## PAPER

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# Demoralization and death anxiety in advanced cancer

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## Abstract

**Objective:** The circumstances of advanced cancer can cause considerable psychological distress, including death anxiety and demoralization. Although these states of existential distress have a negative impact on the quality of life of patients with advanced cancer, they are rarely evaluated as outcomes or targets of interventions in this population. In an effort to improve understanding of existential distress, a structural model of relationships among death anxiety, demoralization, symptom burden, and social relatedness was tested in patients with advanced cancer.

**Methods:** A total of 307 patients with advanced cancer completed baseline measures including the Death and Dying Distress Scale, the Demoralization Scale, the modified Experiences in Close Relationships Scale, the Life Completion subscale of the Quality of Life Evaluation–Cancer scale, the Memorial Symptom Assessment Scale, and Karnofsky Performance Status. A structural equation model of protective and risk factors for demoralization and death anxiety was tested.

**Results:** The final model had good fit (SRMR = 0.061; RMSEA = 0.077; CFI = 0.927; NNFI = 0.902) in which death anxiety was positively associated with demoralization ( $\beta$  = 0.71), and demoralization was positively associated with symptom burden ( $\beta$  = 0.31) and negatively associated with social relatedness ( $\beta$  = -0.74).

**Conclusions:** The findings of this study suggest that demoralization and death anxiety are closely linked in patients with advanced cancer. The contribution of both symptom burden and low social relatedness to demoralization suggests that an integrated intervention addressing both physical and psychosocial disease factors may be most effective at alleviating such states of existential distress.

#### **KEYWORDS**

advanced cancer, death anxiety, demoralization, existential distress, structural equation modeling, terror management theory

## 1 | BACKGROUND

Advanced cancer may trigger significant psychological distress, as affected individuals become more aware of their prognosis and experience greater symptom burden.<sup>1</sup> A significant component of this distress is existential in nature, related to the loss of meaning and purpose in life<sup>2</sup> in the context of impending mortality. Individuals with advanced disease must face fears about dying and death. Levels of

such death-related distress are moderate-to-high in a substantial proportion of patients with advanced disease.<sup>3</sup> Such distress may be related to the fear of burdening close others, the awareness of the loss of time and opportunity, and the potential for pain and suffering as the disease progresses.<sup>4</sup> In healthy populations, terror management theory<sup>5</sup> has suggested that the capacity to manage the "terror" of death is linked to the sense of meaning in life,<sup>6</sup> to self-worth,<sup>7</sup> and to the experience of social relatedness.<sup>8</sup> However, there is scant

empirical research on the management of death anxiety in individuals who are near the end of life, and death anxiety is not included as an outcome in trials of most palliative interventions, even though alleviating this state is a central goal of palliative care.<sup>9</sup>

In the medically ill, demoralization has been characterized by feelings of hopelessness, the loss of meaning, and the sense of failure,<sup>10-12</sup> which may be the clinical manifestation of the inability to cope with impending mortality. It is hypothesized to arise following the experience of repeated failure to cope with one's circumstances,<sup>12</sup> an understandable response to the inexorable progression of metastatic and advanced cancer. Indeed, the preservation of morale may be a final buffer that protects individuals from the terror of dying and death in the face of progressive disease. In patients with advanced cancer, demoralization has been associated with higher symptom burden,<sup>13</sup> less perceived social support,<sup>11</sup> and the emergence of anticipatory fears about pain and suffering, and burdening of loved ones.<sup>14</sup>

The sense of connection to others has been linked to less distress in patients with advanced cancer<sup>15</sup> and other life-threatening illnesses.<sup>16</sup> Individuals with a strong sense of connection to others may have more access to and ability to make use of supportive relationships and a greater sense of purpose in life, as rooted in the experience of meaningful relationships.<sup>15</sup> This experience has been operationalized in the construct of social relatedness,<sup>15</sup> deriving from internalized expectations of support, termed attachment security, and from current perceived social support. However, this sense of connection may become attenuated in those with advanced cancer, as physical disability progressively limits the capacity to engage in valued social and community activities, and to maintain family roles and intimate relations.<sup>17</sup>

Drawing on research findings from the study of patients with advanced disease, we tested a heuristic model hypothesizing that the fear of death and dying is associated with the state of demoralization, and that demoralization is in turn related to the cumulative burden of disease and the loss of connection to others (see Figure 1). We also expected a negative correlation between social relatedness



**FIGURE 1** Heuristic model where higher symptom burden and less social relatedness are associated with the state of demoralization. This in turn is positively related with death anxiety. Note: Demoralization is an observed variable, denoted by a rectangle, while symptom burden, social relatedness, and death anxiety are latent variables, indicated by ovals

and symptom burden. This model may have clinical value, as each of the components is a potential target of therapeutic intervention.

## 2 | METHODS

## 2.1 | Participants and procedure

The present analysis used data collected as part of a trial of a psychotherapeutic intervention called Managing Cancer and Living Meaningfully (CALM) (NCT01506492).<sup>18</sup> Baseline data from 307 individuals recruited at the Princess Margaret Cancer Centre (PM), part of the University Health Network (UHN) in Toronto, Canada was used in the present analysis.<sup>19</sup> The study received approval from the research ethics board of the UHN (REB #09-0855), and all participants provided written informed consent.

Participants were recruited from outpatient oncology clinics at PM from 2 February 2012 to 4 March 2016. All participants had a diagnosis of stage III or IV ovarian, fallopian tube, or lung cancer; stage IV melanoma, sarcoma, breast, gastrointestinal, genitourinary, or gynecologic cancers; or pancreatic cancer at any stage. Additional eligibility requirements were a prognosis of 12 to 18 months, fluency in English, being over 18 years of age, no cognitive impairment (as documented in the medical chart or a score of <20 on the Short Orientation-Memory-Concentration test), no brain metastases (as documented in the medical chart), and not seeing a psychiatrist or psychologist at PM at the time of recruitment.

Electronic health records were screened to identify eligible patients. A research assistant approached eligible individuals during a routine visit in their oncology clinic. For those who agreed to participate in the study, informed consent was obtained at this time. Participants were asked to provide demographic information and to fill in questionnaire measures at baseline.

## 2.2 | Measures

Symptom burden was measured using the brief Memorial Symptom Assessment Scale (MSAS), a 28-item measure of symptom prevalence and severity in cancer patients,<sup>20</sup> and the Karnofsky Performance Status (KPS) score quantifying functional status in cancer patients.<sup>21</sup> Higher scores on the MSAS indicate greater number or severity of symptoms, while a higher score on the KPS indicates better functional ability.

*Demoralization* was assessed using the Demoralization Scale (DS), a 24-item measure developed to assess existential distress in patients facing an advanced illness.<sup>22</sup> The DS captures various aspects of demoralization, including helplessness, dysphoria, disheartenment, sense of failure, and loss of meaning. Higher DS scores indicate higher levels of existential distress.

Social relatedness was operationalized as a latent construct composed of attachment security and social support,<sup>15</sup> and was measured using two self-report questionnaires: the modified Experiences in Close Relationships scale (ECR-M16) and the Life Completion subscale of the Quality of Life at the End-of-Life—Cancer questionnaire (QUAL-EC). The ECR-M16 contains 16 items that measure attachment security in patients with advanced cancer.<sup>23</sup> The ECR-M16 has two subscales assessing anxious attachment (fear of abandonment) and avoidant attachment (defensive independence). Higher scores on each subscale indicate more attachment anxiety or avoidance, respectively. The QUAL-EC is a reduced, 17-item version of the Quality of Life at the End-of-Life measure that assesses quality of life at the end-of-life in advanced cancer patients.<sup>24</sup> This question-naire has four domains: life completion, symptom impact, relationship with health care provider, and preparedness for the end-of-life. The Life Completion subscale contains items that assess interpersonal connections (eg, "There is someone in my life with whom I can share my deepest thoughts") and the extent to which respondents feel that they are cared for and able to contribute and give to others (eg, "I have been able to say important things to those close to me"; "I make a positive difference in the lives of others").<sup>24</sup> Higher scores correspond to an increased sense of being in meaningful relationships.

Death-related distress was measured using the Death and Dying Distress Scale (DADDS),<sup>3</sup> a 15-item measure that broadly captures distress related to the end of life, including fear of loss of time and opportunity (items 1, 2, 3, 6), fear of an uncertain future (items 4, 5, 7, 9, 10), fear of suffering and pain (items 8, 12, 14), and fear of sudden death (items 11, 13, 15). Higher DADDS scores indicate higher levels of death-related distress.

#### 2.3 | Statistical analysis

Descriptive statistics were calculated for demographic and diseaserelated data, and death-related distress. Baseline data were used to build a structural model of relationships among death anxiety, demoralization, social relatedness, and symptom burden in advanced cancer.

Structural equation modeling (SEM) is a statistical tool used to assess whether hypothesized relationships among variables fit to observed patterns in data. Unlike standard regression models, SEM can incorporate both measured variables and latent factors (ie, hypothesized underlying constructs that are represented by a cluster of observed variables) and offers simultaneous estimates of all pathways.<sup>25</sup> A two-step approach, recommended by Anderson and Gerbing,<sup>26</sup> was used in the present analysis.

First, a confirmatory measurement model was tested for goodness of fit to ascertain whether the latent factors specified in the heuristic model (Figure 1) could be represented using the measured indicator variables. The measurement model included three latent factors: symptom burden, social relatedness, and death anxiety, and one directly measured factor (demoralization). The measurement model does not specify any directional relationships between latent variables. Instead, all latent variables are allowed to correlate freely.<sup>27</sup> Second, a structural model specifying only hypothesized directional pathways between factors was tested for goodness of fit.

A number of fit indices were consulted to assess model fit, as suggested by current literature,<sup>28</sup> including the Comparative Fit Index (CFI), Non-normed Fit Index (NNFI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR), Akaike Information Criterion (AIC), in addition to the model chi-square ( $\chi^2$ ). Conventionally recommended cut-offs to assess model fit include values of CFI and NNFI ≥0.95, RMSEA ≤0.06, and SRMR ≤0.08.<sup>29</sup> However, there is considerable debate regarding the

appropriateness of stringent cut-offs for measures of fit, as these criteria do not guarantee model validity.<sup>30</sup> Bollen and Long<sup>31</sup> state that fit indices are influenced by numerous factors, including the research context and the amount of substantive contribution of the model to its field. Marsh and colleagues<sup>30</sup> also emphasize that the cut-offs suggested by Hu and Bentler<sup>29</sup> cannot be generalized to all fields. As such, we evaluated model fit in a graded fashion. CFI and NNFI values of 0.95 or more would be excellent and between 0.90 and 0.95 good. RMSEA values of 0.06 or less would be excellent and between 0.06 and 0.08 good. SRMR values of 0.08 or less would be excellent and between and between 0.08 and 0.10 good. Modification indices were also consulted to determine if model fit could be improved.

Finally, we compared the fit of the structural model to a fully saturated model (in which all pathways between factors were specified) using the chi-square difference test and the AIC index. In this situation, the fit of the measurement model is identical to that of a fully saturated structural model, and so those fit statistics were used for the comparison. A non-significant  $\chi^2$  difference is desirable as this would indicate that our more parsimonious structural model fits the data as well as the fully saturated model. A lower AIC value also indicates a better-fitting, more likely model.

## 3 | RESULTS

Descriptive statistics for participants are presented in Table 1. The mean DADDS score was  $35 \pm 17$ , with a range of 0 to 75. The mean symptom count was  $13 \pm 4.7$  (ranging 0-26), the mean symptom severity was  $1.7 \pm 0.4$  (ranging 1-4, with 4 indicating "very severe"), and the median performance status of the sample on the KPS was 80, which corresponds to the patient being able to carry out "Normal activity with effort, some signs or symptoms of disease". Additional descriptive statistics on measures of attachment security, life completion, and demoralization can be found in Table 1. Correlations among these variables are listed in Table 2.

## 3.1 | The measurement model

Three latent factors were extracted from the measurement model: death anxiety, symptom burden, and social relatedness. Each latent factor was measured by at least three observed variables (see Table 3 for factor loadings). Variables that load with a value greater than 0.4 make a meaningful contribution to the factor, that is, these variables can be considered to measure the proposed latent factor.<sup>27</sup>

The fit indices for the measurement model were: SRMR = 0.060, RMSEA = 0.080, CFI = 0.925, NNFI = 0.894, AIC = 169.33,  $\chi^2$  (df) = 115 (39). The SRMR was excellent, and the RMSEA, CFI, and NNFI were good. Modification indices did not suggest any theoretically meaningful changes. As such, we chose to accept the model without change, meaning that the latent factors were successfully extracted.

## 3.2 | The structural model

Next, the structural model was tested (Figure 2). The fit indices for this model were SRMR = 0.061, RMSEA = 0.077, CFI = 0.927, NNFI = 0.902, AIC = 165.37,  $\chi^2$  (df) = 115 (41). The fit indices were

## **TABLE 1** Sample characteristics (N = 307)

	% (n)	Mean ± SD	Range
Age		59 ± 11.2	21-88
Sex, female	60 (185)		
Primary language, English	87 (268)		
Religious	70 (215)		
Married/common-law	71 (219)		
Children <18 years old	18 (55)		
Ethnicity			
Caucasian	84 (258)		
Black	3 (10)		
East/Southeast Asian	5 (16)		
South Asian	2 (6)		
Other	6 (17)		
Education			
High school	17 (53)		
College/trade	25 (77)		
Undergraduate	30 (93)		
Post-graduate/professional	28 (84)		
Cancer site			
Gynecological	26 (79)		
Gastrointestinal	25 (74)		
Genitourinary	17 (52)		
Lung	13 (41)		
Breast	7 (23)		
Other	12 (38)		
Number of physical symptoms		13 ± 4.7	0-26
Physical symptom severity		2 ± 0.4	1-3
Karnofsky performance status		80 ± 9.8	50-100
Anxious attachment		21 ± 9.3	8-49
Avoidant attachment		22 ± 8.9	8-44
Life completion		18 ± 3.9	9-25
Demoralization		28 ± 14.1	0-75
Death anxiety		35 ± 17.1	0-75

essentially unchanged, with very slight improvements over the measurement model in the RMSEA, CFI, and NNFI indices. The correlation between symptom burden and social relatedness was non-significant (r = -0.16, P = 0.08), but both latent factors had significant direct effects on demoralization ( $\beta = 0.31$ , SE = 0.06, P < 0.001;  $\beta = -0.74$ ,

in the model
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**TABLE 3** Standardized factor loadings for each latent factor. Variables that load with a value greater than 0.4 make a meaningful contribution to the factor<sup>27</sup>

Factor	Indicator	Loading
Death anxiety	Fear of loss of time/opportunity Fear of sudden death Fear of uncertain future Fear of pain and suffering	0.76 0.72 0.79 0.64
Symptom burden	Symptom count Symptom severity Performance status	0.66 0.55 -0.47
Social relatedness	Life completion Anxious attachment Avoidant attachment	0.56 -0.65 -0.55

SE = 0.05, *P* < 0.001, respectively). Demoralization had a significant direct effect on death anxiety ( $\beta$  = 0.71,SE = 0.03, *P* < 0.001). The chi-square difference test comparing the structural model to the fully saturated model was non-significant,  $\chi^2_{diff}(df) = 4$  (2), indicating that no explanatory power was lost. The structural model had a lower AIC value (165.37) than the full model (169.33), suggesting that it is more likely.

As a supplementary analysis, the fit of a structural model reversing the pathway between death anxiety and demoralization (ie, with death anxiety predicting demoralization) was also tested. This model had worse fit to the data compared with the hypothesized model (SRMR = 0.075, RMSEA = 0.113, CFI = 0.844, NNFI = 0.714, AIC =249.87,  $\chi^2$  (df) = 198 (41)).

## 4 | DISCUSSION

In this study of demoralization and death anxiety in 307 patients with advanced cancer, we found that higher symptom burden and lower social relatedness were both associated with demoralization, which in turn was strongly associated with death anxiety. These findings suggest that death anxiety may emerge in the context of demoralization, which may develop when individuals feel overwhelmed by the cumulative burden of progressive disease and by the experience of social isolation and disconnection. Although the model tested proposes that death anxiety is more likely in the context of demoralization, the relationship between demoralization and death anxiety may well be reciprocal with synergistic and mutually amplifying effects.

	Symptom Count	Symptom Severity	Performance Status	Anxious Attachment	Avoidant Attachment	Life Completion	Demoralization	Death Anxiety
Symptom count	1	0.33**	-0.33**	0.08	0.14	-0.14	0.36**	0.26**
Symptom severity		1	-0.30**	0.09	0.02	0.01	0.24**	0.16*
Performance status			1	0.05	0.09	-0.06	-0.08	-0.08
Anxious attachment				1	0.35**	-0.25**	0.54**	0.39**
Avoidant attachment					1	-0.46**	0.37**	0.24**
Life completion						1	-0.45**	-0.21*
Demoralization							1	0.66**
Death anxiety								1

\*Correlation is significant at the 0.05 level.

\*\*Correlation is significant at the 0.001 level.

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**FIGURE 2** Structural model (with standardized path coefficients) where symptom burden is positively associated with demoralization, while social relatedness is negatively associated with it. Demoralization is, in turn, positively associated with death anxiety. \*\* = P < 0.0001

Theories about the psychological response to death and dying have often been based on a hypothesized sequential process. This is evident in Kubler-Ross' five-stage model,<sup>32</sup> with presumed progression in the stages of grief from denial, anger, bargaining, depression, and acceptance, in Buckman's three-stage model of the resolution of emotions in response to death acceptance,<sup>33</sup> and Pattison's model of dying with progression through the phases of acute crisis, chronic living dying, and the terminal phase.<sup>34</sup> These models suggest a sequential progression from the initial reaction to death salience, which often includes protest and denial, ultimately followed by death acceptance. A somewhat different process is suggested by the term "double awareness," which refers to the sustained duality of remaining engaged in the world, while also accepting and preparing for death.<sup>35</sup> The model tested in the present study is consistent with the last approach, as individuals who continue to experience a sense of connection to and engagement with close others in the context of an increasing disease burden may be less likely to become demoralized and experience death anxiety. The strong, negative relationship between social relatedness and demoralization suggests the importance of remaining engaged with a social support network in order to maintain a sense of morale and manage psychological distress. Individuals in this sample had an expected prognosis of 12-18 months and good physical functioning; as such they were still physically able to engage in their daily lives. As individuals become increasingly symptomatic toward the end-of-life, the contribution of symptom burden to psychological distress may be greater than in the present model.

According to terror management theory,<sup>36</sup> the tripartite mechanism composed by the sense of meaning in life,<sup>6</sup> self-worth,<sup>7</sup> and social relatedness<sup>8</sup> protects against the emergence of death anxiety in healthy populations. Consistent with this perspective, we found that social disconnection and demoralization, which encompasses the sense of failure, hopelessness, and loss of meaning, may reflect a relative failure of this mechanism to protect from existential distress in the terminally ill. Although demoralization has been associated with generalized anxiety and other mood disorders in palliative populations,<sup>37</sup> the present study demonstrates a novel relationship between demoralization and death anxiety, two constructs which have been examined independently in previous research. In prior work, demoralization has also been associated with the desire for hastened death.<sup>10,38</sup> The paradox that demoralization can be associated with both the desire for death and the fear of death can be explained in that most patients are less afraid of death in and of itself than of the dying process and the potential for pain and suffering to be inflicted upon oneself and loved ones.<sup>3,39</sup> Hence, the desire for hastened death can be understood to represent a wish to circumvent such dying-related fears. To the extent that individuals have options in terms of palliative care and access to assisted dying, they may experience a greater sense of control over dying and be more reassured against the uncertainties that lie ahead.<sup>14,40</sup>

Lastly, we found no association between symptom burden and social relatedness in this study and suspect that the lack of correlation may have to do with how social relatedness was operationalized. In a prior investigation, we did indeed find a negative correlation,<sup>15</sup> but in this model, life completion rather than perceived social support was used to help construct the social relatedness factor. Life completion assesses a generative sense of connection to others, which may be better able to withstand the rigors of physical disease,<sup>40</sup> and may be more stable relative to immediate experiences of the supportiveness of others.

## 4.1 | Clinical implications

The current model is consistent with a prior model showing the joint contribution of psychosocial and disease-related factors toward demoralization, which was also found to be a key mediating state on the pathway to further distress.<sup>38</sup> Our model suggests that an integrated approach may be needed to prevent the escalation of existential distress in patients with advanced cancer. Such an approach may involve an interdisciplinary team that routinely provides both early palliative and early psychological care before the emergence of emotional disturbance. Such psychological care may seek to bolster morale by preparing individuals and families to face the anticipated emotional and physical challenges ahead and by supporting the experience of social relatedness. The promotion of social relatedness may involve assisting individuals and families to communicate and to negotiate dependency needs,<sup>19</sup> and to encourage meaningful relational experiences that underlie a sense of generativity and legacy.<sup>40</sup>

### 4.2 | Study limitations

Limitations to this study include that the sample consists of predominantly Caucasian, English-speaking, well-educated individuals receiving cancer treatment at a large, urban, regional cancer centre. There also could be a selection bias in recruitment, as participants were all individuals with advanced disease who were participating in a psychotherapy trial. The generalizability of the findings to other populations therefore remains to be determined. Finally, this cross-sectional analysis does not permit determination of causality, and there may also be other pathways to death anxiety. Future research may also seek to better characterize the similarities and differences between death anxiety and generalized anxiety in advanced cancer.

## 5 | CONCLUSIONS

The findings of this study suggest that death anxiety in individuals with advanced cancer is related to the state of demoralization, which may be heightened by the burden of physical symptoms and by a relative lack of social relatedness. These findings support the view that an integrated approach to physical and psychological well-being is needed to diminish existential distress in individuals with advanced cancer. Research is currently in progress to confirm these findings with longitudinal observations and with clinical trials examining the impact of integrated psychosocial and symptom-focused interventions on demoralization and death anxiety.

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## CONFLICT OF INTEREST STATEMENT

None declared.

#### PRIOR PRESENTATION

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