

Age and depression in patients with metastatic cancer: the protective effects of attachment security and spiritual wellbeing

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ABSTRACT

Psychological distress in cancer patients is inversely related to age, although the reasons are unclear. The adult development literature suggests that ageing may be associated with the development of adaptive capacities, specifically greater attachment security (the sense that others will be available and supportive when needed) and spirituality (the capacity to view one's life as having meaning, purpose and value), that enable older people to cope better with disease. We examined whether age-related patterns in attachment security and spiritual wellbeing account for the protective effect of age against distress. Measures of depression, attachment security, spiritual wellbeing and disease burden were collected from 342 patients aged from 21 to 88 years with advanced, metastatic cancer. Attachment security and spiritual wellbeing were tested as mediators of the effect of age on depression, controlling for disease burden. It was found that age was associated inversely with depression and positively with spiritual wellbeing and attachment security. Depression was inversely related to attachment security and spiritual wellbeing, and the effect of age on depression was fully mediated by attachment security and spiritual wellbeing. The relative protection from psychological distress among older cancer patients may be the result of age-related developmental accomplishments and/or differences in the response to adverse life-events.

KEY WORDS – adult development, advanced cancer, ageing, attachment, depression, spirituality.

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Introduction

Physical distress and stage of disease have been shown to be consistent predictors of depression in patients with cancer (Rodin *et al.* 2007*b*), but the relationship between disease burden and psychological distress is shaped by several individual and social factors, including age (Ellis *et al.* 2009), attachment security (Rodin *et al.* 2007*a*) and spiritual wellbeing (McClain, Rosenfeld and Breitbart 2003). Older cancer patients tend to report less psychological distress than younger patients, an age-related pattern that has been attributed to differences in disease burden, social support and variations in circumstances across the lifecourse (Mosher and Danoff-Burg 2005; Strong *et al.* 2007). Distress may also be greater in young cancer patients because of the greater adaptive challenges at their life stage, including anticipated losses in their careers, family life and fertility (Mosher and Danoff-Burg 2005; Strong *et al.* 2007). Compared to older individuals, they may also have had fewer opportunities to develop the adaptive skills by which to manage stress and depressive affect (Gross *et al.* 1997; Jorm *et al.* 2005) or to develop accommodative coping strategies to deal with uncontrollable losses (Brandtstadter and Greve 1994).

Adult attachment theory provides a framework from which to understand the modulation of distress in cancer patients (Hunter, Davis and Tunstall 2006; Tan, Zimmermann and Rodin 2005). *Attachment security*, the sense that the world is a safe place and that others will be available, responsive and helpful when needed, is associated with a greater capacity to rely on social support during times of distress (Mikulincer and Shaver 2007). This characteristic has been assessed in adults on dimensions of attachment anxiety and avoidance. *Anxious attachment* represents the degree to which individuals worry about being rejected, abandoned or unloved by significant others, while *avoidant attachment* refers to the degree to which individuals are distrustful of others, and choose to rely upon only themselves (Mikulincer and Shaver 2007). People who score low on these two dimensions are said to be securely attached. There is extensive evidence that secure attachment, particularly the dimension of attachment anxiety, associates with greater subjective wellbeing, self-esteem, psychological functioning and social adjustment, and that it can buffer the emotional effects of stressful and traumatic events (*see* Mikulincer and Shaver 2007 for a review). Consistent with this hypothesis, attachment security in patients with end-stage cancer has been associated with greater perceived social support and, in turn, with less psychological distress (Hunter *et al.* 2006) and depression (Rodin *et al.* 2007*a*).

Attachment security is a relatively stable individual characteristic that nevertheless may be shaped or modified by life experience, including

traumatic events and the nature and quality of supportive relationships (Grossmann, Grossmann and Waters 2005; Mikulincer and Shaver 2007; Zhang and Labouvie-Vief 2004). Longitudinal studies have revealed a developmental trend in which adults become more securely attached with greater age (Grossmann, Grossmann and Waters 2005; Zhang and Labouvie-Vief 2004), which has been attributed to the tendency to establish over time more stable and caring relationships, and to internalise 'working models' of attachment relationships in line with these relational experiences (Grossmann, Grossmann and Waters 2005; Zhang and Labouvie-Vief 2004). Taken together, these findings raise the possibility that growth in attachment security over time may account for the inverse relationship among cancer patients between age and distress.

Spirituality has been defined as the capacity to understand the ultimate meaning, purpose and value of one's life (Muldoon and King 1995). The term *spirituality* overlaps in the cancer research literature with *spiritual wellbeing* (Brady *et al.* 1999; McClain, Rosenfeld and Breitbart 2003; Stefanek, McDonald and Hess 2005), with the latter term often used to refer to the perceived outcome that one's life has had meaning, purpose and value (Edmondson *et al.* 2008). Longitudinal measurement may be necessary, however, to distinguish spirituality as a trait or characteristic from spiritual wellbeing as an outcome that may change. The measure of spiritual wellbeing most commonly used in cancer research, the Functional Assessment of Chronic Illness Therapy – Spiritual Well-being Scale (FACIT-Sp) was initially developed by asking cancer patients, psychotherapists and hospital chaplains to describe aspects of spirituality that contribute to quality of life. The moderate correlation of this measure with other measures of religiosity and spirituality has been used to demonstrate its convergent validity (Peterman *et al.* 2002). Spirituality may increase in response to negative life events in older adults (Wink and Dillon 2002), and greater spiritual wellbeing has been associated with less depression in individuals with advanced medical illnesses such as terminal cancer (McClain, Rosenfeld and Breitbart 2003) and heart failure (Bekelman *et al.* 2007).

It has been postulated that spiritual wellbeing contributes to the capacity to maintain hope, equanimity and acceptance in the face of terminal disease (Breitbart 2002; Chochinov and Cann 2005). Longitudinal research (Wink and Dillon 2002) has found that spirituality tends to increase with age (*see* Dalby 2006 for a review), and has been associated with the developmental phenomenon termed 'gerotranscendence' (Torstam 1996). This phenomenon may be explained by the growing desire with the passage of time to reflect on life experience, by the increasing salience and acceptance of mortality, and by the expansion of self-knowledge with age and experience (Wink and Dillon 2002). In summary, the published

evidence suggests that attachment security and spirituality tend to increase with age, and that both may mediate the inverse relationship between age and psychological distress among cancer patients. This hypothesis has not previously been tested. The study reported here examined whether greater age relates to greater attachment security and greater spiritual wellbeing among patients with metastatic lung or gastrointestinal cancer, and whether those factors mediate the protective effect of age on depression, controlling for the physical burden of disease.

Method

Participants and procedure

The study sample comprised 342 outpatients with a confirmed diagnosis of Stage III or IV lung or Stage IV gastrointestinal cancer who attended clinics at Princess Margaret Hospital, a comprehensive cancer treatment centre in Toronto, Canada, and who participated in a longitudinal study of the will to live among patients with advanced cancer (Rodin *et al.* 2007*b*). Individuals at these disease stages have significantly short survival prospects. Among lung cancer patients, fewer than 15 per cent with Stage III and almost none with Stage IV disease will survive for five years following diagnosis (Shepherd 2000). The survival rates for Stage IV gastrointestinal cancer are more variable, although the five-year survival rate of patients with cancer of the colon and rectum is only 6–7 per cent (Ries *et al.* 2003). All participants were aged 18 or more years and not cognitively impaired, as indicated by scoring 20 or more on the Short Orientation-Memory-Concentration Test at the time of recruitment (Katzman *et al.* 1983); and were sufficiently fluent in English to provide written, informed consent and to complete the self-report questionnaires. After fully explaining the study to the subjects, written informed consent was obtained. The Short Orientation-Memory-Concentration test was administered to the eligible participants and they were given a questionnaire pack to complete in the clinic or at home.¹

Materials and measures

Medical and socio-demographic data, including date of birth, gender, marital status and disease site, were obtained from medical charts. The Beck Depression Inventory-II (BDI-II) (Beck, Steer and Brown 1996) is a 21-item self-report measure of the intensity of depressive symptoms that is widely used with cancer patients (Schneider 1998). Scores may range from '0' to '63', with higher scores representing increased depressive

symptoms. The 36-item Modified Experiences in Close Relationships Scale (Lo *et al.* 2009) was used to measure attachment anxiety (*i.e.* the fear of rejection and abandonment) and attachment avoidance (*i.e.* defensive independence) in relation to close others. Scores on both the attachment anxiety and avoidance subscales may range from '1' to '7', with higher scores representing greater attachment insecurity.

The FACIT-Sp (Peterman *et al.* 2002) is a 12-item self-report scale that measures feelings of spiritual faith, meaning and peace. Scores may range from '0' to '4', with higher scores representing greater spiritual wellbeing. The Memorial Symptom Assessment Scale (Portenoy *et al.* 1994) was used to assess the presence and frequency of 25 common physical symptoms of cancer. The symptom count variable may range from '0' to '25'. The symptom frequency scores were averaged and could range from '0' to '4', with higher scores representing greater frequency. The Brief Pain Inventory-Short Form (Cleeland 1989) is a self-report measure of the severity and impact of pain on daily functioning in patients suffering from cancer or chronic disease. It was used to measure the degree to which pain interferes with seven daily activities, including walking, work, and relations with others. Scores may range from '0' to '10', with higher scores representing greater pain interference.

Statistical analysis

The descriptive statistics for the variables of interest were calculated,² and a path analysis carried out with Preacher and Hayes' (2008) SAS multiple mediation macro, which uses ordinary least-squares regression to estimate path coefficients while controlling for covariates. The macro provides simultaneous estimates of the magnitude of the indirect effects (*i.e.* the age–mediator–depression pathways) along with boot-strapped confidence intervals (CI), which have the advantage of not assuming normal sampling distributions (Preacher and Hayes 2008). The estimate for an indirect effect is simply the product of the standardised age to mediator path coefficient multiplied by the standardised mediator to depression path coefficient. The CI acts as a significance test of the indirect effect. If the CI does not encompass zero, then the indirect effect is statistically significant.

Results

Table 1 presents the sample characteristics and scale reliabilities, and Table 2 the simple correlations between the potential mediating variables.

TABLE 1. *Sample characteristics*

Variables and categories	%	Mean	Minimum	Maximum	Cronbach's α
Age groups (years):					
≤40	3.5				
40–50	13				
50–60	27				
60–70	32				
>70	25				
Male gender	57				
Married/common law	70				
Disease site:					
Colorectal	36				
Lung	32				
Hepatobiliary ¹	13				
Pancreas	13				
Gastric/oesophageal	5.9				
Age (years)		61	21	88	
Symptom count		7.3	1	22	
Symptom frequency		2.4	1	4	
Pain interference		1.9	0	10	0.96
Attachment anxiety		2.4	1.0	6.2	0.91
Attachment avoidance		3.1	1.1	6.3	0.87
Spiritual wellbeing		2.9	0.8	4.0	0.88
Depressive symptoms		11	0	51	0.90

Notes: Sample size 342. Percentages within a category or means for continuous variables are presented as appropriate. Observed minimum and maximum values are presented for continuous variables. 1. Hepatobiliary: having to do with the liver plus the gallbladder and bile ducts.

TABLE 2. *Correlations between attachment variables and spiritual wellbeing*

Variables	Variables		
	AANX	AAVO	SWB
AANX: Attachment anxiety	1.00	0.31***	−0.26**
AAVO: Attachment avoidance		1.00	−0.28***
SWB: Spiritual wellbeing			1.00

Significance levels: ** $p < 0.01$, *** $p < 0.0001$.

Preliminary analyses indicated that gender and marital status were not statistically significant control variables, nor was attachment avoidance a significant mediator, so these variables were excluded from further analysis. Without any mediators in the model, the direct effect of age on depression was significant (see Figure 1 for the standardised path coefficient), controlling for symptom count, symptom frequency and pain interference. The strong age effect manifests in the prevalence of clinical depression: 36 per cent of the younger patients (aged no more than

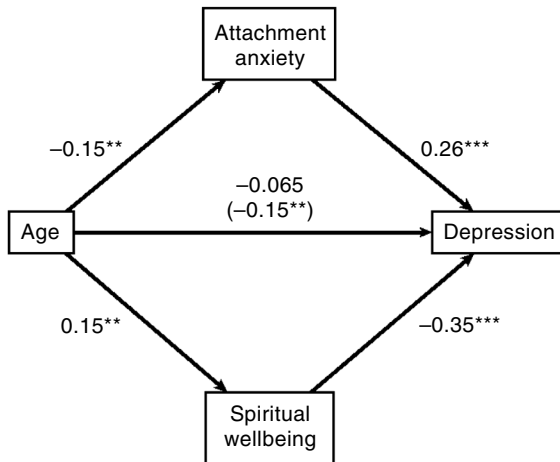


Figure 1. Standardised path coefficients for the mediation of age on depression, controlling for disease burden.

Notes: Two standardised path coefficients are shown for the relationship between age and depression: the value in parentheses is the direct effect without mediation, and the value outside the parentheses is the direct effect with the mediators in the model. Pathways involving the control variables are not shown.

Significance levels: ** $p < 0.01$, *** $p < 0.0001$.

60 years) had clinically significant levels of depression (a score of 15 or more on the BDI-II), compared to 22 per cent of older patients, a relative risk of 1.6 (95% CI 1.2–2.3).

We then tested whether anxious attachment and spiritual wellbeing were mediators of this age to depression relationship. Figure 1 depicts the standardised path coefficients in the mediation model, controlling for symptom count, symptom frequency and pain interference. With the mediators included, age no longer significantly predicted depression, indicating that anxious attachment and spiritual wellbeing fully mediated the age to depression relationship. The indirect effect of age on depression as mediated through anxious attachment was -0.039 (95% CI -0.079 to -0.011). The indirect effect of age on depression as mediated through spiritual wellbeing was -0.050 (95% CI -0.091 to -0.017). Both indirect effects were therefore statistically significant. Lastly, Table 3 presents the standardised path coefficients between the control variables and the other variables in the mediation model. The three control variables were significantly associated with depression, but only symptom count was significantly associated with attachment anxiety, and only symptom frequency was significantly associated with spiritual wellbeing. Overall, the mediation model explained 56 per cent of the variance in depression.

TABLE 3. Standardised path coefficients for control variables predicting attachment anxiety, spiritual wellbeing and depression among metastatic cancer patients

Control variable	Attachment anxiety	Spiritual wellbeing	Depression
Symptom count	0.20**	-0.05	0.24***
Symptom frequency	0.02	-0.13*	0.17***
Pain interference	0.11	-0.07	0.25***

Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.0001$.

Discussion

This study of metastatic cancer patients has found that greater age associated with less depression and that this age relationship was significantly accounted for by the positive associations between age and attachment security and spiritual wellbeing. These relationships were found while controlling for the effects of disease burden, as measured by number of physical symptoms, symptom frequency and pain interference, and were independent of gender and marital status. The findings raise the possibility that the relatively low level of depression among older cancer patients derives from their greater capacity to bear the distresses of the disease. Developmental growth in attachment security and spiritual wellbeing across the lifecycle would help explain this age-related pattern.

A number of factors may contribute to the age-related patterns in attachment anxiety and spiritual wellbeing. Younger patients may on average have had less opportunity to solidify and maintain secure close relationships and to internalise those experiences (Grossmann, Grossmann and Waters 2005; Zhang and Labouvie-Vief 2004). Consistent with this hypothesis, a community survey of older adults (aged 60–64 years) reported fewer interpersonal conflicts with family and friends than among younger (aged 20–24 years) and midlife adults (aged 40–44 years) (Jorm *et al.* 2005). Although the relationship between age and attachment security in our sample was independent of marital status, it might be influenced by the duration and quality of the patients' marriages. The duration of marital relationships may be age-related and such continuous partnerships have been shown to be linked to greater attachment security (Davila, Karney and Bradbury 1999), although marital quality may moderate the relationship between marital duration and attachment security.

The present findings are consistent with the hypothesis that younger adults have had less time than older adults to achieve and to reflect on their life experience and to consolidate a sense of spiritual meaning, purpose

and faith (Dalby 2006; Wink and Dillon 2002). It is also possible, however, that younger patients with incurable cancer experience a greater decline of spiritual wellbeing because the associated losses and disappointments are perceived as more traumatic (Exley and Letherby 2001). Further, older individuals may be more likely to respond to such negative life events with growth in their spirituality (Wink and Dillon 2002). Research is needed to evaluate the relative contribution of these competing explanations.

Some caution is advised with regard to the present findings. The tendency of older patients to experience less distress should not be taken to mean that they require less psychosocial care, for they may nevertheless have considerable unmet needs in this domain (Bouchardy *et al.* 2007). In particular, older patients may have concerns about functional limitations in daily life, social isolation or a self-perceived burden that their care will place on others (Stanton 2006). Unfortunately, however, older cancer patients are less likely to be referred for specialist psychosocial care, even at similarly elevated levels of distress (Ellis *et al.* 2009).

It is important to note that cohort effects in the study population could confound the effect of age on depression. In that regard, it is unclear to what extent the increased acceptability of emotional expression and a decrease in the stigma associated with using support services over the past few decades (Holland 2003) has influenced the level of self-reported distress among younger cancer patients. Other limitations of this study, which may affect the generalisability of its findings, include the cross-sectional design, the limitation of the sample to patients with metastatic disease, the under-representation of individuals aged less than 40 years, the selective recruitment of patients receiving outpatient care at a specialist cancer centre, and the exclusion of those who did not speak English or who were cognitively impaired.

In conclusion, the original contribution of this analysis is the suggested explanation of the protective effect of age against distress among cancer patients. The findings indicate that spiritual wellbeing and attachment security mediate the inverse relationship between age and depression among individuals with metastatic cancer. These results support the view that ageing is associated not only with increasing vulnerabilities and pathologies but also with the development of new, adaptive capacities (Brandtstadter and Greve 1994). Paradoxically, older individuals may suffer from the tendency of others to under-estimate their adaptive strengths as well as their needs for support. More research is needed to identify how the age-related attitudes of patients and their medical caregivers may affect the referral for and benefit derived from different supportive interventions.

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NOTES

- 1 A stamped addressed envelope was provided. The study received ethical approval from the University Health Network Research Ethics Board.
- 2 Analyses were conducted using SAS 9.1 for Windows software.

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