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Insecure attachment predicts depression and death anxiety in advanced cancer patients

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ABSTRACT

Objective: The prevalence of depression as well as adjustment and anxiety disorders is high in advanced cancer patients, and research exploring intraindividual factors leading to high psychological distress is underrepresented. Cancer patients' feelings about security and trust in their healthcare providers have a significant influence on how they deal with their disease. The perception of social support is affected by patients' attachment styles and influences their reactions to feelings of dependency and loss of control. We therefore aimed to explore attachment and its association with psychological distress in patients with advanced cancer.

Method: We obtained data from the baseline measurements of a randomized controlled trial in advanced cancer patients. Patients were sampled from the university medical centers of Hamburg and Leipzig, Germany. The main outcome measures included the Patient Health Questionnaire, the Death and Dying Distress Scale, the Memorial Symptom Assessment Scale, and the Experience in Close Relationships Scale for assessing attachment insecurity.

Results: A total of 162 patients were included. We found that 64% of patients were insecurely attached (fearful-avoidant 31%, dismissing 17%, and preoccupied 16%). A dismissing attachment style was associated with more physical symptoms but did not predict psychological distress. A fearful-avoidant attachment style significantly predicted higher death anxiety and depression, whereas preoccupied attachment predicted higher death anxiety only. Overall, insecure attachment contributed to the prediction of depression (10%) and death anxiety (14%).

Significance of results: The concept of attachment plays a relevant role in advanced cancer patients' mental health. Healthcare providers can benefit from knowledge of advanced cancer patients' attachment styles and how they relate to specific mental distress. Developing a better understanding of patients' reactions to feelings of dependency and distressing emotions can help us to develop individually tailored advanced cancer care programs and psychotherapeutic interventions.

KEYWORDS: Advanced cancer, Attachment, Depression, Death anxiety

INTRODUCTION

Cancer patients have various psychological reactions to the diagnosis and treatment of their disease. Depression, adjustment, and anxiety disorders are highly prevalent (Adelbratt & Strang, 2000; Kuhnt et al., 2016; Mitchell et al., 2011; Tong et al., 2016), especially in advanced cancer patients (Kolva et al., 2011; Walker et al., 2013). However, there is a lack of research on the intraindividual psychological factors that can lead to high psychological distress in this population.

During the course of their treatment, cancer patients' expectations and perceptions of social support are fundamental to a feeling of security and trust in their healthcare providers, and they have a big

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influence on how patients deal with their disease (Glinska et al., 2012; Holwerda et al., 2012). Attachment theory offers an explanation of individual perceptions of social support and the way one reacts to loss of security in terms of interpersonal interactions (McLean & Nissim, 2007). Depending on their first meaningful relationships, individuals form expectations about the availability and responsiveness of others close to them and develop a secure or insecure attachment style. Attachment insecurity can be further described on the two continuous dimensions of "avoidance" and "anxiety" (Brennan et al., 1998; Fraley & Shaver, 2000). Securely attached individuals expect others to be available and helpful when they need them and feel worthy of their help. Anxiously attached individuals do not feel worthy of another person's help and constantly worry about the availability of others. In case of a cancer diagnosis, anxiously attached patients utilize primary care more frequently and report more somatic symptoms (Ciechanowski et al., 2002; 2003). Avoidantly attached individuals do not experience close others as helpful in terms of regaining security and therefore have difficulties with intimacy. In the case of a somatic disease, avoidantly attached patients thus express little need for help and can hardly bear to be dependent on others (Tan et al., 2005). Despite the evidence for the two-dimensional approach (Brennan et al., 1998), a categorical approach has proven useful in clinical practice. Based on the two dimensions of anxiety and avoidance, Bartholomew and Horowitz (1991) proposed a four-category model that characterizes attachment based on the individual extent of anxious and avoidant tendencies. While secure individuals demonstrate low anxiety and low avoidance, insecure individuals exhibit high anxiety and low avoidance ("preoccupied" attachment), low anxiety and high avoidance ("dismissing" attachment), or both high anxiety and high avoidance ("fearful-avoidant" attachment).

The attachment system becomes activated in times of high stress (Bowlby, 1977), such as a life-threatening medical disease (Mikulincer & Shaver, 2007*a*; Milberg et al., 2012). Due to progressive physical decline, advanced cancer brings up issues of dependency and loss of control, leaving patients to fall back on their first attachment experiences. With progression of the disease, advanced cancer patients are progressively less able to fulfill their professional and social roles. Instead, the need for practical help of close others and professional medical teams increases rapidly. This highlights the possible importance of attachment with respect to advanced cancer patients' mental health.

Several studies have revealed associations between attachment insecurity and psychosocial distress in cancer patients. Nicholls et al. (2014) examined the role of relationship attachment in psychological adjustment to cancer in patients and caregivers in a systematic review that included five studies of advanced cancer patients. Securely attached patients were found to utilize more positive coping strategies in their adjustment to the disease, whereas anxiously attached patients had poorer mental health outcomes compared to dismissing or secure patients. This supports the theoretical basis of anxiously attached patients rather than highlighting difficulties and negative emotions, whereas avoidant patients downplay symptoms in order to stay independent (Hunter et al., 2006). Patients' attachment styles seem to define how much independence versus stable and predictable relational support that patients will require during treatment. Thus, practical medical and psycho-oncological care can benefit from further knowledge about associations with mental distress, leading the therapist to find a more sensitive way to build up a personal relationship with the client.

The present study aimed to explore attachment in advanced cancer patients in order to begin to understand how attachment style may influence mental distress in this special situation.

We therefore adopted the following research aims: (1) to describe the attachment styles of advanced cancer patients; (2) to explore the role of age, education, gender, and number of physical symptoms in relation to attachment styles in advanced cancer patients; and (3) to examine the association between attachment styles and depression and death anxiety in advanced cancer patients.

Based on the current research, we hypothesized that secure as well as dismissing attachment styles are not significantly associated with psychological distress, whereas anxious attachment styles (fearful-avoidant and preoccupied) are significantly associated with higher levels of depression and death anxiety (Hamama-Raz & Solomon, 2006; Hunter et al., 2006; Rodin et al., 2007).

METHODS

The results of our study derive from a randomized controlled trial (RCT) that evaluated a meaning-based psychotherapeutic intervention for advanced cancer patients—Managing Cancer and Living Meaningfully (CALM) (Lo et al., 2015; 2016)—in German cancer care settings (Scheffold et al., 2015). The study protocol was approved by the local ethics committees at both study centers (Hamburg reference no. PV4435, Leipzig reference no. 143-14-14042014). For the present analyses, we obtained data from the baseline questionnaire of this trial.

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Participants and Procedure

We recruited patients at two university medical study centers in Hamburg and Leipzig, Germany. A trained study research assistant contacted patients with advanced cancer and assessed them for eligibility. The inclusion criteria were as follows: a malignant solid tumor of stage III or IV, at least 18 years of age, fluency in German, and a score $\geq$9 on the Patient Health Questionnaire (PHQ–9) and/or $\geq$5 on the Distress Thermometer (DT). We invited patients who fulfilled these criteria to a face-to-face interview with the research assistant to receive comprehensive information about the RCT. During this interview, we evaluated for the following exclusion criteria: deficits in communication, unwillingness to attend therapy sessions, acute suicidality, a score $<$20 on the Short Orientation–Memory–Concentration (SOMC) Test, or a level $<$70 on the Karnofsky Index. We also excluded patients if they received parallel psychotherapy. At the end of the interview, we handed over the baseline questionnaire with a prepaid return envelope.

All patients provided written informed consent prior to participation and could withdraw their consent at any time without accruing any disadvantage to their medical or psychological treatment. When patients decided not to participate, the reasons as well as the basic demographic and medical characteristics were documented on a voluntary basis.

Measurement

Demographic information was collected through a standardized questionnaire. Medical and treatment-related variables were obtained from patients' medical charts.

The "depression" module of the PHQ–9 (Spitzer et al., 1999; Löwe et al., 2002) is a valid self-report screening instrument for depression. It includes 9 items that reflect the DSM–IV criteria for major depression. Items are scored on a 4-point Likert-type scale from 0 (not at all) to 3 (nearly every day), with a total score ranging from 0 to 27. The German version of the instrument has demonstrated high internal consistency, with a Cronbach's alpha (α) of 0.89 (Löwe et al., 2004).

The German version of the Distress Thermometer (Mehnert et al., 2006) is a valid and reliable self-report instrument for screening psychological distress in cancer patients. Scores on this single-item visual analogue scale range from 0 (no distress) to 10 (extreme distress). It quantifies global level of distress, and it is accompanied by a standardized symptom checklist. Scores $\geq$5 indicate significant psychological distress.

The SOMC Test (Katzman et al., 1983; Wade & Vergis, 1999) is a six-item validated culture-fair instrument that assesses orientation, memory, and concentration. SOMC scores range from 0 to 28. Scores $<$20 indicate cognitive impairment.

The Experiences in Close Relationships Scale (ECR–M16) (Brennan et al., 1998; Lo et al., 2009) is a self-report instrument that assesses patients' experiences in close romantic as well as nonromantic relationships in two domains (anxiety and avoidance). It is a shorter version of the ECR–36 (Brennan et al., 1998) and includes 16 items for use in groups of highly distressed patients. Items are scored on a 7-point Likert-type scale, with scores ranging from 1 (disagree) to 7 (agree) and a total score ranging from 8 to 56 on each subscale.

High scores on one or both subscales indicate high attachment insecurity. Both subscales show high internal consistency, with $\alpha = 0.84$ (anxiety) and 0.83 (avoidance) (Lo et al., 2009). The four attachment styles were derived from patients' scores on the anxiety and avoidance subscales. Based on another disease-specific questionnaire that is used in samples with advanced cancer patients (Kissane et al., 2004), we used the study population's mean score on each subscale as a cutoff (anxiety $M = 25.16$, avoidance $M = 24.3$). Scores below both cutoffs indicated secure attachment, scores above both cutoffs indicated fearful-avoidant attachment, scores below the anxiety cutoff and above the avoidance cutoff indicated dismissing attachment, and scores above the avoidance cutoff and below the avoidance cutoff indicated preoccupied attachment.

The Memorial Symptom Assessment Scale (MSAS) (Portenoy et al., 1994; Chang et al., 2000) is a validated self-report instrument that assesses the number of physical symptoms that may occur as a result of cancer or its treatment. For our study, we employed the list of 28 symptoms suggested by Chang et al. (2000) in their adapted version, the MSAS–Short Form, of this instrument. The MSAS–SF assesses only symptom frequency and resulting distress. Items are scored on a 5-point Likert-type scale ranging from 0 (not at all) to 4 (very much). The average symptom score is calculated. The scale demonstrates high internal consistency ($\alpha = 0.87$). We did not include the four psychological items of the MSAS–SF in our study because we assessed psychological symptoms using other validated instruments.

The German version of the Death and Dying Distress Scale (DADDS–G) (Lo et al., 2011; Krause et al., 2015; Engelmann et al., 2016) is a self-report instrument that assesses the specific concerns of advanced cancer patients with regard to insecurity about the end of one's life, being a burden to others, and lost time and opportunities. It includes 9 instead of 15 items (Engelmann et al., 2016). Additionally,

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the Likert-type scale is changed from a 6- to a 5-point Likert-type scale with a little and some distress placed together under one category (moderate distress). Its internal consistency is excellent ($\alpha =$ 0.91) (Engelmann et al., 2016). Items can be scored from 0 (no distress) to 4 (very much distress), resulting in a summed score that ranges from 0 to 36, with a higher score indicating greater distress.

Statistical Analysis

Statistical analyses were carried out using the Statistical Package for the Social Sciences (v. 24, IBM, Armonk, New York)

Research aim 1 was examined by standard descriptive analyses (frequencies, means, standard deviations, range). In order to answer research aim 2, a multinomial logistic regression was carried out to evaluate the influence on attachment style of sociodemographic factors (age, education, gender) and number of physical symptoms. Three models were thus conducted in which each of the three insecure attachment styles were compared to secure attachment. This led to a dependent nominal variable with more than two levels. Research aim 3 was examined using multiple hierarchical stepwise regression analyses to evaluate the influence of attachment on depression and death anxiety after controlling for demographic and medical variables in the first two blocks. To control for possible multicollinearity, intercorrelations between predictors and tolerance values were determined for research question 3. The intercorrelations ranged between $r = 0.01$ and 0.4. The tolerance values ranged between 0.9 and 1.0. Analyses of skewness, kurtosis, and P–P plots indicated normality of distributions for metric variables. Two-tailed tests of significance were performed using a significance level of $p < 0.05$.

RESULTS

Sample

A total of 286 patients were eligible, of which 177 (62%) agreed to participate by way of informed written consent. Reasons for nonparticipation were provided by 105 (96%) out of 109 nonparticipants and included a high level of physical and psychological distress (27%) and a lack of interest (67%), as well as organizational and other reasons (6%). Of the 177 participants enrolled in the study, 15 (9%) were excluded from our analyses due to missing data for the main outcome variables of attachment, depression, and anxiety. Participating patients were mostly married, had children, and were well-educated (see Table 1). Participants did not differ significantly from nonparticipants with regard to age ($p = 0.82$), sex ($p = 0.77$), and months since first diagnosis ($p = 0.07$).

Table 1. *Demographic and medical characteristics (N = 162)*

Mean age in years (*SD*, range)	58.51 (11.34, 29–81)	
	n	%
Women	99	61.1
Married	103	66.5
Children	104	68.4
Educational level		
Elementary school	32	21.1
Junior high school	43	28.3
High school/university degree	77	50.6
Employment status		
Retired	71	47
Employed	57	37.7
Unemployed/other	23	15.1
Medical characteristics		
Tumor entity		
Gastrointestinal	48	29.6
Lung	22	13.6
Gynecological	21	13.0
Breast	20	12.3
Urogenital	15	9.3
Endocrinological	10	6.2
Other	21	13
Tumor stage (UICC)		
III	21	13
IV	141	87
Illness duration, mean months since first diagnosis (*SD*, range)	42.92 (67.6, 0–361)	

Attachment in Advanced Cancer Patients

While 36% of patients were securely attached, 32% had a fearful-avoidant attachment style, 17% a dismissing attachment style, and 16% a preoccupied attachment style (Table 2).

Table 2. *Attachment orientation and attachment styles* (N = 162)*

Attachment orientation	*M* (*SD*)	
Attachment anxiety	25.16 (10.25)	
Attachment avoidance	24.30 (9.79)	
Attachment styles	*n*	%
Secure attached	58	35.8%
Insecure attached	104	64.2%
Fearful-avoidant	51	31.5%
Dismissing	27	16.7%
Preoccupied	26	16.0%

* Measured with the Experiences in Close Relationships Scale (ECR–M16).

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Table 3. *Multinomial logistic regression analysis for sociodemographic and medical factors predicting attachment style (*N = *150)*

		$CI_{95\%}$ odds ratio		
	B (*SE*)	Lower	Odds ratio	Upper
Dismissing vs. secure				
Intercept	−3.73* (1.81)			
Age	0.02 (0.02)	0.973	1.020	1.068
Education	0.217 (0.51)	0.458	1.243	3.371
Physical symptoms	0.092* (0.04)	1.004	1.096	1.196
Gender	0.597 (0.24)	0.667	1.817	4.950

$R^2 = 0.07$ (Cox–Snell); 0.08 (Nagelkerke); model: $\chi^2(12) = 11{,}22$; * $p < 0.05$.

Attachment Style as a Function of Sociodemographic and Medical Factors

A multinomial logistic regression model was calculated in order to predict the attachment style, comparing patients with preoccupied, dismissing, and fearful-avoidant attachment styles to securely attached patients (Table 3 reports the resulting coefficients). A significant association can be observed between the number of physical symptoms and a dismissing attachment style ($\beta = 0.092$, $p \leq 0.05$). The results indicate that the appearance of more physical symptoms is significantly associated with a dismissing attachment style in comparison to a secure attachment style. No associations were found between sociodemographic factors and number of symptoms when comparing a preoccupied or fearful-avoidant attachment style to a secure attachment style.

Associations Between Attachment Style and Psychological Distress

Two separate linear regression models were calculated in order to identify the associations of attachment style with depression and death anxiety, where predictor variables were entered into the respective equation in three steps. First, demographic variables (age, gender, and level of education) were entered as a block. Second, the number of physical symptoms was included. In a third step, attachment style was entered as three primarily defined dummy variables coded with secure attachment style as the reference category. This procedure was undertaken in order to ascertain the unique predictive value of these variables over and above demographic factors as well as physical symptom impairment.

For depression, the model without attachment accounted for 4% of the variance. Whereas the demographic variables did not have any predictive value, the number of physical symptoms was a positive significant predictor ($\beta = 0.208$, $p \leq 0.01$). When attachment was entered into the model, the explained variance in depression increased by 10% ($\Delta R^2 = 0.10$; see Table 4), accounting for 14% of the variance. For death anxiety, the model without attachment accounted for 17% of the variance. Again, the demographic variables did not have any predictive value,

Table 4. *Hierarchical, stepwise regression analysis for attachment predicting depression (*N = *148) and death anxiety (*N = *147)*

Predictors	*b*	*SEb*	ß	$p \leq$	ΔR^2	R^2
Depression						
Final model					0.10	0.14
No. of physical symptoms	0.20	0.01	0.20	0.013		
Secure vs. preoccupied	1.87	1.23	0.13	0.131		
Secure vs. dismissing	−0.20	1.23	−0.02	0.869		
Secure vs. fearful-avoidant	3.57	1.02	0.32	0.001		
Death anxiety					0.14	0.31
Education	−1.92	1.00	−0.14	0.055		
No. physical symptoms	0.42	0.09	0.32	0.000		
Secure vs. preoccupied	3.54	1.52	0.18	0.021		
Secure vs. dismissing	2.89	1.49	0.16	0.055		
Secure vs. fearful-avoidant	6.57	1.23	0.44	0.000		

b = unstandardized regression coefficient; *SEb* = standard error of *b*; β = standardized regression coefficient; ΔR^2 = change in R^2 compared with previous model due to attachment.

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but the number of physical symptoms was a positive significant predictor ($\beta = 0.099, p \leq 0.001$). When attachment was entered into the model, the explained variance in death anxiety increased by 14% ($\Delta R^2 = 0.14$; see Table 4), accounting for 31% of the variance. Table 4 reports the coefficients for the final models.

DISCUSSION

We examined attachment insecurity and its association with psychological distress in advanced cancer patients. Corresponding to attachment theory, our results support the assumption that patients' attachment orientations are activated when they are suffering from a terminal disease (Mikulincer et al., 2003). Two-thirds of our participants were insecurely attached (64 %). In samples of other cancer patients, the percentage of insecurely attached individuals was similar (60%) (Nicholls et al., 2014). In contrast, Meng et al. (2015) reported that 37% were insecurely attached in a nationally representative U.S. sample of 5,645 healthy individuals.

We found no association between sociodemographic variables and attachment insecurity. In contrast, a metaanalysis of gender differences in romantic attachment found that women were more likely to have an anxious attachment orientation and men an avoidant attachment, especially in Western European samples (Del Giudice, 2011). The diagnosis of an advanced disease may cause an overall shift toward insecure attachment in both genders.

The amount of physical symptoms is associated with dismissing attachment. The current literature on specific associations of insecure attachment styles and physical symptoms offers conflicting results. Liu et al. (2011) tested attachment insecurity as a potential source of somatization. In contrast to our results, they found no associations between dismissing attachment and somatic complaints, but fearfully attached patients reported more somatic complaints. The authors used different instruments to assess attachment and somatic complaints. There might be an answering bias due to the wording of the instrument and the inherent amount of dependency that patients feel in response to those measures.

Our results concerning association of attachment insecurity and psychological distress demonstrate an association of fearful-avoidant and preoccupied attachment to death anxiety. Fearful-avoidant (as well as preoccupied attachment) is defined by high anxiety scores, which explains the association with death anxiety in both groups. Being anxious about the availability of others when in need might directly influence anxiety about death, especially because assessment of death anxiety with the DADDS–G includes items concerning the "impact of my death on my loved ones" and "not having said all that I wanted to say to the people I care about." These results are consistent with the theoretical assumption that anxiously attached individuals emphasize their difficulties and highlight their distress (Hunter et al., 2006).

Only fearful-avoidant patients experienced more depression compared to all other attachment styles. They experienced high anxiety and high avoidance. This condition might be even more distressing due to difficulties in deciding whether patients want to receive help from others or remain independent. These difficulties potentially result in feelings of helplessness, thus further promoting loss of control.

As to our hypothesis, we did not find a significant association between dismissing attachment and psychological distress. Dismissing individuals might either not experience distress or not express negative feelings due to a fear of loss of control.

Another possible explanation could be related to the fact that, at baseline, patients in our study had a relatively high performance level (as per the Karnofsky Performance Scale) and were presumably not so dependent on others as of yet. It can be assumed that psychological distress will increase with increasing dependency over the course of their disease. Further studies describe a tendency toward suppression of negative emotions in dismissing patients (Meng et al., 2015; Mikulincer, 1998; Hunter et al., 2006). On the other hand, these patients more often request for physician-assisted death when terminally ill (Oldham et al., 2011). This question draws attention to attachment-related cognitive and emotional processes. On the dimensional level of anxiety and avoidance, Mikulincer et al. (2003) theorized that attachment styles are underlain via secondary attachment strategies: hyperactivating strategies in anxiously attached individuals and deactivating strategies in avoidantly attached individuals. Deactivating strategies distance people from their own emotions and weaken the links between negative affect and cognition. Those strategies seem to exclude aversive emotional states from awareness and thus contribute to deactivation of the attachment system. Further investigation of the specific processes in fearful-avoidant patients is needed. Being both highly anxious and highly avoidant, they have questions about which strategies to employ in the context of negative emotions. Our results indicate even stronger processes of hyperactivation strategies in these patients, being not only more death anxious but also more depressive than patients with other attachment styles.

The value of using categories versus continuous dimensions of attachment is discussed in the current literature. The four attachment categories in our study were obtained by clustering the two

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dimensions of anxiety and avoidance. This procedure was conducted in accordance with Meuti et al. (2015). Due to methodological reasons, the dimensional measurement of attachment is functional for use in research (Fraley & Shaver, 2000). This contrasts with the clinical use of a categorical approach. For physicians and psychologists, it may be easier to handle the categorical approach by finding similarities to prototypes of different attachment styles (Maunder & Hunter, 2009). Ravitz et al. (2010) suggested that there is no final consensus about whether attachment is inherently categorical or dimensional, but they made it clear that categories can be affiliated with dimensional scales, as was the case in our analysis. Our present results support the categorical approach, as the observed differences between fearful-avoidant and dismissing attachment and their association with psychological distress are thus easier to translate into clinical practice. Nevertheless, due to the frequent use of the dimensional approach, our results are more difficult to discuss.

Longitudinal studies are needed to confirm the findings gathered by using our cross-sectional design. Longitudinal data are generated by the ongoing CALM project and are to be analyzed upon completion of the RCT (Scheffold et al., 2015).

Our results illustrate the importance of the attachment system for advanced cancer patients' mental health and highlight the challenge of caring for dismissingly attached patients. Several studies in mental health settings have shown that patients with a dismissing attachment style have more difficulties about seeking help (Kealy et al., 2016). Furthermore, psychotherapy is less effective in these patients (Wiseman & Tishby, 2014). Advanced cancer patients struggle with a variety of distressing emotions, making it urgent for them to find a way to deal with emotions. Since dismissing patients are likely to be detached from their emotions, the therapists working with them should be even more cautious when exploring their emotional state and should endeavor to maintain patients' independence and individuality. On the other hand, anxiously attached patients can be supported by a transparent and clear framework of help—for example, starting with more frequent sessions and delivery of predictable and reliable support. They can thus be afforded the opportunity to notice support and reactions to their needs, and thereby build a stronger relationship.

The available literature indicates the possibilities of establishing a secure attachment style by way of the therapeutic relationship. Mikulincer and Shaver (2007*b*) argued for processes of "security priming" in therapy and emphasized that the perception of attachment security can be changed by therapy, even if long-term mechanisms are to be explored. A secure and trustworthy therapeutic relationship can thus trigger change in expectations about the availability and reliability of others. Maunder and Hunter (2016) indicated that patients attribute specific attachment functions such as "safe haven" and "secure base" to healthcare providers. CALM therapy focuses on attachment as one important variable in psychotherapy for advanced cancer patients, emphasizing communication with the healthcare team and changes in personal relationships (Hales et al., 2010). Therapists try to react to the specific attachment styles of their patients. The results of the CALM study will supply further answers about the specific processes of attachment in psychotherapeutic settings (Scheffold et al., 2015).

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