanced disease are subjected and to the meaning attributed to those experiences (Rodin, Craven, & Littlefield, 1991).

Hopelessness is a psychological construct defined as a “system of cognitive schemas whose common denominator is negative expectations about the future” (Beck, Weissman, Lester, & Trexler, 1974, p. 864). Although initially considered to be a core feature of depression (Beck, Rush, Shaw, & Emery, 1979), it has since been shown to be independently related to suicidality (Beck, Steer, Beck,

& Newman, 1993), the desire for hastened death (Breitbart et al., 2000; Chochinov, Wilson, Enns, & Lander, 1998; Chochinov, Wilson, Enns, & Mowchun, 1995), and the willingness to consider assisted suicide (Ganzini, Johnston, McFarland, Tolle, & Lee, 1998). Some research suggests that hopelessness is an even stronger predictor of suicidality than is depression (Beck, Brown, Berchick, Stewart, & Steer, 2006).

The desire for hastened death refers to the extent to which a more rapid death than would occur naturally is desired (Breitbart et al., 2000). Assessment of the desire for hastened death may have broader application in evaluating the desire for death in the seriously ill or dying than the direct assessment of suicidality, since the former is likely to have a lower threshold and to be less hampered by social and legal constraints (Breitbart et al., 2000). The desire for hastened death has been shown to be associated with physical distress, depression, hopelessness, low social support, and impaired spiritual well-being in patients with metastatic cancer (Rodin, Zimmermann et al., 2007) but has been found to be more common in palliative care settings (Breitbart et al., 2000; McClain, Rosenfeld, & Breitbart, 2003; Rosenfeld et al., 2000). Hopelessness and, to a lesser extent, depression, have been found to mediate the effect of illness-related factors, such as pain and number of physical symptoms, on the desire for hastened death (Jones et al., 2003).

Controversy persists regarding the relation between depression, hopelessness, and the desire for hastened death. It has been suggested that hopelessness may lead to depression (Johnson et al., 2001), may be a subtype of depression (Joiner et al., 2001), or, together with depression and suicidality, may constitute a single syndrome (Shahar, Bareket, Rudd, & Joiner, 2006). Consistent with the findings of Shahar et al. (2006), we have postulated that depression and hopelessness are mutually reinforcing and, based on earlier findings (Jones et al., 2003), that depression and hopelessness may both mediate the impact of risk factors on the desire for hastened death.

Risk and protective factors

Attachment security

In his exposition of attachment theory, Bowlby (1982/1969, 1980) explained that the availability of caring, supportive relationship partners, beginning in infancy, is an important determinant of attachment security (confidence that one is competent and deserving of love, and that caregivers will be available and supportive when needed). In turn, attachment security fosters the development of stable self-esteem, constructive coping strategies, maintenance of emotional stability, and the formation of mutually satisfying relationships throughout life. Mikulincer and Shaver (2007) have extensively shown that individuals with strong attachment security believe that they can rely on the support of others, whereas those with a relative lack of attachment security either worry about being abandoned by others (anxious attachment style) or believe that they must rely upon themselves and not depend upon others (avoidant attachment style). Several studies have also demonstrated that securely attached individuals are less likely to suffer from depression and hopelessness (e.g., Bifulco, Moran, Ball, & Bernazzani, 2002; Ciechanowski, Sullivan, Jensen, Romano, & Summers, 2003; Shorey, Snyder, Yang, & Lewin, 2003; Wei, Heppner, & Mallinckrodt, 2003). Moreover, attachment security seems to promote a sense of symbolic immortality (Florian & Mikulincer, 1998), thereby protecting individuals from the terrifying awareness of their finitude (Mikulincer, Florian, & Tolmacz, 1990). We have recently shown that attachment security protects from depression among patients with cancer, an effect partly mediated through the association of attachment security with greater social support (Rodin, Walsh et al., 2007).

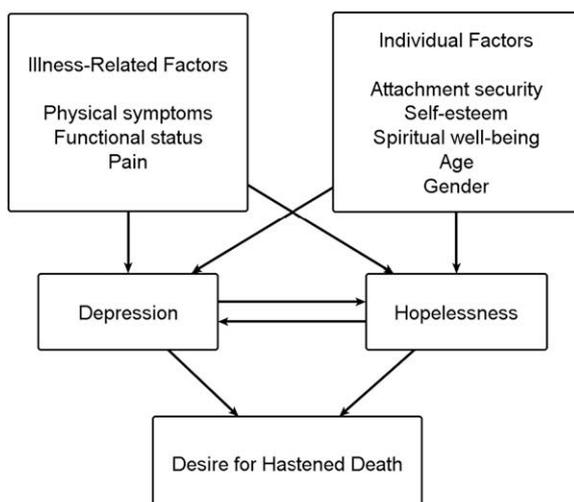


Fig. 1. A heuristic model of the associations between illness-related factors, individual factors, and psychological distress.

Self-esteem

The multiple losses and bodily alterations resulting from advanced disease inevitably represent challenges to identity and to the sense of self. Low self-esteem has been associated with greater risk of depression (Brown & Moran, 1997; Roberts, Gotlib, & Kassel, 1996), poorer recovery from depression (Sherrington, Hawton, Fagg, Andrew, & Smith, 2001), poorer adjustment in medical populations (Penninx et al., 1997), and the desire for death in individuals with HIV disease (Lavery et al., 2001). The preservation of self-worth may be a fundamental challenge facing individuals with advanced disease, and an important predictor of well-being in this context.

Spiritual well-being

Spirituality has been defined as the way in which people understand and live their lives in view of their ultimate meaning and value (Muldoon & King, 1995). It is a subjective experience that occurs both within and outside of traditional religious systems (Vaughan, Wittine, & Walsh, 1996). Spiritual concerns are typically awakened at the end of life, and the lack of meaning at that time may have an important bearing on the will to live (Lo et al., 2002). Although predictive of religiousness and spirituality (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002), spiritual well-being is considered primarily an individual state or outcome, rather than a set of beliefs about divinity, humanity, or ultimate truth (Gomez & Fisher, 2003). Lack of spiritual well-being has been associated with depression in cancer patients and the terminally ill (Nelson, Rosenfeld, Breitbart, & Galiotta, 2002), and with lower tolerance of physical symptoms (Brady, Peterman, Fitchett, Mo, & Cella, 1999). In the terminally ill, spiritual well-being can act as a buffer against depression, hopelessness, and the desire for hastened death (Breitbart, 2002). Overall, the evidence suggests that spiritual well-being is an important protective factor against psychological distress in patients with advanced and terminal disease.

Physical burden

There is evidence that the physical burden of disease contributes to symptoms of depression, hopelessness, and the desire for hastened death (Breitbart et al., 2000; Jones et al., 2003; Rosenfeld et al., 2000). In that regard, cancer pain has been consistently associated with psychological distress, most notably depression (Kelsen et al., 1995; Spiegel, Sands, & Koopman, 1994), but also hopelessness (Sela, Bruera, Conner-Spady, Cumming, & Walker, 2002). Indeed, intense uncontrolled pain is one of the most feared consequences of cancer (Levin, Cleland, & Dar, 1985), and one of the most frequent reasons for seeking a hastened death through euthanasia (Breitbart, 1987, 1990).

A heuristic model

Fig. 1 presents a heuristic model of the hypothesized relationships between physical burden, attachment security, self-esteem, spiritual well-being, depression, hopelessness, and the desire for hastened death. We used structural equation modeling to apply this model to a cross-sectional dataset of patients with metastatic gastrointestinal or lung cancer. We have previously reported on the relationship between attachment security and depression (Rodin, Walsh, et al., 2007; see also Rodin, Zimmermann et al., 2007, for detailed sample characteristics). The unique contribution of the present paper is in presenting a comprehensive test of all relationships articulated in our model.

Method

Measures

Cognitive functioning was assessed using the Short Orientation–Memory–Concentration Test (SOMC; Katzman et al., 1983).

Individuals scoring under 20 were identified as being cognitively impaired and ineligible for the study.

Self-esteem was assessed using the 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1989). Scores may range from 10 to 40 with higher scores representing greater self-esteem.

Attachment security was assessed using the 36-item Experiences in Close Relationships scale (ECR; Brennan, Clark, & Shaver, 1998; Lo et al., 2008) to measure attachment anxiety (fear of rejection and abandonment) and avoidance (discomfort with closeness and dependence on close others) in close relationships. Scores on the attachment anxiety and avoidance subscales may range from 1 to 7, with higher scores on each of these dimensions representing greater attachment insecurity.

Spiritual well-being was assessed using the 12-item Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being Scale, which has been validated in cancer populations (FACIT–Sp–12; Cella et al., 1993). The FACIT–Sp–12 measures meaning and peace (a sense of meaning, purpose, and peace in one's life) and faith (a sense of comfort and strength from one's faith and beliefs). Scores may range from 0 to 4 with higher scores on these dimensions representing greater spiritual well-being.

Physical burden was measured using: (i) a shortened version of the Memorial Symptom Assessment Scale (MSAS; Portenoy et al., 1994), which assesses the presence and frequency of 25 common physical symptoms of cancer in the past week. The symptom count variable may range from 0 to 25. The frequency scores were averaged and could range from 0 to 4 with higher scores representing greater frequency; (ii) the Brief Pain Inventory (BPI; Cleeland, 1989), which assesses average pain severity in the past 24 h. Scores may range from 0 to 10 with higher scores representing greater pain; and (iii) the Karnofsky Performance Status (KPS; Karnofsky & Burchenal, 1949) scale, which assesses physical functioning. KPS was rated at the time of recruitment based on responses to a standard set of questions asked by the research assistant concerning the patient's capacity for physical functioning and self-care. Ratings may range from 100 (normal activities, no signs of disease) downwards in decrements of 10 to 0 (dead).

Depression was assessed using the Beck Depression Inventory–II (BDI–II; Beck, Steer, & Brown, 1996), a 21-item measure of depressive symptoms during the preceding 2 weeks that is concordant with the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., text revision (DSM–IV–TR; APA, 2000) criteria for major depressive disorder. Scores may range from 0 to 63 with higher scores representing increased depressive symptoms.

Hopelessness was assessed using the Beck Hopelessness Scale (BHS; Beck et al., 1974), a 20-item true/false scale developed to quantify hopelessness and negative expectancies. Scores may range from 0 to 20 with higher scores representing increased hopelessness.

Desire for hastened death was assessed with the Schedule of Attitudes Toward Hastened Death (SAHD; Rosenfeld et al., 1999), a 20-item true/false scale that includes items related to the desire for a hastened death, the will to live, and the anticipated burden of physical and emotional suffering. The scale has been shown to be reliable and valid in terminally ill cancer patients (Breitbart et al., 2000; Rosenfeld et al., 2000). Scores may range from 0 to 20 with higher scores representing an increased desire for hastened death.

Participants and procedure

The research protocol was approved by the Research Ethics Board of the University Health Network, and all participants provided informed written consent. Participants were recruited between November 2002 and March 2007 from medical and radiation oncology outpatient clinics at Princess Margaret Hospital, a comprehensive cancer center in Toronto, Canada. Patients were

eligible if they were 18 years of age or older; were sufficiently fluent in English to provide informed consent and complete self-report questionnaires; and had a confirmed diagnosis of Stage IV gastrointestinal or Stage IIIA, IIIB, or IV lung cancer. Individuals with these diseases at these stages have a significantly foreshortened survival. Among lung cancer patients, fewer than 15% with Stage III and almost none with Stage IV disease will survive for 5 years following diagnosis (Shepherd, 2000). The survival rates for Stage IV gastrointestinal cancer are more variable, although the 5-year survival rate of patients with cancer of the colon and rectum is only 6–7% (Ries, Reichman, Lewis, Hankey, & Edwards, 2003).

Patients were excluded if they had a confirmed diagnosis of carcinoid or neuroendocrine carcinoma, or if significant cognitive impairment was documented in the medical chart, identified by their physician, or demonstrated by a failure to meet the cut-off on the SOMC. Participants who consented were assessed using the SOMC. Those scoring 20 or more were given a KPS rating and their demographics were recorded. The patient was then given the questionnaire package to complete in the waiting room or at home; a stamped, return envelope was provided.

Statistical analysis

Data were analyzed using PROC CALIS in SAS 9.1 (SAS Institute, 2008) for Windows XP. Descriptive statistics were calculated for demographic and medical data, and for illness-related, psychosocial, and distress variables.

The relationships between age, gender, self-esteem, attachment security, spiritual well-being, physical burden, depression, hopelessness, and the desire for hastened death were evaluated using structural equation modeling (SEM). SEM enables testing of theoretical models that identify the pattern of relationships among a set of variables. It provides evidence of whether the hypothesized pattern of relationships fits the observed associations and offers simultaneous estimates of all specified pathways. The resulting path coefficients, like regression coefficients, quantify the degree of relationship between two variables. Like other parametric statistical techniques, SEM makes normality assumptions, but simulation studies have shown it to be robust against even severe nonnormality in the variables under analysis (Lei & Lomax, 2005).

A two-step procedure was used to generate a parsimonious model of the data. The first step involved a confirmatory factor analysis to specify a measurement model with acceptable fit to the data. Goodness of fit was assessed using the non-normed fit index (NNFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). A good fit is indicated by an NNFI and CFI above 0.95 and an RMSEA below 0.06.

The measurement model describes the relationships between latent (i.e., unobserved) factors and their indicators, and estimates the associations between all structural variables. In the present study, we extracted one latent factor, labeled *Physical burden*, from four indicators: the number of physical symptoms; the frequency of physical symptoms; mean pain severity; and KPS. The resulting latent factor represents a combined measure of the physical burden of disease, and is the only structural variable in this study with multiple indicators. The remaining variables (e.g., age, self-esteem, anxious attachment, depression, hopelessness) were directly observed or measured by a single indicator.

The second step involved testing a structural model in which unidirectional paths join only selected structural variables. This model should demonstrate acceptable fit to the data, according to the NNFI, CFI, and RMSEA fit statistics. Each model also has an associated chi-square value indicative of fit. To obtain the best model, non-significant paths can be removed, and the simpler model tested using a chi-square difference test. In the present

study, path elimination ended when all remaining paths were significant and the Wald test did not identify any extraneous paths.

Results

Sample characteristics and descriptive statistics

A total of 406 participants with Stage IV (metastatic) gastrointestinal or Stage IIIA, IIIB, or IV (recurrent or metastatic) lung cancer were recruited from the ambulatory outpatient clinics at Princess Margaret Hospital. Table 1 presents descriptive statistics and internal reliabilities for relevant measures. We examined the skewness coefficients of our variables and found that desire for hastened death had a moderate positive skew. However, given the adequate sample size in the current study and the robustness of SEM against nonnormality (Lei & Lomax, 2005), we chose to conduct our main analysis without transforming this variable.

Variable selection

Preliminary SEM analyses indicated that when the effects of age, self-esteem, anxious attachment, meaning and peace, faith, and physical burden were controlled for, gender and avoidant attachment were no longer significantly associated with depression, hopelessness, or the desire for hastened death. Gender and avoidant attachment were, therefore, excluded from further analysis.

Structural equation models

The measurement model

The measurement model fit well, with NNFI and CFI above 0.95, and RMSEA below 0.06 (see Table 2). The physical burden latent factor was successfully extracted from the four indicators of number of physical symptoms, frequency of physical symptoms, mean pain severity, and KPS. The standardized factor loadings were 0.63 for number of physical symptoms; 0.46 for frequency of physical symptoms; 0.60 for mean pain severity; and -0.48 for KPS. Large sample *t*-tests of the loadings were all significant ($p < 0.001$).

Table 1
Sample characteristics (N = 406)

Variable	Description	Min–max	Cr. alpha
Age in years	61.49 (11.02)	21–88	
Male gender	57.6%		
Type of cancer			
Colon/appendix	29.3%		
Rectal/anal canal	9.9%		
Pancreas	12.3%		
Liver/gallbladder/biliary ducts	11.8%		
Stomach (Gastric)/esophageal	6.2%		
Lung	30.3%		
Number of physical symptoms	6.76 (4.71)	0–25	
Frequency of physical symptoms	2.23 (0.80)	0–4	
Mean pain severity	1.49 (1.96)	0–8.5	0.90
Karnofsky performance status	81.55 (9.47)	40–90	
Self-esteem	33.93 (4.65)	19–40	0.87
Anxious attachment	2.40 (1.01)	1–6.2	0.91
Avoidant attachment	3.05 (0.93)	1.1–6.3	0.87
Spiritual meaning and peace	3.14 (0.70)	1–4	0.87
Spiritual faith	2.40 (1.22)	0–4	0.88
Depressive symptoms	10.94 (7.40)	0–51	0.90
Hopelessness	5.44 (4.69)	0–20	0.90
Desire for hastened death	1.74 (2.16)	0–13	0.72

Note: where appropriate, descriptions are provided of the percentages of the sample in the category or of means (and standard deviations). Minimum and maximum values are provided for continuous variables. One patient had a diagnosis of unknown GI primary. Cr. alpha = Cronbach's alpha.

Table 2
Fit statistics for all models

Model	χ^2	df	CFI	NNFI	RMSEA	χ^2 diff
1. Measurement model	41.52	26	0.987	0.968	0.038	
2. Initial model: All paths to depression & hopelessness	47.53	32	0.987	0.974	0.035	6.01
3. Anxious attachment → hopelessness deleted	47.55	33	0.988	0.976	0.033	6.03
4. Self-esteem → hopelessness deleted	48.35	34	0.988	0.977	0.032	6.83
5. Age → hopelessness deleted	50.41	35	0.988	0.976	0.033	8.89
6. Physical burden → hopelessness deleted	53.12	36	0.986	0.975	0.033	11.60
7. Faith → depression deleted	57.64	37	0.983	0.970	0.037	16.12
8. Hopelessness → depression added	49.74	33	0.986	0.973	0.035	8.22
9. Meaning & peace → depression deleted	50.62	34	0.987	0.974	0.035	9.10

Note: the χ^2 diff value is calculated by subtracting the measurement model χ^2 from the current model χ^2 . All χ^2 diff tests were non-significant.

The initial structural model

The initial model is depicted in Fig. 2. At this stage, only one path was specified between depression and hopelessness for reasons of model identification. We return to this issue in the specification of later models. The initial model is otherwise a close translation of our heuristic model in which depression and hopelessness act as mediators of the desire for hastened death.

The initial model fit the data well (see Table 2 for CFI, NNFI, and RMSEA fit statistics). The fit of the initial model was then compared to the fit of the measurement model using the chi-square difference test. The test was non-significant indicating that the two models did not differ in fit (see Table 2).

Path elimination and revised models

The initial model was unsatisfactory because there were a number of non-significant paths, most of them associated with hopelessness. Therefore, a search for a simpler model was initiated. Table 2 presents the fit statistics of each re-estimated model and the path deleted in that iteration. For example, the path from anxious attachment to hopelessness was eliminated first because the Wald test indicated that this would have minimal impact on model fit. The resulting model is identified as Model 3 in Table 2. The fit statistics improved slightly. The chi-square difference test found that the fit of Model 3 was not significantly different from the

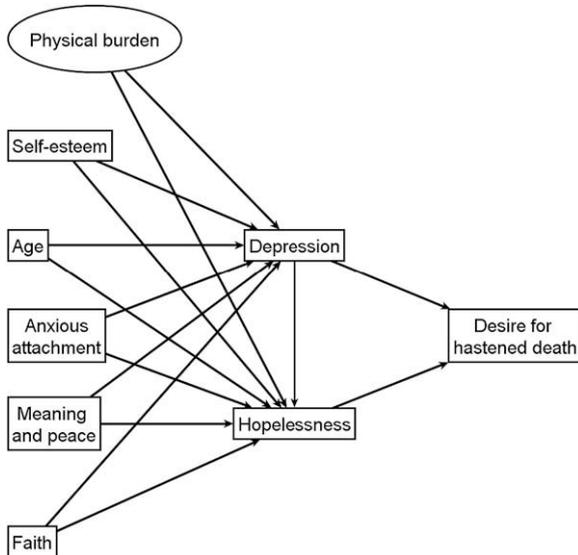


Fig. 2. The initial model predicting depression, hopelessness, and the desire for hastened death. Note: Physical burden is a latent factor (shown by an oval) extracted from four indicators. The other variables were single indicator variables (shown by rectangles).

fit of the measurement model. Five paths were eliminated to arrive at Model 7. At each step, the revised models displayed acceptable fit to the data and comparable fit with the measurement model.

Fig. 3 depicts Model 7 with standardized path coefficients. The fit statistics were acceptable, the chi-square difference test was non-significant, and all paths were significant ($p < 0.05$). The model predicted 61% of the variance in depression scores, 41% of the variance in hopelessness scores, and 34% of the variance in the desire for hastened death.

Mutual reinforcement

Although Model 7 fit well, it was not fully consistent with our heuristic model in which we hypothesized bidirectional pathways between depression and hopelessness (i.e., that depression and hopelessness may be mutually predictive or reinforcing), based in part on work by Shahar et al. (2006). With the elimination of all extraneous paths, we were able to satisfy the statistical conditions necessary to identify and test a non-recursive model in which hopelessness also simultaneously predicted depression. The fit of Model 8, with the additional hopelessness to depression pathway, was good. The chi-square difference test was non-significant. However, the pathway from meaning to depression was no longer significant. A Wald test confirmed that this path could be deleted, producing Model 9 (see Fig. 4 for standardized pathways and Table 3 for unstandardized pathways). Model 9 fit well. The chi-square difference test was non-significant. All pathways were significant ($p < 0.05$). This final model predicted 58% of the variance in depression, 40% of the variance in hopelessness, and 33% of the variance in the desire for hastened death. Lastly, we also conducted a secondary analysis in which we log transformed the desire for hastened death scores (to reduce skewness) before entering this variable into the structural equation models. We found the same pattern of results.

Discussion

The data support a theoretical model in which depression and hopelessness are the most proximal determinants of the desire for hastened death, mediating the effects of illness-related and individual factors on the desire for hastened death. Disease burden was the strongest predictor of depression, with psychosocial and demographic characteristics operating as either protective or risk

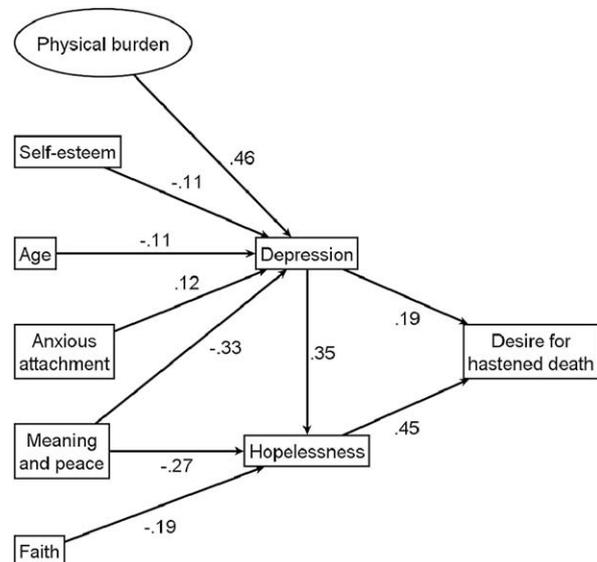


Fig. 3. Model 7 (with standardized coefficients) predicting depression, hopelessness, and the desire for hastened death.

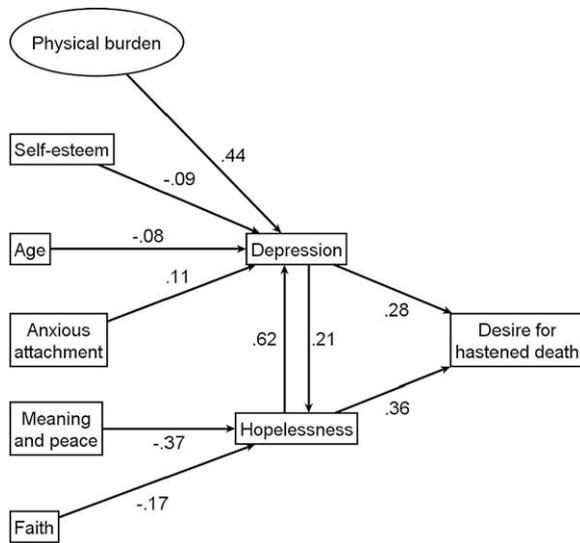


Fig. 4. Model 9 (with standardized coefficients) predicting depression, hopelessness, and the desire for hastened death.

factors. Individuals with lower self-esteem and more anxious attachment style were at greater risk for depressive symptoms, in keeping with the view that worry about the availability of support and, perhaps, difficulty in making flexible use of it, are related to depression in the context of serious illness (Tan, Zimmermann, & Rodin, 2005).

The predictors of hopelessness and of depression were clearly different, confirming that the two constructs can be discriminated. Depression was a more direct consequence of physical burden, while spiritual well-being protected against hopelessness. These findings are compatible with the view that losing hope is related to existential concerns, whereas depressive symptoms are more directly linked to the physical course of disease. The severity of depression, reflected in the BDI-II, is based in part on the presence of somatic symptoms, which are features of both more severe depression and of advanced cancer. Patients who experience greater physical distress as a consequence of the disease and/or its treatment may score more highly on some depression inventories than less physically distressed patients (Trask, 2004). Nevertheless, depression scores have been shown to be valid indicators of depressive disorders in patients with cancer (Hotopf, Chidgey, Addington-Hall, & Ly, 2002). Further, our finding that hopelessness was not directly related to physical burden and yet was predictive of depression suggests that depression (or at least some component of it) reflects a psychological disturbance (Akechi, Akizuki, Sakuma, & Yoshikawa, 2003). From this perspective, depression may be related to symptom burden not simply because of symptom overlap but because somatic symptoms (and the psychological stress that they impose) constitute a risk factor for depression.

Table 3
Unstandardized pathway coefficients and standard errors for Model 9

Pathway	B	SE
Physical burden → depression	1.1	0.15
Self-esteem → depression	−0.15	0.06
Age → depression	−0.06	0.02
Anxious attachment → depression	0.83	0.26
Meaning & peace → hopelessness	−2.4	0.42
Faith → hopelessness	−0.64	0.15
Depression → hopelessness	0.13	0.05
Hopelessness → depression	0.97	0.13
Depression → desire for hastened death	0.08	0.03
Hopelessness → desire for hastened death	0.17	0.06

Although distinct, we found that depression and hopelessness were mutually reinforcing variables. The unequally weighted paths between depression and hopelessness suggest that individuals who feel hopeless are more likely to suffer depressive symptoms than depressed individuals are likely to feel hopeless. Longitudinal studies are needed to determine to what extent either of these symptoms tend to be enduring and linked over time. However, in this cross-sectional study, both hopelessness and depression were positively associated with the desire for hastened death, thereby constituting a triad of distress.

In the present study, symptoms of depression, hopelessness, and the desire for hastened death are conceptualized as disturbances which each exist on a continuum. Although official psychiatric nomenclatures tend to classify depression into diagnostic categories based on the severity and duration of symptoms, considerable evidence suggests that the boundaries of such categories are arbitrary and, in some cases, unjustified (Kendler & Gardner, 1998). Some have suggested that the diagnostic thresholds for disorders such as major depression are set too low (Horwitz & Wakefield, 2007), whereas others argue that subthreshold psychological disturbances are associated with significant functional impairment (Kessler, Zhao, Blazer, & Swartz, 1997).

The multiple factors that may contribute to depression, hopelessness, and the desire for hastened death are important because they help to identify vulnerable individuals and potential targets for tailored interventions. The relationships that were elucidated illustrate how distress is generated by the interaction of multiple factors. These include psychological factors, such as self-esteem, attachment security, and spiritual well-being; illness-related factors, such as the severity of physical distress; and demographic factors, such as age. Interventions for cancer patients which address or take these factors into account may help to prevent or diminish the cascade of distress in individuals with advanced disease. These may include interventions that bolster self-esteem by promoting a sense of mastery or empowerment (Schofield et al., 2008), that are directed at preserving the sense of meaning and hope (Breitbart, 2002; Duggleby et al., 2007), or that consider attachment orientation in the delivery of social support (Tan et al., 2005).

Some limitations of the study relate to causality, measurement precision, and generalizability. The data are cross-sectional and non-experimental, and can only suggest causal relations. Although the tested models fit well, there may be other “causal” models that are consistent with the data. Caution is also warranted in interpreting the relationships in the final model as indicating longitudinal effects. The model represents a snapshot in time of the relationships between variables, and their pattern and strength may be temporally changing. The second limitation is the use of single indicators for each psychosocial variable. SEM offers the most stable pathway estimates when multiple measures are used to assess each construct in the model (Kline, 2005). In this study, multiple indicators were obtained only for disease burden in order to minimize participant burden while obtaining clinically relevant, illness-related information. The third limitation concerns the reliance on modification indices (i.e., Wald tests) for model refinement. Using modification indices tends to tailor the model to the sample data with its chance variations, running the risk that the resulting model fits well but does not generalize. The model presented here is an initial effort to chart the relationships between distress and multiple risk and protective factors. More confirmatory style analyses will be needed to determine the validity of the model.

A final limitation of the study is that we are unable to specify the determinants of spiritual well-being. Future research is needed to identify the spiritual/religious struggles and coping strategies (e.g., feeling punished or abandoned by God) that may lead to lower levels of spiritual well-being, and in turn, hopelessness and the desire for hastened death (Pargament, Koenig, Tarakeshwar, &

Hahn, 2001). A better understanding of the spiritual and religious cognitions that promote adaptation to cancer would also contribute to the development of more efficacious spiritual interventions.

In conclusion, the present study supports the view that depression, hopelessness, and the desire for hastened death represent final common pathways of distress determined by multiple risk and protective factors. A strong relationship between physical and psychological distress supports an integrated and comprehensive approach to palliative and supportive care. In response to the current emphasis on distress detection in cancer patients, the present findings point to the potential value for patients with metastatic cancer of interventions directed to relieve physical, psychological, and spiritual distress.

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